THE DEVELOPMENT AND EVALUATION OF A NATURE JOURNALING GUIDE

by

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ABSTRACT

Environmental education seeks to develop citizens' skills and motivation to take action for a quality environment. Research suggests that an important stepping stone on this path is environmental sensitivity, an empathetic perspective toward the environment which is correlated with frequent, direct contact with the outdoors in childhood. Despite its importance, environmental sensitivity can be difficult to address in formal education.

Nature journaling is a promising technique for bridging this gap. Students keep a place-based, personal record of events, observations, and experiences in the outdoors, a process which meets the criteria for fostering environmental sensitivity. At the same time, journaling has a long history in formal education, where it is employed to achieve an array of educational goals. At present, nature journaling resources designed for educators are lacking. The goal of this project was to develop and evaluate a nature journaling guide for educators of upper elementary and middle school students (grades 4-8).

A framework was developed to clarify the role of nature journaling in education and to establish aims and goals for the guide. A vision for the structure and content of the guide emerged from a review of existing resources and a focus group meeting with formal and nonformal educators. The framework and vision were employed to develop a first draft of the guide, and then the guide was evaluated by means of pilot tests in formal and nonformal settings. Teacher questionnaires measured how well educators felt the guide met their needs, and student assessments gathered preliminary information about the effectiveness of the activities in accomplishing the aims and goals of the guide. The pilot test participants and a panel of reviewers found the guide to be a complete, user-friendly, and valuable resource, and confirmed its appropriateness in both formal and nonformal settings. Their feedback was used to develop recommendations for revisions to the guide, which were incorporated into a final draft.

The guide and its activities seek to 1) foster environmental sensitivity, 2) develop a sense of place and help students view the world as naturalists with both an intellectual understanding of the environment and an emotional connection to it, and 3) enhance self-identity and personal voice. The results suggest that the activities do promote these outcomes, and recommendations are provided for future use of the guide and further research on the effectiveness of nature journaling in educational settings.
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“Be still, and the world is bound to turn herself inside out to entertain you. Everywhere you look, joyful noise is clanging to drown out quiet desperation. The choice is draw the blinds and shut it all out, or believe. What to believe in, exactly, may never turn out to be half as important as the daring act of belief. A willingness to participate in sunlight, and the color red. An agreement to enter into a conspiracy with life...in order to come away changed.”

– Barbara Kingsolver, High Tide in Tucson
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CHAPTER ONE
INTRODUCTION

Introduction to the Study

The state of our global environment reflects an urgent need for environmentally literate citizens who are able and willing to take action on individual, community, and global scales. Environmental education is charged with the task of fostering the knowledge, ability, and motivation to work toward a quality environment. It is therefore essential for environmental educators to provide the experiences that are stepping stones to this outcome. The first key step on this path is environmental sensitivity, an empathetic perspective toward the environment linked with positive experiences in the outdoors in childhood. Research indicates that it is an important precursor to environmentally responsible activities and attitudes later in life.

Because environmental sensitivity depends on unstructured outdoor experiences and solitude in nature, it can be difficult to address in formal educational settings. Yet many children today lack regular contact with the outdoors outside of school. Without this foundation, learning about the immensity of global environmental concerns is more likely to produce fear and detachment than a commitment to action. It is therefore essential to foster environmental sensitivity in school as well as outside of it. However, classroom teachers face a wide array of demands on their time, and they must be able to justify activities in terms of district curriculum goals and state academic standards. Nonformal educators must also address these outcomes or risk losing their school audiences. The ideal solution is to incorporate activities into both formal and nonformal settings that address environmental sensitivity while simultaneously advancing other educational goals. Nature journaling holds great promise, as it achieves both outcomes.

Why nature journaling?

A nature journal is a sequential record of events, observations and experiences in the natural world. In a nature journal, students use writing, drawing, and other techniques to develop observation skills, organize new knowledge, draw connections, and find personal
meaning in experiences. Nature journaling meets the criteria for fostering environmental sensitivity by providing regular contact with the outdoors in a setting of solitude. At the same time, it is appropriate for a variety of educational settings. It does not require a field trip to a distant place; it can be done right in the schoolyard or neighborhood, or on the trails of a nature center or park. It can be integrated into the existing curriculum and can help teachers meet a variety of goals such as basic literacy, thinking and communication skills, and reflection on the learning process. Many of the world’s renowned scientists, artists, writers, and explorers kept journals to help them organize and communicate their understanding of the world around them. At present, interest in nature journaling is again on the rise. It promotes a number of outcomes that have important implications for education. The place-based, outdoor focus of nature journaling fosters environmental sensitivity, a naturalist’s outlook on the world, and a sense of place. Meanwhile the opportunities for personal reflection and creative self-expression help students develop a stronger sense of self-identity and a personal voice.

*The Naturalist Outlook.* Being a naturalist is not a profession so much as a perspective on the world. Howard Gardner recognizes the value of the naturalist’s contribution to society in his revolutionary approach to human intelligence known as Multiple Intelligence Theory. This theory originally proposed seven different ways of being intelligent: linguistically, mathematically, spatially, kinesthetically, musically, interpersonally, and intrapersonally. A recent addition to the framework is *naturalist intelligence,* which Gardner (1999) defines as expertise in recognizing and classifying elements of the natural world, and a feeling of empathy for other living things. Gardner suggests that there is a window of opportunity in childhood to develop the naturalist intelligence, underscoring the importance of outdoor experiences in school.

The concept of naturalist intelligence is valuable, but Gardner’s definition is somewhat narrow and therefore this study proposes *naturalist outlook* as an alternative term to encompass the array of skills and attitudes that characterize naturalists. Naturalists exhibit both an intellectual understanding of the environment and an emotional attachment to places and other species. Nature journaling is an excellent tool to promote both outcomes. It inherently offers opportunities for close observation, exploration, and investigation,
leading to enhanced familiarity with other species and ecological concepts. These skills are essential to our ability as a species to recognize changes and problems in our environment. At the same time, nature journaling encourages a personal, emotional relationship with the environment, thus motivating us to care about it and take action based on our intellectual understanding.

**Sense of Place.** A movement known as place-based education is attracting growing attention as a strategy to counteract the disconnect between children and their environment. Place-based education ties the curriculum to the local community and promotes a personal connection with the local environment known as a *sense of place.* Awareness of and connection to one’s immediate natural surroundings are the soil in which deeper knowledge and a commitment to action can grow; they are also an essential foundation for broader perspectives on the regional and global environment. Cultivating a sense of place is a deliberate process of discovering and inhabiting your home ground. Nature journaling fosters just this sort of local, personal connection.

**Self-Identity.** Nature journaling affirms a personal relationship with a place and its inhabitants precisely because it is based on an individual’s unique perceptions. It thus offers a further benefit as a tool for deepening self-identity. The processes inherent in journaling help students come to a deeper understanding of who they are and what is important to them. Journal-keepers refine their ability to think critically and creatively, and they experiment with the most effective ways to express their thoughts, values, and feelings to others. A strong set of personal values and the skills and self-confidence to communicate and act on those values are essential characteristics of environmentally literate citizens.

**Why a Nature Journaling Guide?**

Nature journaling clearly holds great potential for advancing environmental literacy in formal and nonformal education. Nature journaling promotes environmental sensitivity, a naturalist outlook, sense of place, and self-identity, all of which enhance students’ ability or motivation to take action on behalf of a quality environment. Despite growing interest in nature journaling and a number of recent publications for individuals who wish to begin or refine a personal journal, nature journaling as an educational technique has thus
far received only brief treatment in the literature. At present, no resources comprehensively address the subject for educators at the upper elementary and middle school level, a prime age for developing environmental awareness and clarifying personal values. Educators have many demands on their limited time; it is unlikely that a significant number would seek out the existing information, apply it to their own situations, and design activities to use with their students. For environmental education to reap the many benefits offered by nature journaling, a need clearly exists for a resource designed specifically to appeal to the majority of formal and nonformal educators.

Goal of the Study

The goal of this study was to develop and evaluate a nature journaling guide for formal and nonformal educators of upper elementary and middle school students.

Objectives of the Study

1. To develop a framework that establishes aims and goals for the nature journaling guide.
2. To formulate a vision for the structure and content of the guide using published literature and suggestions from formal and nonformal educators.
3. To use the framework and vision to create a first draft of the nature journaling guide.
4. To evaluate the usability and effectiveness of the guide through pilot tests with formal and nonformal audiences.
5. To develop a final draft of the guide using conclusions drawn from the pilot tests and reviewer comments.

Key Questions

- What links exist between nature journaling and the goals of environmental education?
- Is there a strong justification for using nature journaling in both formal and nonformal educational settings?
- Is nature journaling an effective technique to foster students' environmental awareness and sense of place?
The Importance of the Study
Nature journaling is clearly a valuable tool for enhancing environmental literacy. The nature journaling guide produced in this study fills a gap in nature journaling resources for educators. It offers background information on the definitions, history, and benefits of nature journaling, addresses how to facilitate it effectively, and also provides step-by-step procedures for a variety of field-tested nature journaling activities. The study also answers three key questions regarding the role of nature journaling in environmental education, an area that is receiving growing attention but has not yet been fully explored. It investigates the links between nature journaling and the goals of environmental education, and creates a framework to illustrate and clarify these relationships. It examines the justification for using nature journaling in formal and nonformal education settings, through pilot testing of the guide and its activities in both settings. Finally, it provides a preliminary assessment of the effectiveness of nature journaling in promoting environmental sensitivity, naturalist outlook, sense of place, and self-identity based on the conclusions of the pilot testing.

Limitations
1. The pilot group involved only a small number of teachers and their students, and thus cannot be considered a representative sample of all potential audiences.
2. Educators who participated in the study were not selected randomly. They chose to participate and therefore may have greater interest and/or experience in the subject than the average educator.
3. Evaluation of the activities and materials was restricted to those that educators chose to use and for which they provided comments.

Definition of Terms
Central Wisconsin Environmental Station (CWES) A field station of the University of Wisconsin – Stevens Point that conducts environmental education programming for school groups and runs a teaching practicum for university students.
Environmental Education (EE) A lifelong educational process focused on the interactions between humans and our environment. EE seeks to foster awareness and knowledge of the environment, an environmental ethic, action skills, and action experience, with the ultimate goal of producing citizens who are committed to improve and sustain the quality of the environment for present and future generations of all living things.

Environmental Sensitivity is an empathetic perspective toward the environment identified by Hungerford & Volk (1990) as a key variable in the development of a commitment to environmental action.

Formal Educator A classroom teacher or any other educator who works in a school.

Nonformal Educator An educator who works with students (including school groups) in settings other than a school, such as a nature center or environmental education facility.

Naturalist Intelligence is expertise in recognizing and classifying elements of the natural world, and a feeling empathy with other living organisms (from Gardner, 1999).

Naturalist Outlook The set of skills and attitudes that constitute both an intellectual understanding of the environment and an emotional connection with it.

Nature Journaling is the process of keeping a sequential record of natural events, observations, and experiences. A journal-keeper uses writing, drawing, and other techniques to develop observation skills, organize new knowledge, draw connections, and find personal meaning in experiences with the natural world (modified from Leslie & Roth, 1998).

Sense of Place refers to individuals' familiarity with the natural processes, community, and history of their surroundings; understanding of the connections between themselves and their place; and ethic of caring for the place (modified from Sanger, 1997).

Assumptions

1. Developing environmental sensitivity, sense of place, naturalist intelligence, and a stronger self-identity are valuable steps toward environmental literacy.
2. Formal and nonformal educators will have the time and motivation to use a guide of nature journaling activities.
3. Students and teachers have provided honest responses to evaluation questions.
4. Although the pilot test audience was small and nonrandom, their responses serve as a legitimate tool to evaluate the guide.
CHAPTER TWO

REVIEW OF THE RELATED LITERATURE

Overview

This chapter reviews the published literature that relates to nature journaling and the key questions of the study. The literature review covers the following topics:

I. Introduction
II. Objectives of Environmental Education
II. From Awareness to Action
III. The Importance of Environmental Sensitivity
IV. The Role of Nature Journaling
V. The Processes of Nature Journaling
   a. Writing to Learn
   b. Drawing to See
   c. Integration of Disciplines
VI. The Outcomes of Nature Journaling
   a. Developing a Naturalist Outlook
   b. Finding a Sense of Place
   c. Strengthening Self-Identity
VIII. The Ultimate Outcome: Environmental Literacy
IX. Existing Resources for Nature Journaling
X. The Need for a Nature Journaling Guide
XI. Summary

I. Introduction

The goal of this study was to develop a nature journaling guide for formal and nonformal educators of upper elementary and middle school students, and to evaluate its usefulness and effectiveness for both teachers and students. Three key questions accompany the development and evaluation of the guide. First, what are the links between nature journaling and the goals of environmental education? A thorough investigation and discussion of these links is provided in the literature review that follows. Second, is there a strong justification for using nature journaling in both formal and nonformal education settings? The literature review begins to approach that question, but pilot-testing the guide in both settings provides a more definite answer. Finally, is nature journaling an
effective technique to foster students’ environmental awareness and sense of place? The results of the pilot test provide a preliminary assessment of nature journaling’s effectiveness, and lay the groundwork for further investigation of this subject.

II. Objectives of Environmental Education

As the 21st century unfolds, the community of life on Earth faces an alarming array of environmental problems. It is becoming ever more apparent that great changes in the way we live on this planet are imperative to ensure the survival of many species, including our own. In 1992, the Union of Concerned Scientists published a statement titled “World Scientists’ Warning to Humanity.” It begins, “Human beings and the natural world are on a collision course. Human activities inflict harsh and often irreversible damage on the environment and on critical resources. If not checked, many of our current practices put at serious risk the future that we wish for human society and the plant and animal kingdoms, and may so alter the living world that it will be unable to sustain life in the manner that we know. Fundamental changes are urgent if we are to avoid the collision our present course will bring about” (Kendall, 1992). Despite its vital message, and despite the fact that it was signed by 1,600 senior scientists from seventy-one countries, including over half the Nobel Prize winners, the report received little or no attention from the media. Environmental education is thus charged with the crucial task of opening humanity’s eyes to the state of the environment and motivating people to join together and work toward solutions.

The United Nations Educational, Scientific, and Cultural Organization (UNESCO) held an intergovernmental conference on environmental education in Tbilisi, Georgia (in the former Soviet Union) in 1977. Attended by representatives of 66 member states from around the world, the conference produced a framework for environmental education (EE) known as the Tbilisi Declaration. This framework identified five major goals that EE should help individuals and groups acquire: 1) awareness and sensitivity to the environment and environmental problems, 2) knowledge and understanding of the environment and associated problems, 3) attitudes of concern for the environment, or an environmental ethic, 4) skills to identify and solve environmental problems, and 5) experience in environmental problem-solving. The goals exist along a continuum. At the
beginning is awareness, and at the opposite end is the ultimate goal of environmental education: to foster in citizens the skills and experience to take action on behalf of a quality environment. Now more than 25 years old, this framework continues to guide the field of environmental education today. Educators seek to develop students’ awareness of and knowledge about the natural world and their place in it, in order to help them acquire the attitudes, skills, and motivation to actively participate in resolving environmental problems (Engleson and Yockers, 1994).

The ultimate outcome of environmental education is also known as environmental literacy, defined by David Orr (1992, p.92) as “the knowledge necessary to comprehend interrelatedness, an attitude of care or stewardship...[and] the practical competence required to act on the basis of knowledge and feeling.” Environmental literacy encompasses all five of the goals on the continuum. Environmental education must strive to foster not only knowledge about the environment and its associated problems, but also the ability and desire to actively participate in working toward solutions.

III. From Awareness to Action

Because awareness and sensitivity to the environment lie at the near end of the continuum, this is where EE must start. How do environmental educators foster these characteristics in students? According to the Wisconsin Department of Public Instruction’s A Guide to Curriculum Planning in Environmental Education, awareness is the ability to perceive and discriminate among the elements of one’s environment, and also refers to sensitivity to the aesthetic dimensions of these elements (Engleson and Yockers, 1994). The authors state that these characteristics emerge from concrete, sensory experiences in the outdoors.

Even before the formal beginnings of environmental education, Rachel Carson conveyed the importance of connecting with the natural world on an emotional level. As a biologist, facts were the foundation of her field; she published Silent Spring in 1962 and awakened the nation to the realities of environmental devastation. But Carson was an eloquent writer as well as an excellent scientist, and she was a strong advocate for simply celebrating the beauty and wonder of the natural world. In The Sense of Wonder, she
proposes that encouraging a child’s innate sense of wonder is more important than imparting facts and knowledge.

I sincerely believe that for the child... it is not half so important to know as to feel. If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow. The years of early childhood are the time to prepare the soil. Once the emotions have been aroused—a sense of the beautiful, the excitement of the new and the unknown, a feeling of sympathy, pity, admiration or love—then we wish for knowledge about the object of our emotional response. Once found, it has lasting meaning. (Carson, 1956, p.45)

Contemporary environmental educators agree with this view. In *Beyond Ecophobia*, David Sobel urges environmental educators to concentrate on immersing young children in their immediate surroundings and encouraging their natural tendency to bond with the outdoors. He cautions that education focused on distant places and vast problems can backfire if introduced too early. “If we fill our classrooms with examples of environmental abuse, we may be engendering a subtle form of dissociation. My fear is that our environmentally correct curriculum will end up distancing children from, rather than connecting them with, the natural world” (Sobel, 1996, p.2). He terms this distancing *ecophobia*, a fear of ecological problems and the natural world. He proposes instead that educators focus on fostering the opposite: ecological awareness and empowerment. Rather than burdening young children with the heavy weight of environmental catastrophes (deforestation, the ozone hole, global warming, and worldwide species extinction), we should first give them a chance to deeply connect with the plants, animals, and unique features of their own schoolyards and neighborhoods. On this foundation of connection and caring, we can build opportunities to improve their local environment. The result will be the confidence and skills necessary for a lifetime of environmental commitment and action. Sobel (1996, p.39) explains, “If we want children to flourish, to become truly empowered, then let us allow them to love the earth before we ask them to save it.”

**IV. The Importance of Environmental Sensitivity**

The importance of positive, direct contact with the natural world in childhood has been confirmed by environmental education research. What Rachel Carson called the “fertile soil” of the emotions and sensory impressions, researchers call *environmental sensitivity*. 
Environmental sensitivity is a key variable – in fact, the first stepping stone – on the path toward a lifelong commitment to environmental values and behavior. Hungerford and Volk (1990, p.11) define environmental sensitivity as “an empathetic perspective toward the environment.” Environmental sensitivity is most strongly correlated with childhood experiences in the outdoors, experiences of solitude in the natural world, and positive role models such as parents or teachers (Chawla, 1998; Tanner, 1980). Tanner concludes, “Indeed, all of the data in this study seem to support our long-standing hypothesis that children must first learn to love the natural world before they can become profoundly concerned with maintaining its integrity” (1980, p.23).

Because it depends on unstructured outdoor experiences and solitude, environmental sensitivity can be difficult to address in formal educational settings. However, it is a crucial component of environmental literacy, and many children today lack opportunities for regular contact with the outdoors outside of the school setting. Therefore, fostering environmental sensitivity in school is essential. According to Sivek and Hungerford (1989, p.38), “Although the formal classroom may not prove to be the best vehicle for promoting sensitivity, efforts should be made to make it as effective as possible.”

V. The Role of Nature Journaling

Nature journaling is a technique that can help to address this need. Leslie and Roth define nature journaling broadly as “the regular recording of observations, perceptions, and feelings about the natural world around you” (2000, p.5). Keeping a nature journal meets the criteria for fostering environmental sensitivity: it provides regular contact with the outdoors, in a setting of solitude, with a teacher or other role model facilitating the process. At the same time, nature journaling is appropriate for formal educational settings. It doesn’t require a field trip to a distant setting; it can be done right in the schoolyard or neighborhood. It can be integrated into the existing curriculum and can help teachers meet mandated standards and educational goals such as basic literacy, thinking and communication skills, and reflection on the learning process.

By no means a new invention, nature journals have been used for centuries. Journal-keepers of the past included such renowned naturalists, writers, artists, explorers, and
scientists as Gilbert White, Meriwether Lewis and William Clark, Charles Darwin, Susan Fenimore Cooper, Henry David Thoreau, John Burroughs, John Muir, Aldo Leopold, and Rachel Carson. Many contemporary naturalists and writers are also avid journal-keepers, including Edward Abbey, Barry Lopez, Gretel Ehrlich, and Annie Dillard. A nature journal can take many forms, from written prose or poetry, drawing, and painting, to audio or video recordings, a photo gallery, sculpture or collage. No matter what the technique, the process of recording outdoor experiences draws on sensory awareness and observation skills, and provides a framework in which to organize and remember events and information. It encourages journal-keepers to find personal meaning and draw connections between observations and experiences, enhancing their knowledge of the natural world at the same time that they are shaping a personal identity in relation to their surroundings. Hammond explains, “Environmental educators...recognize [journals] as valuable tools that support the aims of education in general, and environmental education in particular. Journal keeping can improve students’ writing, enhance their visual literacy, and provide them with an open opportunity to think and express themselves graphically, poetically, metaphorically, and informally” (2002, p.34). The following sections explore each of the opportunities presented by nature journaling in more detail.

VI. The Processes of Nature Journaling

Journal-keeping has long been used as an educational technique in language arts and other subject areas. There are many styles of journaling, and nature journaling incorporates elements of many of them. In Writing Journals: Activities across the Curriculum, Western (1996) identifies the following types of journals. Dialogue journals are a conversation between student and teacher. Learning logs focus on a particular subject area; students record not only what they are learning but also the processes they use to learn it. Reader response journals are a place for students to react to literature they read. In Writers’ notebooks, students record their own ideas, feelings, memories, sensations, reflections, and questions to use later in their writing. Nature journals can make use of parts of all four of these types of journals. At the same time, because nature journals are focused on the outdoor environment, they also incorporate other elements unique to the form. Nature journaling provides students with opportunities to:
• Expand their sensory awareness
• Cultivate an attitude of curiosity and wonder
• Develop their observation skills
• Explore their surroundings from a variety of perspectives
• Empathize with other species
• Reflect on the personal meaning of their experiences and observations

Each of these opportunities can develop into new skills and attitudes through the processes inherent in nature journaling. Three of these processes are particularly powerful: writing, drawing, and the integration of disciplines.

**Writing to Learn**

The process of writing is not simply a way to express what is already known, but a powerful way to discover or create meaning out of new ideas and experiences. Tallmadge calls writing “a form of discovery as well as expression...a window into nature [that helps us] discover the variety, intricacy, and wonder of our home landscapes” (1999, p.1). As such, writing can be a valuable tool for learning in a wide range of subject areas.

Moore’s *Writing to Learn Science* claims that communication is not the primary purpose of writing. Moore explains, “Only after you understand a subject can you make that understanding available to others in writing. Consequently, good writing should communicate and generate ideas” (1995, p.vi). Writing, Moore goes on to say, is a way to capture our thoughts with words, and thus, “Writing and thinking are related tasks. That’s why nothing helps you learn about and clarify a topic better than writing.” Western (1996) also observes that students must come to a clear understanding of what they think about a topic before they can put their ideas in writing, and suggests that students’ writing becomes a trail that a teacher can use to follow their progress as learners.

In *Journaling: Engagements in Reading, Writing, and Thinking*, Bromley suggests that the process of putting thoughts and ideas on paper helps writers discover new ideas, concepts, and relationships that they did not previously understand. “Journal writing engages your students in both the expression and creation of thought,” she explains (1993, p.9). Bromley finds a close link between reading, writing, and thinking. “Writing invites and engages writers to read as well as think. Journals provide students with records of
their own thoughts, ideas, and observations, and so invite them to reread, revisit, and perhaps revise past thoughts” (1993, p.9).

Maxwell (1996) explains that writing is no longer confined to the English classroom. The benefits of writing can help students learn the content of any subject by giving them an opportunity to synthesize knowledge. According to Langer and Applebee (1978), any type of written response facilitates greater learning and retention than reading or listening alone, because it requires a higher degree of involvement. By organizing their ideas through writing, students increase their ability to understand and recall information.

Furthermore, the type of writing that journals promote is the form most closely related to thinking. Britton, Burgess, Martin, McLeod, and Rosen (1975) identify three forms of writing: transactional (writing to inform, instruct, persuade), poetic (writing that uses language as an art medium, in poetry or fiction), and expressive (unstructured writing based on thinking and speculating, done for oneself). This third type is the kind of writing found in journals, letters, and first drafts. In expressive writing, the process is more important than the product, and Britton et al. suggest that it may be “at any stage, the kind of writing best adapted to exploration and discovery” (1975, p.80). Fulwiler (1980, p.15) calls expressive writing “both the matrix from which other forms of writing take shape and the language closest to thought.” School writing tends to be largely transactional, according to Maxwell (1996), and therefore students often do not reap the full benefits of writing as a process to explore and clarify meaning. In contrast, expressive writing in school can help students become more engaged in the writing task and find greater value in their own thoughts and experience. *The Journal Book* (1987) is entirely devoted to this particular aspect of writing; editor Toby Fulwiler emphasizes that the type of informal language students use in journals is too important to ignore. Nature journaling is clearly an opportunity for expressive writing that can help students explore and clarify their own thoughts in response to direct experiences with their surroundings.

Nature journaling is also consistent with the “whole language” philosophy of literacy education. Proponents of this educational reform movement advocate for using reading and writing for real, relevant purposes in the context of whole, authentic events. Weaver (1990) explains that according to whole language philosophy, language learning should
be an integrated part of the whole curriculum that permeates science, social studies, and the creative arts. Learning should occur through active engagement with the environment, with the teacher facilitating but not directly transmitting knowledge. In a nature journal, the outdoor environment provides an authentic and relevant setting for students to learn. The process of writing about their interaction with that setting helps students discover their own meaning in the experience.

**Drawing to See**
Including drawing as well as writing in a nature journal has multiple benefits. First, it can engage students with a wider variety of learning styles. It can also enhance each student’s perceptions. Drawing, like writing, can be a powerful process for learning. The process of translating an observed object into an image on paper requires close observation and great attention to detail. Clare Walker Leslie (1999) explains that drawing helps students truly see elements of the natural world, and also helps them connect with what they see. Leslie and Roth (2000, p.11) explain, “Drawing helps you observe. It demands that you, the observer, focus intently on the relationships.”

Betty Edwards says that drawing provides access to a part of the mind that is often obscured by the details of daily life. It provides a chance to perceive things in a fresh and whole way and see underlying patterns. In *Drawing on the Right Side of the Brain*, Edwards claims that whether or not you become an ‘artist,’ your life will be enriched by the enhanced perceptions and the creative, intuitive styles of thought fostered by drawing. She says, “It’s helpful to remember that we don’t teach reading and writing to produce only poets and writers, but rather to improve thinking” (Edwards, 1999, p.8), suggesting that the value of teaching drawing can be considered in a similar way.

Research confirms that drawing can also be a tool to help students deepen their understanding of what they observe. Stein, McNair, and Butcher looked at drawing in relation to students’ understanding of science. The researchers note that drawing has long been used by artists to observe closely and reflect on ideas, but is infrequently used in science instruction. They argue that it can be used successfully in science “as a tool to help students develop and document more complex understandings” (Stein et al., 2001, p.18). They illustrate the power of drawing not only to reveal detail but also to promote
engagement with the subject. One of their students remarked (p.19): “When you draw it, it becomes your own. You pay attention and draw the things you are interested in.” In a nature journal, drawing and writing go hand-in-hand, with all the benefits noted above.

**Integration of Disciplines**

Education is often fragmented into discrete disciplines, de-emphasizing the connections between subject areas. In contrast, an interdisciplinary approach creates real, relevant learning experiences that help students consider the complexity of the world we inhabit. Nature journaling fits well in an integrated learning environment, encouraging students to approach their world from a variety of perspectives at the same time. Nature journaling breaks down dichotomies between science and art, knowledge and emotion.

Western (1996) asserts that journaling, because of its interdisciplinary nature, can help students understand the importance of writing to scientists, historians, mathematicians, artists, and musicians, as well as to poets and authors. The types of writing that a nature journal encourages are not confined to any one subject area; students can use words in creative and poetic ways, as well as for detailed scientific descriptions or to record an elder’s stories about a particular place. At the same time, they can use drawing to communicate the emotional resonance of a scene or to carefully depict the details of a plant or animal for identification and comparison.

Teachers often see environmental education as a branch of science. While it certainly has a place in science, the study of EE can also enhance and be enhanced by other disciplines. Nature journaling is one way to reveal EE’s interdisciplinary nature, and therefore to help it occupy a larger niche in the formal curriculum. Bringing EE into language arts, visual arts, and social studies curricula gives it a wider appeal and a bigger impact. These other disciplines offer valuable perspectives that science alone cannot provide. “Science can’t give us a reason to appreciate the sunset, or any purely objective reason to value life—these values must come from another source,” declares Orr in *Earth in Mind* (1994, p.32).

A growing number of educators feel that the emotional resonances of the arts have a valuable place in environmental education. Holmes (2002) finds that music, drawing, sculpture, and movement not only provide alternate paths into environmental understanding, but also help students develop a strong stewardship ethic. She explains,
"A primary strength of the arts is their power to move students, and this emotional connection, paired with ecological knowledge, is a powerful combination that can enhance environmental education" (2002, p.24).

The arts foster both careful observation and creativity as well as emotional connection. Teacher Emma Wood Rous finds strong parallels between the skills of scientists and artists, and explores these parallels with her high school students in a course entitled ‘Literature and the Land.’ Interdisciplinary study helps them discover that both scientists and poets are careful observers who rely on what their senses tell them and work with patterns in nature (Rous, 2000). Holmes (2002) echoes this sentiment; she too explores the natural connections between the arts and environmental science with her students and emphasizes that both scientists and artists make use of inquiry and natural curiosity. Furthermore, she finds that the arts teach creative, divergent thinking; they encourage students to come up with different solutions, rather than converge on a single “right” answer. Innovation is the key to solving complex environmental problems, and requires knowledge of scientific facts combined with an active imagination. “Including the arts in environmental education will encourage students to develop as creative scientists and to be better equipped to become good stewards of our resources” (Holmes, 2002, p.24).

Another benefit of an interdisciplinary approach to EE is as a means to engage a variety of learning styles and encourage creative new partnerships. Middlebury College professor John Elder suggests the ecological metaphor of “edge effects” to explain the richness found at the intersections between disciplines. “Where two ecosystems meet,” he explains, “an ecotone is produced along their common boundary [that contains] both a greater number of species and a greater density of organic life than the surrounding ecosystems” (Elder, 1998, p.3). He finds the intersections between disciplines to be a promising place for EE. “Rather than assuming that science and the humanities must remain forever discrete, environmental education needs more boldly to inhabit the ecotone where they join and commingle, where something new may evolve,” (p.8). Naturalists are people who tend to occupy the intersections between science and the humanities, experience and knowledge, adventure and contemplation. Because nature journaling encourages students to explore the areas of overlap, it may also help them begin to see the world as naturalists.
VII. The Outcomes of Nature Journaling

The opportunities and processes inherent in nature journaling suggest links to three broad outcomes that have important implications for environmental literacy. These are: developing a naturalist outlook, finding a sense of place, and strengthening self-identity.

**Developing a Naturalist Outlook**

A naturalist’s view of the world is an aspect of our relationship to the natural world that has roots deep in our evolutionary past. For our hunting and gathering ancestors, profound knowledge of a particular place was essential to survival. This understanding depended upon the ability to distinguish among subtle details, note changes in one’s environment, and empathize with other species. Gary Nabhan states, “The vocation of being a naturalist on one’s home ground is truly the oldest profession in the world” (Nabhan, 1994, p.37). Naturalists are generalists, according to Leslie and Roth (2000, p.9), and are “among the oldest of scientific learners.” As generalists, they seek out physical experiences in the outdoors, and they cultivate both an intellectual understanding of the environment and an emotional connection to their places. They are people with well-developed powers of observation and sensory awareness, and they look at their places through both close-up and wide-angle lens, in past, present, and future time scales. They explore the world from many angles, from scientific perspectives to literary, artistic, historical, and cultural ones.

Writers who make the environment their major subject often display this generalist tendency. Trimble interviewed a number of contemporary authors and concluded that “Naturalist writers tend to be people of the humanities, products of liberal arts educations and self-educations, rather than scientific training” (1989, p.14). Besides this tendency toward a broad and general education, Trimble found that naturalists often exhibit a sense of wonder, an open mind, insatiable curiosity, sensitivity to many dimensions of the landscape, and a taste for solitude in nature.

Being a naturalist is not a profession so much as a perspective on the world. There are many definitions and terms to describe this perspective; this study proposes *naturalist outlook* as a term to encompass the array of skills and attitudes that characterize
naturalists. Naturalists exhibit both an intellectual understanding of the environment and an emotional attachment to places and other species. Thomashow’s (2002) term naturalist sensibility includes characteristics such as careful observation, pattern-seeking, and a deep respect for other species and the complexity of the natural world.

Another way of conceptualizing the abilities and importance of naturalists is with Howard Gardner’s concept of naturalist intelligence. Gardner’s Multiple Intelligence Theory challenges the old view that intelligence is a single, fixed quantity. Instead, Gardner (1999) suggests that intelligence exists in a number of distinct forms, and defines intelligence as a human ability to solve problems or to make something that is valued in a culture. In order to fit his criteria, a given intelligence must have a representation in the human brain and also have an evolutionary history that can be seen in other animals besides humans. He currently recognizes eight distinct intelligences:

- Linguistic
- Logical-Mathematical
- Spatial
- Bodily kinesthetic
- Musical
- Interpersonal
- Intrapersonal
- Naturalist

The naturalist intelligence was recently added to the original seven, and is Gardner’s attempt to explain the achievements of people with extensive knowledge of the living world and outstanding abilities to recognize patterns in nature and classify elements of the natural world (for instance, Darwin, Audubon, Linnaeus). Gardner defines the naturalist intelligence as “expertise in the recognition and classification of the numerous species – the flora and fauna – of [one’s] environment” (1999, p.48). However, he states that the role of the naturalist in human culture is more than simply applying taxonomic categories to the natural world. Naturalists tend to be drawn to living things and the processes of life. They are comfortable in the world of other living things and may possess a special talent for caring for or interacting with them.

Gardner’s multiple intelligence theory includes two key elements. First, each person possesses a different profile of intelligences. Second, a person has the potential to improve his or her abilities in any given intelligence. “We can all get better at each of the intelligences, although some people will improve in an intelligence area more readily than others, either because biology gave them a better brain for that intelligence or
because their culture gave them a better teacher” (Checkley, 1997, p.10). Gardner suggests that childhood is an especially important time for developing naturalist intelligence. “Just as most ordinary children readily master language at an early age, so too are most children predisposed to explore the world of nature” (1999, p.50).

Hyun (2000) concludes that children tend to exhibit a greater degree of naturalist intelligence and biophilia than adults because they experience the natural environment through direct sensory experience rather than as a background for events. Like Gardner, he believes that at a critical period in young children’s development, they are predisposed to bond with the natural world. Like Sobel, he suggests that if children’s interest and curiosity about nature are neglected or hindered, they tend to learn to fear or keep their distance from the natural world, whereas if exploration of the natural world is encouraged, they develop greater interest and care for nature.

This makes a strong case for promoting exploration and connection with the natural world. Many educators have leapt at this opportunity, but their definitions of naturalist intelligence are often broader than Gardner’s. For example, in Eight Ways of Teaching, Lazear (1999, p.127) defines naturalist intelligence as “the realm of understanding, appreciating, and enjoying the natural world.” He believes that children’s sense of being at home in nature, as well as their skills in recognizing and classifying species and objects, can all be enhanced by sensory encounters with the natural world and its many elements. Glock, Wertz, and Meyer’s (1999) Discovering the Naturalist Intelligence promotes teaching to the naturalist intelligence. The authors identify the following characteristics of children with a strong naturalist intelligence: enjoying and feeling comfortable in the outdoors; nurturing living things; observing patiently; feeling a connection with nature; favoring natural over human settings; noticing their surroundings; collecting natural objects; learning names of plants and animals; and enjoying outdoor recreation.

Whether we call it naturalist sensibility, naturalist intelligence, or naturalist outlook, the goal of fostering the skills of naturalists is an important one. First of all, naturalists’ intellectual understanding of the environment – their ability to recognize and classify species of living things, their understanding of ecological concepts – is essential to our ability as a species to recognize changes and problems in our environment. At the same
time, their emotional attachment to places and other species provides them with the motivation to care about and act on their discoveries.

E.O. Wilson’s term *biophilia* offers a way to define this attachment. In *The Biophilia Hypothesis*, (1993) Kellert and Wilson define biophilia as dependence on the diversity of the natural world not just for survival but also for personal fulfillment. They claim that the tendency for biophilia encompasses “a sense of fascination, wonder, and awe derived from an intimate experience of nature’s diversity and complexity” and “involves an intense curiosity and urge for exploration of the natural world” (1993, p.45). Stephen Jay Gould argues persuasively for the importance of this interest and attachment to the environment when he says, “We cannot win this battle to save species and environments without forging an emotional bond between ourselves and nature as well – for we will not fight to save what we do not love” (Gould quoted in Orr, 1994 p.43). Orr agrees, stating, “Biophilia must become a conscious part of what we do and how we think, including how we do science and how we educate people to think in all fields” (1994, p.46).

Clearly naturalists have an important role to play. How, then, do educators foster these characteristics? Glock et al. (1999) suggest a number of strategies:

- Using outdoor classrooms/nature trails
- Observing through each of the senses
- Identifying natural sounds
- Observing seasonal changes
- Grouping or classifying natural objects
- Observing animal behavior and plants
- Collecting data from observations
- Performing role play of natural processes
- Reading books related to nature
- Writing poems or songs inspired by nature
- Drawing or photographing nature
- Spending time reflecting or writing outdoors

Every one of these techniques can be incorporated into nature journaling, which suggests that it is an excellent technique for developing a naturalist outlook. Leslie and Roth agree, claiming that nature journaling fosters the generalist attitude that characterizes naturalists by encouraging self-learning in a way that combines intellect with experience (2000). It would appear that nature journaling has strong potential to enhance students’ sensitivity to their surroundings, their intellectual understanding of the environment, and their emotional attachment to a place and the other species that inhabit it.
**Finding a Sense of Place**

The naturalist’s emotional attachment to place is related to an important concept known as *sense of place*. Sense of place refers to an intimate knowledge of the natural processes, the history, and the inhabitants of a local community (Sanger, 1997). Cultivating a sense of place is a deliberate and conscious act to rediscover and reinhabit your home ground. Individuals with a strong sense of place have a sensitivity and commitment that is acquired through direct experience with the particulars of their own environment. “I do not know whether it is possible to love the planet or not, but I do know that it is possible to love the places we can see, touch, smell, and experience,” Orr declares (1994, p. 147).

Gregory Smith agrees, and goes one step further by suggesting that sense of place is essential in the creation of an environmentally-inclined citizenry. He proposes, “Unless children from early on have developed an abiding relationship with the land around them – a relationship born of intimate and direct experience – they are unlikely to become citizens willing to protect and preserve that which they have never come to know” (1997, p. 8). Smith goes on to suggest that care for the earth comes not from statistics and technical reports on environmental degradation but from feeling a profound connection to the land. According to Robert Michael Pyle in *The Thunder Tree*, this connection doesn’t have to happen in a dramatic or even a beautiful natural setting, but it has to happen somewhere. “Almost everyone who cares deeply about the outdoors can identify a particular place where contact occurred. This may have been a wilderness, a national park, or a stretch of unbounded countryside, but more often the place that makes a difference is unspectacular: a vacant lot, a scruffy patch of woods, a weedy field, a stream, a green ravine, or a ditch” (Pyle, 1993, p. xv). Once you have made this connection, you become part of a place, a participant in the community rather than just a passive observer of it. “Achieving a sense of place allows you to identify with the place where you live, to take responsibility for its quality of life, to become familiar and intimate with your local surroundings,” says Mitchell Thomashow (2002, p. 77).

Many elements of the present educational system are in direct opposition to the goal of developing a place-based consciousness. Sanger (1997) calls attention to the fact that schools stress independence and autonomy as the keys to success, without helping students feel connected to or responsible for the land and communities they inhabit. They
also place authority with general, abstract, or impersonal sources of knowledge such as textbooks, devaluing local forms of knowledge and personal experience. By giving more weight to written forms of communication than oral, schools further separate students from the knowledge that is particular to their place. David Sobel accuses the American educational landscape of paralleling the landscape of urban sprawl. Textbooks, he says, are generic and identical from one coast to the other, providing “the same homogenized, un-nutritious diet as all those fast-food places on the strip.” He finds that state-mandated curriculum, standards, and testing “discourage attention to significant nearby learning opportunities” (2004, p.5). Schools could be anywhere or nowhere. They teach students not to think about where they are, and this affects how we see – or don’t see – everything around us. John Elder writes “We walk through days in which there are trees but no tree in particular, we drive along roads that could be anywhere… Such casual familiarity is the opposite of intimacy and attentiveness” (1998, p.8). An antidote to this view based on generalities rather than the rich specifics of local detail is place-based education.

Sanger suggests that teachers make use of the local landscape, local natural processes, and local community to communicate “that the land has value, that students’ experiences outside the classroom have value, and that students’ own personal knowledge has value” (1997, p.5). By organizing instruction according to themes and emphasizing the history of a place, teachers can model the interconnected nature of real life. They can help students see themselves as “part of a continuous line from the past to the present…and visualize and value their role in the future” (1997, p.5). Students therefore begin to see not just the immediate present but a broader view that includes both the past and the future of their place.

Orr’s vision of a bright future also focuses on the local community. We must, he believes, make a conscious decision to “rediscover and reinhabit our places and regions, finding in them sources of food, livelihood, energy, healing, recreation, and celebration. This means rebuilding communities…restoring local culture and our ties to local places…reweaving the local ecology into the fabric of the economy…rediscovering and restoring the natural history of our places…finding our place and digging in” (1994, p.147).
Thomashow claims that the value of focusing on place cannot be overstated, and he draws a connection between the importance of a focus on place in nature writing and in environmental education. “A place-based orientation is crucial to the contemporary nature writing tradition and at the forefront of current thinking in environmental education,” he says (2002, p.5). This puts nature journaling in an optimal position to promote sense of place, by helping students discover nature in their own neighborhoods. “Studies have found that many children today consider nature to be somewhere else,” write Leslie and Roth (2000, p.8). “The purpose of nature journaling is to study where you live and how you relate to it.”

Emma Wood Rous uses nature journals with her high school students as a way to integrate outdoor experiences with written expression. Students visit a site weekly for a semester and record their encounters in writing. Rous finds that the students’ journal entries reveal a deepening connection with their place. One student wrote, “I have gotten attached to my land after having to write about it. When I write about the land and use words to describe it, I’m seeing the land differently and really observing it” (2002, p.33).

In her essay “A Walk through the Woods: From Looking to Writing”, Suzanne Marshall describes how her journal helped her find her own place in the world around her. “As a child I remember looking long at the Minnesota woods, curling back purple-veined leaves in search of a ‘jack-in-the-pulpit’, watching the finches weave pine needles and lacy leaf-skeletons into a nest. Later, I brought my journal along and sketched the tangle of bittersweet, captured the quick flight of a cardinal with a blur of red watercolor. I first used brush strokes and then later words to record these images, and I found, in doing so, that I began to feel a part of the natural world” (McEwen and Statman, 2000, p.117).

Schools throughout the country are experimenting with the concept of place-based education and finding that it contributes to higher quality education in all areas of the curriculum. The proceedings from a conference on place-based education state, “It appears that giving young people the opportunity to discover nature in their neighborhood helps to make sense out of the pieces of the world they live in and motivates a greater interest in learning itself” (Baldwin, 1997, p.1). A recent study looked at forty schools across the nation using the environment as an integrating context for learning (known as EIC). Lieberman and Hoody, the study’s authors, report in Closing the Achievement Gap:
Using the environment as an integrating context for learning (1998) that overall this approach resulted in wide-ranging, positive effects on student learning.

The effectiveness of a place-based curriculum is echoed in the testimony of teachers who have implemented one. In *Stories in the Land: A place-based environmental education anthology*, a teacher reports, “This year’s experience confirmed for me the educational value of explorations of place—especially of the children’s own neighborhood. It was a pleasure to share with other teachers how such a project could engage children, instill a sense of wonder, integrate subjects, and still meet the national standards being implemented across the district. Place-based explorations can help to revitalize both the school community and the community at large, by reconnecting people to the natural world and to each other in creative and deeply thoughtful ways” (Elder, 1998, p.22). Not only does studying one place in great depth provide a valuable context for making learning relevant, but it also helps students develop the skills they will need to experience other places with similar depth throughout their lives.

Research indicates a relationship between a connection with place in childhood and environmental behavior and activism in adulthood. Chawla (1988) found that nearly all the adult environmentalists she interviewed attributed their commitment to environmental values to many hours spent outdoors in childhood or adolescence and an adult who taught respect for nature. Vaske and Kobrin (2001) surveyed youth involved in natural-resource-based work programs to determine the effects of place attachment on environmentally responsible behavior. They found that attachment to a local natural resource had a significant positive impact on environmental behavior, and they point out that empirical data has repeatedly demonstrated that increased awareness of issues alone does not stimulate environmental behavior. Given that action is the ultimate outcome of environmental education, experiences designed to foster a sense of place clearly have an important role in the field.

The paradox of a well-developed sense of place is that, according to Mitchell Thomashow in *Bringing the Biosphere Home*, it actually contributes to a broadening of perspective. It reveals not just the immediate and local but the global as well. Thomashow proposes that through a daily practice of natural history observation, you
learn how to move from the familiar and local to broader perspectives of the world as a whole. "The more familiar you become with the place where you live, the more you’ll come to recognize the importance of the relationship between other places and your own....You [will] find that it is much easier to step out of place and time when you have your feet firmly placed in the here and now" (2002, p.73).

Thomashow defines his version of sense of place as a place-based perceptual ecology. It is an intimate relationship with the natural world, a relationship built of a combination of sensory awareness and scientific inquiry. Though it is based on one particular tangible place, it leads to the desire to explore global issues. He suggests that by learning the subtle details of natural history, one learns to see not only what is present in nature but also what is missing, and to consider the implications of changes (Thomashow, 2002). Both an intimate knowledge of a particular place and a broader view of how that place is connected to the rest of the world are important characteristics of environmentally literate citizens, and because nature journaling focuses on exploring one’s place in detail, it may well be a way to cultivate both perspectives.

**Strengthening Self-Identity**

Along with a naturalist outlook and a sense of place, the third key outcome for students who keep a nature journal is a stronger self-identity. The processes inherent in journaling help students come to a deeper understanding of who they are and what is important to them. They refine their ability to think critically and creatively, and they experiment with the most effective ways to express their thoughts, values, and feelings to others.

Each one of us sees the world in a unique way, as Gary Nabhan states eloquently in *The Geography of Childhood*. He writes, "We sooner or later realize how differently each of us moves through any terrain. Going out together to discover new places is the surest way to be reminded that we do not see the land with the same eyes, nor smell it with the same nose. It sings different songs to each of us" (Nabhan and Trimble, 1994, p.3). The process of journaling can affirm a personal relationship with the environment based on those unique individual perceptions. Recording experiences with nature highlights individuality and gives value to students’ own experience with a place. Nature journals are an approach to learning about the natural world that acknowledges the role of the observer,
As Rous indicates. "Nature writing is, obviously, about nature, but it is also about people's place in their natural world. Given the writer as observer and wordcrafter, this interconnectedness seems inescapable" (Rous, 2000, p.25). Trimble also elaborates on the idea of writing as a personal response to landscape. He says, "[Natural history writers'] subject matter is not just the natural world itself...nor is it as exclusive as the invented world of fiction. Their subject is what writer Mary Austin called, in 1920, 'a third thing...the sum of what passed between me and the Land which has not, perhaps never could, come into being with anyone else'" (1989, p.6).

A journal is a place first to capture ideas in progress, and then to explore, expand, and revise those ideas. Maxwell says, "Personal journals allow writers to express thoughts freely so that writing becomes a natural extension of thinking, feeling, reacting, and remembering. Writing about an experience gives the writer opportunities to reflect and make sense of that experience" (1996, p.50). A journal is also a place to connect new knowledge with what is already known and find personal relevance in that knowledge. Western (1996) emphasizes the value of a journal as a way for students to focus on what is important to them and thus engage more fully in what they are learning.

A nature journal can also be a way to come to a deeper understanding of just what is personally important - a tool for exploring and clarifying values. Fulwiler confirms the role of journaling in this process of self-discovery. "In classes which explore values," he writes, "the journal can be a vehicle to explore the writer's own belief system" (1980, p.18). Students in upper elementary and middle school rarely have fully-formed values systems in place, and can benefit from the opportunity to explore their own opinions and views. Rous and her students explore the idea of differing perspectives in their study of the environment through literature; she finds this approach "especially appropriate to adolescents' emerging sense of self and social responsibility" (2002, p.18). Hannah Hinchman, an avid contemporary nature journalist and author of A Trail through Leaves: The journal as a path to place, found journaling to be a powerful tool for creating her own identity. "When I began my first journal, I meant it to be a volume of woods lore...Before I closed the covers on Volume One, I had discovered that the journal was my most powerful ally in crafting the kind of life I wanted. I was building a scaffolding
of choices and attitudes, forging affinities, discovering what colors, places, times of the
day I could truly call mine” (Hinchman, 1997, p.3).

Thinking and communication skills also help shape a personal identity. Because of the
role of writing in the construction of meaning, the process of recording observations,
experiences, and ideas in a journal can help students develop stronger critical thinking
skills. At the same time, because nature journaling incorporates the arts and encourages
students to express themselves in creative ways, it can also promote divergent and
creative thinking skills. Translating these thoughts into words or images in a journal helps
students find a personal voice to use in communicating their values, ideas, and unique
perspective on the world with others, and boosts their confidence in their ability to do so.

VIII. The Ultimate Outcome: Environmental Literacy

The major outcomes of nature journaling – environmental sensitivity, a naturalist outlook,
sense of place, and self-identity – all advance environmental literacy by enhancing
students’ ability or motivation to take action on behalf of a quality environment.

Research clearly indicates that environmental sensitivity is an important prerequisite to
environmental action. By providing students with experiences that foster environmental
sensitivity, nature journaling helps develop students’ motivation to protect something
they have come to value.

A naturalist outlook fosters appreciation and understanding of the environment, leading
to an enhanced ability to recognize problems and devise potential solutions. Naturalists
have keen observation skills essential for noticing patterns and change. The broad base of
knowledge that comes of exploring the world from many perspectives is critical for
understanding the complexities of problems with ecological, social, economic, historical,
and aesthetic dimensions. At the same time, the emotional aspects of a naturalist outlook
(such as a connection with other species, or biophilia) contribute to the motivation to act.

A sense of place offers a connection with a particular place and a care for it that
engenders an inclination for action. An ability to move from local to regional and even
global perspectives is important for recognizing patterns, changes, and interconnections.
Finally, a stronger sense of self-identity results in a more defined set of personal values, which is also an important precursor to action. Critical and creative thinking are also characteristics of those with a clear sense of who they are and what is important to them, and these skills are essential for coming up with new and effective solutions to complex environmental problems. Meanwhile, confidence and strong communication skills (written, spoken, and artistic) provide the means to inform and persuade others to help make those solutions a reality.

According to Laurie Lane Zucker, place-based education is a process of ‘re-storying,’ in which students respond creatively to the stories of their home ground as a way to find their place along the continuum of nature and culture in their own community (Sobel, 2004). Why is this important? The problems of our global environment reflect a profound need for new stories or myths to help us find our place in the world. Thomas Berry writes in *The Dream of the Earth* (1990, p. 123), “It’s all a question of story. We are in trouble just now because we do not have a good story. We are in between stories. The old story, the account of how we fit into it, is no longer effective. Yet we have not learned the new story.” Suzuki suggests that we need a new worldview that restores the sacredness of creation. What is regarded as sacred, he argues, will be more likely to be treated with care and respect. He calls for a return to the reverence he believes was once inherent in humans’ view of the world, as a means of reclaiming responsibility for our actions.

All over the world, small family groups of nomadic hunter-gatherers depended on skills and knowledge that were profoundly local, embedded in the flora, fauna, climate, and geology of a region. This information was woven together into...a story whose subject is the world and everything in it, a world in which human beings are deeply and inextricably immersed....In such an interdependent universe human beings hold enormous responsibility; each individual is accountable, and every action has repercussions that reverberate far beyond the moment. Past, present, and future form a continuum in which each generation inherits a world shaped by the actions of its forebears and holds it in trust for all the generations to come. (Suzuki, 1998, p.11)

Joseph Campbell, a scholar of world mythology, tells us that stories and myths serve a spiritual function in society. They provide maps to follow and models to emulate. Myths, Campbell says, “are the world’s dreams. They are archetypal dreams and deal with great human problems....The myths tell me where I am” (1988, p.15). Like Suzuki, Campbell feels that we are a culture struggling along without a mythology that meets our needs for spiritual guidance. If place-based education can help us rediscover the stories of our
places or create them anew, then it might well be a highly effective path to a more harmonious relationship with the natural world. And nature journaling appears to be an excellent tool to create this new story about our relationship to the world. First, it sends the journal-keeper on a quest for meaning in the rich intersections between science and the humanities. Then, it helps the journal-keeper create a map of this meaning through words and images that bring it into sharper focus.

IX. Existing Resources for Nature Journaling

A number of existing resources deserve mention in a survey of literature that relates to nature journaling. While only some of these discuss nature journaling specifically, all address one or more of the avenues that lead into nature journaling. These avenues can be classified in the following categories: awareness and emotions; writing and journaling in education; drawing and art; and writing about the environment. Finally, a collection of resources focuses on nature journaling in particular.

Awareness and Emotions. A long tradition of literature highlights the value of fostering sensory awareness and emotional engagement in children. Rachel Carson's *The Sense of Wonder* (1956) is a classic work in this area. Addressing parents and others who have contact with young children, Carson promotes the cultivation of an emotional connection with the environment as a precursor to knowledge and appreciation. David Sobel's *Beyond Ecophobia* (1996) is a more contemporary version of a similar argument. When it comes to putting this into practice, Herman, Passineau, Linnea, and Treuer's *Teaching Kids to Love the Earth* (1991) offers parents and educators a variety of activities for fostering awareness and sharing a sense of wonder with children, with the ultimate goal of developing "a passionate love for the earth." Joseph Cornell's *Sharing Nature with Children* series also provides educators with activities to encourage deeper sensory awareness and emotional connection in the outdoors.

Recent trends in the general educational field also reflect a growing awareness of the importance of "emotional intelligence." Educators have begun to realize that focusing entirely on knowledge and facts ignores important dimensions of children's development. Rachael Kessler's *The Soul of Education: Helping students find connection, compassion,*
and character at school addresses this gap. Kessler writes, “The body of the child will not grow if it is not fed; the mind will not flourish unless it is stimulated and guided. And the spirit will suffer if it is not nurtured.... When guided to find constructive ways to express their spiritual longings, young people can find purpose in life, do better in school, strengthen ties to family and friends, and approach adult life with vitality and vision” (2000, p.x). In *Awakening the Heart: Exploring poetry in elementary and middle school* (1999), Georgia Heard delves into poetry as a means to foster emotional engagement. She believes that poetry is especially well suited to this task, explaining, “One of the most important life lessons that writing and reading poetry can teach our students is to help them reach into their well of feelings.... The very nature of poetry can teach our students this kind of emotional literacy” (p.xvii). Nature journaling is clearly another technique that can address the emotional dimensions of learning.

**Writing and Journaling in Education.** A great deal of research and literature has been devoted to understanding and communicating the value of writing and journaling in education. Karen Bromley’s *Journaling: Engagements in Reading, Writing, and Thinking* (1993) provides a thorough discussion of how teachers can use a variety of types of journals to enhance thinking and learning in the classroom. Toby Fulwiler has written extensively on journals as an educational technique, and *The Journal Book* (1983), edited by Fulwiler, offers a wide selection of essays on the subject. Other authors discuss why and how to use writing and journaling throughout the disciplines, including Rhoda Maxwell’s *Writing Across the Curriculum in Middle and High Schools* (1996), Linda Western’s *Writing Journals: Activities Across the Curriculum* (1996), and Randy Moore’s *Writing to Learn Science* (1995). Hubbard and Ernst explore the impacts of both writing and drawing in *New Entries: Learning by Writing and Drawing* (1996). Nature journaling can easily join the ranks of journaling forms, with the same benefits as have been noted in other disciplines.

**Drawing and Art.** In addition to Hubbard and Ernst’s *New Entries*, Stein, McNair, and Butcher’s “Drawing on Student Understanding” (2001) investigates and confirms the power of drawing to enhance learning. Betty Edwards in *Drawing on the Right Side of the Brain* (1999) and Frederick Franck in *Zen Drawing, Zen Seeing* (1993) discuss the value of drawing to enhance the ability to observe more carefully. Clare Walker Leslie
considers the same subject in regard to learning about the natural world in *Nature Drawing: A tool for learning* (1995) and *The Art of Field Sketching* (1995), as does Cathy Johnson in *Sketching in Nature* (1990). Susie Criswell combines scientific and artistic perspectives in nature study in her activity guide *Nature through Science and Art* (1994). By including drawing as an integral component of a nature journal, the benefits these authors discuss can apply to nature journaling as well.

**Writing about the Environment.** In regard to writing focused specifically on the environment, there are countless published works by naturalist writers ranging from Gilbert White in the 1700s to the many contemporary writers who make the environment their subject today. There are also a number of guides to nature writing. Of these, Georgia Heard’s *Writing Toward Home* (1995) is directed at individuals who wish to use writing to explore their own relationship with their surroundings. There are also two excellent guides for educators who wish to use the environment as a writing theme with their students. McEwen and Statman edited a volume called *The Alphabet of the Trees: A Guide to Nature Writing* (2000), an extensive and excellent collection of essays on nature writing with students throughout the grade levels. Emma Wood Rous’ *Literature and the Land: Reading and Writing for Environmental Literacy, 7-12* (2000) is another exceptional resource based on a course she teaches for high school students.

**Nature Journaling Resources.** Resources focused specifically on nature journaling, (involving both writing and drawing about the natural environment) range from those intended to help adults explore the technique themselves, to those directed toward educators who wish to use nature journaling with students.

Resources for individual journal-keepers include the following. Hannah Hinchman’s *A Life in Hand: Creating the Illuminated Journal* (1991) and *A Trail through Leaves: The journal as a path to place* (1997) are beautiful volumes that contain color illustrations from Hinchman’s own exquisite journals and meditations on the techniques and outcomes of keeping a journal of one’s own. Cathy Johnson’s *The Naturalist’s Path* (1991) also includes excerpts from her own nature journals and ideas for others who want to begin a journal. Clare Walker Leslie and Charles Roth collaborated to create the most well-known and widespread contemporary guide to nature journaling, *Keeping a Nature*
*Journal: Discover a whole new way of seeing the world around you* (2000). Their guide, includes many excerpts from the authors’ own journals to serve as inspiration, as well as techniques for beginning a journal, ideas for using a journal throughout the seasons, and drawing exercises.

Leslie and Roth’s book does branch out into the educator’s realm as well. One section discusses teaching nature journaling and offers a number of valuable suggestions for educators using nature journaling with school groups. A few activities for getting started are included, as well as thoughts on the teacher’s role, ideas on using nature journaling in an interdisciplinary curriculum, and an example of a nature journaling project in different subject areas including art, science, history, math, and music. Leslie further discusses the subject of teaching nature journaling in her essay “Teaching Nature Journaling and Observation” in *Into the Field: A Guide to Locally-Focused Teaching* (1999). Here she provides additional exercises that educators can use with students and some thoughts on the value of nature journaling for environmental awareness.

Emma Wood Rous’ previously mentioned *Literature and the Land* (2000) includes a chapter describing how she incorporates journal-keeping into her environmental literature course. A 2002 article by Rous, “Voices in the Land: A Course in Environmental Literature” discusses her land journal assignment in depth and includes a set of goals for the journal project. This article appears in the Fall 2002 issue of *Green Teacher* magazine, which also includes several other excerpts on nature journaling for teachers. William Hammond’s “The Creative Journal: A Power Tool for Learning” discusses creative journal-keeping, with tips for facilitation and a number of activity ideas. Mike Moutoux’s “Evaluating Nature Journals” provides suggestions for assessment of nature journals in formal education. In *Wild Days: Creating Discovery Journals* (1999), Karen Skidmore Rackliffe describes how she uses journals as part of her children’s homeschooling experience. “Wild days” refer to the days the family spends outdoors exploring their surroundings, and chapters in the book address ways to use journaling exercises in various subject areas.

*Moon Journals: Writing, art, and inquiry through focused nature study* is an excellent guide for using journaling as an inquiry-based technique for exploring a subject in depth.
The authors, who are also teachers, explain how they use the moon as a focal point for a month-long study their students carry out on the pages of their journals. Having previously used ‘nature notebooks’ with their students, they found them to be a tool that “can become a place for children to store memories of wonder and can provide a structure for immersion in the natural world” (Chancer & Rester-Zodrow, 1997, p.xi). Later, they discovered that “when the children focused on a particular subject in their nature notebooks, their entries were often richer and more reflective” (p.4). The moon journal experience makes use of this observation; their guide consists of a series of writing and art “invitations” that teachers can use in conjunction with nightly moon viewing. Their exercises are designed for a workshop approach to teaching, in which a teacher gives a mini-lesson on a particular skill, often on a subject that emerges from the students’ own questions or interest, and then students explore the technique on their own. The moon journal model could be applied effectively with other areas of nature study as well, with obvious applications for a nature journaling experience.

X. The Need for a Nature Journaling Guide

The resources described above confirm the value of journaling, with its emphasis on using both writing and drawing to explore the external landscape and the inner world of emotional and intellectual understanding. Many of the resources provide writing and drawing avenues that could easily be adapted to nature journals. In addition, the collection that focuses specifically on nature journaling provides even greater context, supplying readers with samples of various types of journal entries, as well as useful suggestions for personal journal-keeping. However, only a handful of resources are designed for educators and delve into the use of nature journaling in formal or nonformal settings. Of those that do, the treatment is relatively brief. While these resources are certainly valuable, few teachers have the time to find each one, read it, apply the information to their own situations, and then design activities they can use with their students. There is a distinct lack of comprehensive resources designed expressly to assist educators at the upper elementary and middle school level in using nature journaling with students. The nature journaling guide produced through this study will fill that gap, by providing teachers with a resource that summarizes the existing information on
facilitating nature journaling, and then gives them step-by-step procedures for a variety of field-tested activities they can use to engage their students in keeping a nature journal.

XI. Summary

Regarding the first of the key questions in this study – What are the links between nature journaling and the goals of environmental education? – the literature clearly supports the claim that there are indeed strong links. It shows how the processes associated with nature journaling (regular contact with the outdoors, writing, drawing, integration of disciplines, and self-reflection) give it great potential as a tool for achieving educational goals such as basic literacy skills, enhanced powers of observation, learning across the curriculum, inquiry-based learning, and stronger thinking and communication skills. The literature also clearly suggests a number of important links between nature journaling and the goals of environmental education, including environmental sensitivity, sense of place, a naturalist outlook on the world, and clarification of personal values. Having established the importance of nature journaling in environmental education, we move now to the other key questions.

Is there strong justification for using nature journaling in both formal and nonformal educational settings? The links between nature journaling and basic educational outcomes as well as the goals of environmental education indicate strong potential for establishing this justification. Through pilot testing of the nature journaling guide in both of these settings, this study further investigates this question and determines a more definitive answer. Finally, is nature journaling truly an effective technique to foster students’ environmental awareness and connection to their places? Information about the success of journaling in promoting these outcomes is lacking. In addition to providing a resource that fills a gap in the nature journaling literature, this study attempts a preliminary assessment of its effectiveness.
CHAPTER THREE

METHODOLOGY

Overview

This chapter describes the methodology used to accomplish the goal of this study: to develop and evaluate a nature journaling guide for formal and nonformal educators of upper elementary and middle school students. The process took nearly two years and was funded by a $5000 grant in the Wisconsin Environmental Education Board’s 2003-2004 grant cycle. The first year was devoted to the initial development of the guide. A framework was developed to clarify the role of nature journaling in environmental education and to establish aims and goals for the guide. A vision for the structure and content of the guide emerged from a review of existing resources and a focus group meeting with formal and nonformal educators. Then the framework and vision were employed to develop a first draft of the guide. The second year was devoted to the evaluation component (both formative and summative) and the development of a final draft of the guide. Pilot tests in formal and nonformal settings and comments from reviewers confirmed the guide’s appropriateness and strengths in both settings and provided suggestions for further revision and improvement. Student surveys and assessment tools provided preliminary information about the effectiveness of the guide in enhancing environmental awareness and connection. Conclusions from these evaluations were used to develop a final draft of the guide. The methodology utilized to carry out each of these steps is described below.

Project Timeline

Steps were completed according to the timeline in Table 3.1 on the following page.
Table 3.1 Project Timeline

<table>
<thead>
<tr>
<th>Framework and Vision</th>
<th>Project gets underway with review of existing literature.</th>
</tr>
</thead>
<tbody>
<tr>
<td>September - December 2002</td>
<td>Project gets underway with review of existing literature.</td>
</tr>
<tr>
<td>January 2003</td>
<td>WEEB grant submitted.</td>
</tr>
<tr>
<td>January - May 2003</td>
<td>Framework development.</td>
</tr>
<tr>
<td>May 2003</td>
<td>WEEB grant approved. Focus group meeting.</td>
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<table>
<thead>
<tr>
<th>Guide Development</th>
<th>Activities field-tested with various audiences.</th>
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<tbody>
<tr>
<td>July 2003</td>
<td>Activities field-tested with various audiences.</td>
</tr>
<tr>
<td>September 2003</td>
<td>First draft of guide completed.</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Guide Evaluation</th>
<th>Nonformal pilot test at CWES.</th>
</tr>
</thead>
<tbody>
<tr>
<td>October - November 2003</td>
<td>Nonformal pilot test at CWES.</td>
</tr>
<tr>
<td>November - December 2003</td>
<td>Formal pilot test in Stevens Point area classrooms.</td>
</tr>
<tr>
<td>December 2003</td>
<td>Final meeting with nonformal instructors.</td>
</tr>
<tr>
<td>January 2004</td>
<td>Final meeting with formal classroom teachers.</td>
</tr>
<tr>
<td>January - March 2004</td>
<td>Compiling and analyzing of pilot test data.</td>
</tr>
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</table>

<table>
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<tr>
<th>Final Draft of Guide</th>
<th>Guide review by graduate committee and others.</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 2004</td>
<td>Guide review by graduate committee and others.</td>
</tr>
<tr>
<td>April 2004</td>
<td>Development of final draft of guide.</td>
</tr>
</tbody>
</table>

**Objective One Methodology**

To develop a framework that establishes aims and goals for the nature journaling guide.

The purpose of the framework was to explore and establish links between nature journaling and the goals of environmental education, and to use these links to establish aims and goals for the guide. Then, to demonstrate these links to educators in a concise and visual way, a model was created to include in the guide. Development of the framework and model involved the following steps:

1. An extensive review of existing literature in the University of Wisconsin library system and online educational databases was conducted on the following subjects: journals in education; nature journaling; environmental sensitivity; sense of place; the naturalist's view of the world (including naturalist intelligence); historical naturalists and journal-keepers; development of critical and creative thinking skills, writing and drawing as techniques to improve learning, values clarification, and self-expression.
2. Information from the literature search was compiled into categories that reflect the opportunities inherent in nature journaling.

3. These categories were used to establish broad aims and more specific goals for the activities in the guide.

4. The categories were incorporated into a visual model to communicate the aims and goals in a concise and visual way, and to illustrate links to the overarching goal of environmental literacy.

5. The framework was submitted to several audiences for review. The classroom pilot test teachers, four other members of the original focus group, and the graduate committee all received a draft of the framework and a written questionnaire where they were asked to comment on the framework’s usefulness.

**Objective Two Methodology**

*To formulate a vision for the structure and content of the guide using published literature and suggestions from formal and nonformal educators.*

Many existing resources and activity guides provide excellent models for effective designs and formats. At the same time, educators can provide specific information about their needs. These ideas and information helped to shape a vision for a user-friendly and effective guide. Formulating a vision for the guide included the following steps:

1. Existing resources on nature journaling, writing, and drawing were located by means of a thorough search of the University of Wisconsin library system and online educational databases. An analysis of these resources provided ideas for the content of the guide in the following areas: definitions of nature journaling, techniques for effective facilitation, and preliminary ideas for individual activities.

2. Existing examples of well-designed activity guides in related subject areas were located in the Wisconsin Center for Environmental Education resource library at the University of Wisconsin-Stevens Point. An analysis of these resources provided ideas for the structure of the guide in the following areas: ease of navigation, organization,
of introductory material and/or appendices; method of organizing information into chapters or other divisions; and structural templates for each activity description.

3. A request was submitted to the UWSP Institutional Review Board for permission to involve human subjects in the project. The proposal was approved (April, 2003).

4. Focus group participants were recruited to help develop a vision for the guide. Karen Dostal, environmental education coordinator for the Stevens Point school district and director of the Boston School Forest, identified approximately 25 potential participants from her contacts with teachers in the school district. These teachers received a letter inviting them to participate. Invitations were also extended to a number of nonformal educators connected with the Central Wisconsin Environmental Station. As an incentive, participants were offered a $25 stipend provided by the grant funding and a copy of the completed guide. Eleven educators agreed to participate.

5. A questionnaire was developed with questions that addressed nature journaling as a teaching technique and the characteristics of an effective nature journaling guide (Appendix A). Focus group participants received the questionnaire by mail and were asked to complete it before attending the meeting.

6. The focus group meeting was held on May 15, 2003, from 6:30-9:00 pm at the Boston School Forest. Five classroom teachers, five nonformal educators or administrators, and the school district's environmental education coordinator attended the meeting. After an overview of nature journaling and the project, discussion topics encouraged participants to elaborate on their answers to key questions from the questionnaire. The discussion focused on the role of nature journaling in formal and nonformal educational settings and the optimal structure and content for a guide accessible to teachers and effective for the targeted student audience.

7. The results of the literature search and the focus group were analyzed and conclusions drawn. Both the written and the oral responses from the eleven focus group participants were analyzed, as well as responses from two other classroom teachers who submitted questionnaires but were unable to attend the meeting. Responses to Likert-scale questions were tallied and average scores calculated for the formal educators, the nonformal educators, and the group as a whole. Responses to open-
ended questions on the questionnaire and in the discussion were categorized and summarized. The conclusions from both types of questions, as well as the information collected in the literature review, were used to create a vision (both structure- and content-oriented) for the nature journaling guide.

**Objective Three Methodology**

*To use the framework and vision to create a first draft of the nature journaling guide.*

1. Information collected in the literature search and from the focus group was incorporated into introductory chapters for the guide. These address definitions of nature journaling, the aims and goals established in the framework, and techniques for successfully facilitating nature journaling.

2. Activities were either designed specifically for the guide or modified from activities in existing sources. The following criteria were used to identify appropriate activities:
   a. suitability for use with upper elementary and middle school students
   b. suitability for use in a variety of settings
   c. potential to promote the aims and goals identified by the framework
   d. potential to integrate with existing curricula or programming
   e. potential to engage a diversity of learning styles

3. A number of these activities were trialed and refined with camp and workshop participants during the summer of 2003.

4. Activities were divided into themes based on the goals identified in the framework, and the guide was assembled in its entirety.

5. Appendices were created to provide additional information for educators.

**Objective Four Methodology**

*To evaluate the usability and effectiveness of the guide through pilot tests with formal and nonformal audiences.*
The pilot tests were designed to evaluate activities with the two audiences that represent the major user groups for the completed guide: a nonformal setting, the Central Wisconsin Environmental Station (CWES) and a formal setting, classrooms in the Stevens Point school district. The goals of the pilot test were threefold:

- To determine the usability of the guide for educators. Did they find the format and content of the guide clear, complete, easy to use, and a valuable teaching resource?
- To determine students’ reactions to the activities. What did and didn’t they enjoy about the activities? How could their reactions be used to make the activities in the guide more appealing to them?
- To evaluate (in a preliminary way) the impact on students of participating in the nature journaling activities. Was there any change in their awareness and appreciation of their surroundings after participating? Was there any change in their ability to express their observations and thoughts about their surroundings?

A second proposal was submitted to the university’s Institutional Review Board requesting permission to involve students and teachers in the pilot test phase of the project (September, 2003). After the proposal was approved, conducting each of the pilot tests involved the following steps:

**The CWES Pilot Test: Nature Journaling in a Nonformal Setting**

1. School groups visiting CWES during the months of October and November 2003 received a letter inviting them to participate in the pilot test as part of their visit. Each school that agreed to participate was promised a copy of the completed nature journaling guide, an incentive made possible by the grant funding.

2. The draft journaling guide was condensed into a 10-page lesson plan (Appendix B) that followed the format for CWES lessons: objectives, background information, an introduction and conclusion, and an assortment of activities suitable for a 1 to 1½ hour stand-alone nature journaling lesson. All materials for the lesson were assembled into a kit. The lesson was condensed rather than having the instructors work with a full draft of the guide because most CWES instructors are undergraduate students completing an environmental education practicum, and are accustomed to working with 5 to 10 page lesson plans. They have only a week to prepare new lessons, and
would likely have been overwhelmed with too much information. Additionally, the smaller selection of activities ensured a relatively consistent experience for students.

3. CWES instructors participated in a training session before teaching the lesson. Because of external circumstances, this session varied from a one-hour model lesson to a 15-minute overview.

4. CWES instructors conducted the lessons with the visiting school groups. They introduced nature journaling to students, facilitated a series of activities chosen from the lesson plan, concluded the lesson, and completed and administered the evaluations.

5. The following evaluations were designed to capture the experiences of the CWES students, instructors, and visiting teachers:

   **Student Survey.** (Appendix C) Students provided comments at the end of the lesson in a one-page survey that addressed their enjoyment of the lesson, what they felt they gained by participating, and suggestions for improvement.

   **Instructor Questionnaire.** (Appendix D) The CWES instructors filled out a questionnaire that addressed their experiences in teaching the lesson: how well they felt prepared by the lesson plan, successful and unsuccessful activities, and suggestions for improvement.

   **Visiting Teacher Evaluation.** (Appendix E) Visiting classroom teachers who were present for the lesson filled out a questionnaire that asked for their impressions of the lesson: the students’ responses, successful and unsuccessful activities, and suggestions for improvement.

6. The data collected from each of these evaluations was then compiled and analyzed. Responses to Likert-scale questions were tallied and average scores calculated for the instructors, the visiting teachers, and the students. Responses to open-ended questions on the questionnaires were categorized and summarized, and conclusions drawn.

7. At the conclusion of the CWES pilot test, all the instructors who participated in the pilot test were invited to attend a meeting to discuss and debrief the experience. Three
of the student instructors and the CWES director attended the meeting, which was held in December at the researcher's home. Discussion questions (Appendix F) were distributed to each participant to guide the hour-long conversation. The proceedings were recorded and transcribed, responses categorized, and conclusions drawn about the role of nature journaling in a nonformal setting.

The Classroom Pilot Test: Nature Journaling in a Formal Setting

1. Classroom teachers who were involved in the focus group or had otherwise expressed interest in the nature journaling pilot test received a letter inviting them to participate. Each teacher that chose to participate was promised a $50 stipend and a copy of the completed nature journaling guide, an incentive made possible by the grant funding.

2. Participating teachers attended an orientation meeting. At the meeting, they were introduced to the project and its goals. They received a copy of the draft journaling guide including the introductory chapters, 18 activities, and appendices. They also received both oral and written instructions for conducting the pilot test and administering all evaluations (Appendix G). A kit was assembled with books and other materials; this was stored at Jackson so teachers could borrow items.

3. Teachers had approximately one month to conduct the nature journaling unit. They were asked to facilitate ten activities, including three required activities and seven others of their choice from the guide, and also to complete or administer each of the evaluations.

4. The following evaluations were designed to capture the experiences of the teachers and students who participated in the pilot test:

   **Student Activity Evaluations.** (Appendix H) For each of the three required activities, students filled out a short evaluation that asked them to comment on their overall impression of the activity, their favorite and least favorite aspects, and suggestions for improvement. Teachers were also invited to conduct oral evaluations with students for any other activities they chose. An overhead transparency and paper form were provided to record students' oral responses as they discussed the activity as a class.
Student Pre- and Post-Surveys. (Appendix I) Before beginning the nature journaling unit, students completed a short pre-survey addressing environmental attitudes and their expectations for nature journaling. At the conclusion of the unit, they completed another survey with the same environmental attitudes questions and additional questions addressing their impressions of nature journaling. The post-survey also asked students to rate the activities according to their effectiveness in helping them develop observation skills and appreciation for nature, and to name favorite activities.

Student Pre- and Post-Assessment. (Appendix J) A drawing and writing exercise conducted before and after the unit provided a means of measuring changes in students’ observation skills and capacity for self-expression. Before beginning the nature journaling unit, teachers were asked to take students on a fifteen-minute walk around the schoolyard. Students then drew and wrote about what they observed on their walk. At the conclusion of the unit, teachers again took students on a walk and gave them time to draw and write about their observations.

Teacher Questionnaires. (Appendix K) Teachers completed three questionnaires. A one-page pre-questionnaire addressed their previous experiences with journaling and their expectations for the unit. Brief activity questionnaires addressed perceptions of the user-friendliness and effectiveness of each activity they did. A final questionnaire asked for comments on the overall experience and suggestions for improvements.

5. Responses to Likert-scale questions on the student surveys were tallied and percentages calculated. Responses to Likert-scale questions on the teacher questionnaires were tallied and average scores calculated. Responses to open-ended questions on the teacher questionnaires and student surveys were categorized and summarized. The pre- and post-assessment was intended to serve as a comparison of students’ observation skills and capacity for self-expression before and after the nature journaling experience. It was decided that a detailed comparison of individual students’ work was beyond the scope of this study; however, examples of drawing and writing that showed evidence of furthering the aims and goals of the guide were collected to provide a preliminary analysis of the effectiveness of the guide in promoting its desired outcomes. Conclusions from the student portion of the pilot test were then drawn based on the data analysis.
6. At the conclusion of the classroom pilot test, a discussion meeting provided an opportunity for the teachers to discuss their experiences as a group and collaborate to come up with suggestions for improvements to the guide. Six teachers attended the after-school meeting, held in January at Jackson school. Discussion questions (Appendix L) guided the hour-long conversation, and the proceedings were recorded and transcribed. Responses were categorized and summarized, and conclusions drawn about the role of nature journaling in a formal setting.

When both the CWES pilot test and the classroom pilot test were complete, the results of each were combined to draw conclusions about the overall usability and value of the guide in the two settings, as well as its effectiveness with students.

Objective Five Methodology

To develop a final draft of the guide using conclusions drawn from the pilot tests and reviewer comments.

1. The conclusions from the teacher and student responses to the pilot test evaluations were used to generate a list of recommended guide revisions.

2. The graduate committee and four nonformal educators who participated in the focus group were asked to review the first draft of the guide and provide comments. They completed a questionnaire (Appendix M) in which they rated aspects of the guide and compared it to key characteristics in the North American Association for Environmental Education’s publication *Environmental Education Materials: Guidelines for Excellence*. Responses to Likert-scale questions were tallied and average scores calculated. Responses to open-ended questions were categorized and summarized. Conclusions were drawn and used to generate additional recommendations for revisions.

3. The recommendations were used to revise the introductory material, create a final draft of each original activity, develop additional activities, and add to the appendices, resulting in a final version of the guide.
CHAPTER FOUR
RESULTS

Overview

This chapter describes the results of each step in the development and evaluation of a nature journaling guide for formal and nonformal educators of upper elementary and middle school students. The first section describes the framework that established aims and goals for the guide and placed these in a visual model. The second section describes the results of the literature review and a focus group meeting with formal and nonformal educators, and how these were used to establish a vision for the structure and content of the guide. The third section explains the development of the first draft of the guide, and the fourth conveys the findings of the evaluation component: teacher and student responses to nature journaling experiences in both nonformal and formal settings. Finally, the fifth section describes recommendations for revisions drawn from the pilot tests and reviewer feedback on the guide, and development of the final guide.

Results of Objective One

To develop a framework that establishes aims and goals for the nature journaling guide. The literature review (Chapter Two) explores and summarizes the links between nature journaling, general educational outcomes, and the goals of environmental education. The aims, goals and framework model that follow represent a synthesis of this information in the context of the nature journaling guide.

Aims. Three broad aims were identified for the nature journaling guide and its activities:

- **Environmental Sensitivity.** Students develop their sensitivity to the environment through positive and sustained contact with the outdoors, solitude in nature, and environmentally sensitive role models.

- **Naturalist Outlook.** Students explore their local surroundings as naturalists, strengthening both their intellectual understanding of the environment and their emotional connection with their place.
• **Self-Identity.** Students engage in writing, art, and other expressive activities that encourage critical thinking, creative self-expression, and values clarification, leading to a deeper sense of self-identity and a stronger personal voice.

**Goals.** The literature review also identified six opportunities provided by nature journaling. Each of these opportunities was identified as important to achieving the aims, and it was concluded that students should therefore experience each one as part of an encounter with nature journaling. The goals of the guide (narrower and more specific than the aims) focus on providing students with the following opportunities:

• **Sensory Awareness.** Students explore the natural world through each of their senses, develop a keen sensory awareness of the environment and perceive the details of nature more clearly.

• **Curiosity and Wonder.** Students look at aspects of nature in new ways, in a spirit of discovery. They discover an appreciation for the beauty and intricacy of nature and awaken their curiosity to learn more.

• **Observation Skills.** Students sharpen their skills of observation, zooming in on the details, patterns, cycles, and changes in nature. They come to recognize the biodiversity and ecological processes at work all around them.

• **Explorations of Place.** Students consider the unique features of their place through different spatial and temporal scales, zooming out to view it in a broader historical and regional (even global) context. They feel a sense of place: connection with and care for the place where they live.

• **Biophilia.** Students learn to recognize the other living things that share their place, investigating their lives and imagining the world from their perspectives. They develop empathy toward other living things and understand that their own lives are enriched by biodiversity.

• **Reflections.** Students engage in a personal dialogue in which they consider and clarify their own thoughts and feelings about their place in the natural world. They develop strong critical and creative thinking skills, a deeper awareness of their personal values, and a personal voice in which to express their views.
Framework Model. In order to help readers of the guide understand the links between the aims, the goals, and the processes of nature journaling, they were incorporated into a framework model designed to illustrate them in a clear, concise, and visual way. Using the analogy that nature journaling helps students sink roots into their local environment, the model takes the shape of a tree (Figure 4.1). The roots of the tree are the opportunities that nature journaling provides (the goals). The processes through which the opportunities develop into new skills and attitudes form the trunk of the tree. These new skills and attitudes help students branch out toward greater environmental literacy; the three main branches of the tree are the aims of the guide. The skills and attitudes that support each of the aims are leaves on those branches.

Figure 4.1. Framework Model for the Nature Journaling Guide
Reviewer Feedback. Several audiences reviewed the framework and provided positive feedback on its usefulness. Classroom teachers involved in the pilot test commented on the framework in their final questionnaire. On a scale of 1 (poor) to 5 (excellent), all five teachers who returned the final questionnaire ranked the framework as excellent. A 6th grade teacher commented, “I really liked how one section led into the next. It made wonderful sense!” Four nonformal educators (members of the original focus group) also provided comments on the framework. Three of the four ranked the framework excellent and one good. One reviewer commented, “This is a creative yet serious way for those in formal educational settings to justify the importance of nature journals.”

Objective Two
To formulate a vision for the structure and content of the guide using published literature and suggestions from formal and nonformal educators.

Literature Review. The review of existing literature (as described in Chapter Two) provided information on a number of subjects important to establishing a vision for the guide’s structure and content, including definitions of nature journaling, explanations of the benefits of journaling as a teaching method, techniques for effective facilitation, and preliminary ideas for activities.

Focus Group. Additional information about optimal structure and content for the guide was obtained from a focus group of formal and nonformal educators who provided insights about their needs and previous experiences in regard to nature journaling. Thirteen participants completed the written questionnaire (Appendix A), and eleven also attended the meeting and contributed oral responses during the discussion. The questionnaire and discussion questions asked them to share their views on: 1) the role of nature journaling in formal and nonformal educational settings, and 2) optimal structure and content for the guide, with the intention of making it both accessible to educators and effective for the targeted student audience.

All the participants had some personal experience with journaling. Some were enthusiastically positive about personal journal-keeping. In response to whether they
found the process enjoyable and/or beneficial, one said, "Yes. It opens my senses and unleashes creativity. It gives me a better understanding of myself and provides ideas of where/how I belong on this planet." Another commented, "Journals have helped me remember events, places and things that otherwise would be lost, or a static memory in a photograph." Others' feelings were more negative due to difficulty encountered with the writing process, limited time, or dissatisfaction with the results. "I enjoy having and reading the record of past events more than the process of creating the journal – time is the key limiting factor," said one, while another explained, "When I sit down to write I either put such high expectations on myself that I don’t like the outcome or I have so much to say it seems overwhelming." All participants had some experience using journaling with students, some extensively and others less. Some, but not all, had used journals focused on environmental themes. Participants were generally positive about nature journaling with students. It is therefore likely that their opinions do not encompass all the concerns of teachers with less experience or enthusiasm for the topic. Because of the small sample size, no statistical analysis was performed on the data.

**Strengths of Journaling.** The participants noted a number of strengths of journaling as a teaching method. They believed journaling:

- Helps students process and think more deeply about information.
- Provides an opportunity for self-reflection, creativity, and self-expression.
- Allows freedom to express thoughts in a nonjudgmental setting.
- Makes learning relevant to a student’s own life.
- Promotes development of self-identity.
- Develops essential writing skills and promotes excitement about writing.
- Facilitates making connections between disciplines and the integration of environmental education into other disciplines.
- Helps teachers better understand and communicate with individual students.

**Barriers to Journaling.** Participants also identified an assortment of barriers to using journaling with students, including:

- A lack of experience or comfort with facilitating journaling.
- Teachers not enjoying the journaling process themselves.
- Student resistance to writing and/or reflecting.
- Time constraints that make regular use of journals difficult.
- The difficulty of assessing/grading journals, particularly with large class sizes.
- Academic standards and division of subject areas that make certain types of journaling assignments difficult to justify.
• The need for an atmosphere of quiet and solitude, which can be difficult to provide in a class setting.
• The need for variety to keep students engaged and enthusiastic.
• Variable levels of interest, motivation, and quality of work produced by students.

**Definitions of Journaling.** Participants emphasized the importance of defining journaling in a broad and open-minded way. For instance, all agreed that journaling is not simply writing; it can also include artistic elements such as drawing and sketching. One teacher explained, “I don’t think journaling is just sitting down and making the kids write. Some kids draw. I have some very good artists in my class, and [drawing is] much more fulfilling to them and rewarding.” Many stressed the importance of offering a variety of types of activities to avoid having journaling become too routine and to appeal to the different learning styles of students. One explained, “In my class I have 21 different students that react in 21 different ways to anything...Choice is important.” The group agreed that all students can benefit from the journaling process to some degree. Some also mentioned the value of stretching students’ comfort levels by asking them to experiment with different styles.

**Preparing Students for Journaling.** In preparing their students to use journaling successfully, participants emphasized: 1) the importance of valuing journaling themselves, and being committed to making time for it in the curriculum; 2) discussing the value of journals and how others have used them; 3) setting clear expectations and guidelines for assessment; 4) modeling the process and providing examples; and 5) establishing a safe, respectful, and calm atmosphere.

**Usefulness of the Nature Journaling Guide.** Regarding whether a nature journaling guide would be useful to them, twelve of the participants responded *yes* and one said *maybe*. Participants also saw potential for other teachers or staff in their workplaces to be interested in the guide. Four responded *very interested* and 8 *somewhat interested*. They saw the guide as a resource for planning lessons and programming, both in formal and nonformal settings. At Stevens Point’s new environmental charter school, teachers already noted excitement among their colleagues. “At Jackson school, they were extremely enthusiastic and delighted that I would come back with a copy of the guidebook....Many of the teachers there are looking for any resources that would assist
them in placing the environment as the key focus for the curriculum.” Staff at the Central Wisconsin Environmental Station (CWES) and at the school district’s Boston School Forest also saw potential for incorporating journaling into their programming. Participants felt the guide would serve as a source of inspiration for those who lack experience with journaling, and a source of new ideas for those who already have experience. They also felt it would be important as a “seal of approval” justifying nature journaling as a worthwhile activity. The group agreed that it could be used in many subject areas — in science and language arts, certainly, but also in other areas such as social studies and mathematics. All the formal classroom teachers saw opportunities to use nature journaling to meet existing curriculum requirements, and six of the seven believed there would be opportunities to collaborate across disciplines. Only one said “not many” due to lack of time.

Structure of the Guide. Regarding the physical structure of the guide, participants suggested making it durable and manageably-sized, and organizing it in a ring binder where pages could be easily added or removed for copying. They emphasized the importance of a visually-appealing and easy-to-use layout that minimizes the amount of time teachers need to spend getting materials ready to use with students. Figure 4.2 shows responses regarding the most important structural features of the guide. On a scale from 1 (not important) to 5 (very important), the most highly ranked structural features for the group as a whole were ready-to-copy student pages (average response 4.6), division into chapters by theme (4.4), and a conceptual framework (4.4). All of the proposed features were ranked 3.5 or higher, and therefore seem to have a place in the guide.
Content of the Guide. The top three content features indicated by the group were objectives (4.5), a nutshell summary (4.2), and concepts (4.1). In the responses of the formal educators, objectives were ranked first (4.6), and time needed for the activity was second (4.5). The nonformal educators ranked objectives first (4.3), and the second highest ranking went to both adaptations for other settings/learners, and extensions for using journal entries as jumping-off points for other activities (both 4.2). Interestingly, adaptations and extensions were the lowest-ranked items by the formal educators, while time was the lowest ranked item by the nonformal educators. It would appear that the formal educators are more time-conscious than their nonformal counterparts, while the nonformal educators are more interested in ideas for modifying activities to fit different settings and audiences.

Types of Journaling Activities. Participants were asked to indicate which types of journaling activities they felt would be most effective with upper elementary and middle school students. Options and responses are shown in Figure 4.3. The most frequently indicated item was personal narrative (12 of the 13 respondents). The second was drawing/sketching (11 of the 13), and the third was a tie between notes on weather/seasons and scientific observations and experimentation (both 10). However, the consensus throughout the meeting was that a variety of activities that included all of these choices would be most effective for meeting students’ and teachers’ needs.
**Introductory and Supplementary Material.** Figure 4.4 shows responses to the types of introductory or supplementary material participants felt would be most useful to them. On a scale from 1 (*not important*) to 5 (*very important*), the highest-ranking features were connections to multiple intelligences (average 4.3), ideas for integrating nature journaling into the curriculum (4.1), and ideas for assessing journals (4.1). All the proposed features were ranked 3.2 or higher on average, suggesting that all have a place in the guide.

<table>
<thead>
<tr>
<th>Feature</th>
<th>Average Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple Intelligences</td>
<td>4.3</td>
</tr>
<tr>
<td>Curriculum Integration</td>
<td>4.1</td>
</tr>
<tr>
<td>Assessment Ideas</td>
<td>4.1</td>
</tr>
<tr>
<td>Ideas for Introducing Nature Journaling</td>
<td>4.1</td>
</tr>
<tr>
<td>Connections to Children's Literature</td>
<td>3.8</td>
</tr>
<tr>
<td>Intro on Historical Naturalists</td>
<td>3.8</td>
</tr>
<tr>
<td>Tips for going outside</td>
<td>3.2</td>
</tr>
<tr>
<td>Bibliography</td>
<td>3.2</td>
</tr>
</tbody>
</table>

**Preparation for facilitating nature journaling.** Participants were divided in their feelings about whether educators who lack personal journaling experience can effectively facilitate journaling with students. Those who believed personal experience was not essential generally thought that educators lacking experience would need some kind of training, or would need to journal along with their students. Others felt that experience was essential; that without familiarity with the process and range of possibilities, educators could not effectively model for their students. “I firmly believe teachers must be very familiar with the process and the many possibilities,” one wrote.

Participants recommended the following elements as essential in preparing educators to use nature journaling successfully:

- Information about what journaling is and how it has been used by others.
- Clear guidelines about how to use the guide and how to facilitate journaling.
• An emphasis on the importance of gaining personal experience with journaling in a variety of styles, including forms that are less familiar or comfortable, to build familiarity with the process and empathy with students.

• A wide variety of activity ideas and explanations that show how other teachers have used them successfully.

A Vision for the Guide. Conclusions drawn from the literature search and the focus group were used to compile a vision for the guide, which can be found in its entirety in Appendix P. The vision includes strengths of journaling to be emphasized and barriers to be addressed in the guide, facilitation topics to include, and activity components to address the needs of educators and the goals of environmental education. The vision states that the completed guide will provide the following key features:

• Justification for including nature journaling in both formal and nonformal education programs.

• An open-ended definition of nature journaling and support for experimenting with a variety of forms of journaling.

• A visually appealing, manageably-sized, easy-to-use resource.

• A complete, stand-alone discussion of facilitation techniques as well as step-by-step activity procedures, not requiring any additional training to use.

• An inspiring collection of creative and innovative ideas for educators at all levels of experience with nature journaling.

Objective Three
To use the framework and vision to create a first draft of the nature journaling guide.

The framework and vision were used to compile a first draft of the guide. The guide contains three major sections:

Introductory Chapters. Four introductory chapters cover background information for educators. These chapters are:


Beginnings and Endings. Suggestions for introducing and concluding a nature journaling unit.

Activities. The first draft of the guide contains eighteen activities arranged into six sections. The section themes match the goals identified in the framework: Sensory Awareness, Curiosity and Wonder, Observation Skills, A Place in Space and Time, Biophilia, and Reflections. Each section contains one “Warming Up” activity designed as a brief introduction to the theme and several “Digging In” activities that provide opportunities to explore the theme in depth. Each activity description contains a brief “nutshell” summary; a materials list; suggestions for locations and timing; background information if applicable; preparation required by the teacher; a step-by-step procedure for doing the activity; and optional extensions. A sample of the layout is shown in Figure 4.5.

Appendices. A series of appendices provide a list of references and additional resources; matrices correlating activities with subject areas, multiple intelligences, and Wisconsin Academic Standards for Grades 4 and 8; and ideas for assessing students’ journals.

Figure 4.5. Activity Page Layout
Objective Four

To evaluate the usability and effectiveness of the guide through pilot tests with nonformal and formal audiences.

The CWES Pilot Test: Nature Journaling in a Nonformal Setting

Four schools chose to participate in the nature journaling pilot test at CWES, divided into a total of eight different groups (six overnight and two day groups). There were 335 sixth and seventh grade students in all, distributed as shown in the table below. Each of the eight visiting school groups contained between 30 and 50 students. They were divided into smaller groups for their lessons at CWES, so that each nature journaling lesson was taught to between ten and sixteen students. Ten different instructors taught the lesson, and it was taught approximately twenty-five times.

<table>
<thead>
<tr>
<th>School</th>
<th>Grade Level</th>
<th>Number of Students</th>
<th>Length of Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theisen Middle School, Fond du Lac, WI</td>
<td>6</td>
<td>177, in four groups</td>
<td>3 day program, 1½ hour nature journaling lesson on Day 3</td>
</tr>
<tr>
<td>Our Lady of Peace, Marshfield, WI</td>
<td>6</td>
<td>47, in one group</td>
<td>2 day program, 1½ hour nature journaling lesson on Day 2</td>
</tr>
<tr>
<td>Rosendale Middle School, Rosendale, WI</td>
<td>6</td>
<td>51, in one group</td>
<td>2 day program, 1½ hour nature journaling lesson</td>
</tr>
<tr>
<td>St. Peter Middle School, Stevens Point, WI</td>
<td>7</td>
<td>60, in two groups</td>
<td>1 day program, 1 hour nature journaling lesson</td>
</tr>
</tbody>
</table>

Results of Student Evaluations

Half of the 335 participating students (167) filled out a one-page student survey at the conclusion of their nature journaling lesson at CWES (Appendix C). All the responding students were sixth-graders from either Theisen Middle School or Our Lady of Peace.

Students' Impressions of Nature Journaling.

The student survey included seven multiple choice questions that gathered information about how enjoyable and beneficial the students found the nature journaling experience. Student responses regarding their

![Figure 4.6 Overall, working on my nature journal was:](attachment:image)
enjoyment were generally positive, as indicated in Figure 4.6. 61% said that working on the journal was fun, 36% said it was okay, and only 3% reported finding it boring.

They also seemed to find it an experience that helped them better see and understand the natural world; over half responded a lot when asked if they felt the activities helped them look closer at nature and learn more about nature, while only 6% and 8% responded not at all to these questions (Figures 4.7 and 4.8).

Many also seemed to feel that the activities helped them appreciate the natural world. Just under half (49%) said the activities helped them appreciate nature more a lot, 46% responded a little, and only 4% said not at all (Figure 4.9). 48% of the students said the activities were very interesting to them, 48% said they were somewhat interesting, and only 4% said they were not at all interesting (Figure 4.10).
57% felt they could be very creative in their nature journals, 37% somewhat creative, and only 6% said not at all creative (Figure 4.11). Finally, when asked if they would like to keep working on their journals on their own after leaving CWES, 33% said yes, 48% said maybe, and 19% said no (Figure 4.12). Considering that the question asked whether they would do this on their own (not in school), this is also a positive indication.

![Figure 4.11](image1)

![Figure 4.12](image2)

Overall, the students' responses reflect a very favorable reaction to the experience and suggest that they found the writing and drawing activities a creative outlet and an enjoyable and beneficial addition to their lessons at CWES.

**Students' Responses to Activities.** Four open-ended questions on the student survey asked students to name the activities they liked most and least. The activities that got the most votes were Natural Alphabets (mentioned 22 times in the 166 surveys) and Partner Drawing (29 times). Some chose Memory Test as a favorite (5), though more named it as their least favorite (12). More than a third of the students (58) said they liked all of the activities or that none were their least favorite.

When asked how they would change the activities if they were in charge, many of the suggestions were not especially practical (for example, a generic “make it more fun”; make the weather warmer; give out snacks!). However, there were some potentially valuable suggestions. A number of students expressed a desire for more time; they obviously felt rushed. Two suggested making the journals at the beginning of their stay so they would have time to write throughout their visit. Several suggested spending less
time talking and more time outside. One suggested making Memory Test a game (a simple name change that might make all the difference for some students).

Students’ Advice about Nature Journaling. When asked to provide advice for someone their age who was about to start a nature journal, students had a lot of insightful suggestions. Although a few stated, “Don’t keep a nature journal” or “It’s not that fun, TV is way better”, most were very positive. Many simply passed along the message that it is fun, while others offered reassurance for the skeptics or focused on the journal’s value for learning or remembering:

- It’s funner than you think and you learn a lot about nature.
- In the beginning it’s boring but it gets a lot better.
- It’s really fun. You learn a lot without having to take a test.
- You can look back when you are older and remember what happened.

Others provided tips for the process, either practical or philosophical:

- Open your mind and listen.
- Just think about nature and write what you think.
- Close your eyes and listen to what you hear.
- Be very observative, and have lots of detail.
- Pay close attention and have a good memory.
- Notice everything about everything.
- Think hard but not too hard and have fun.
- Imagine.

Another theme that emerged was to be creative and do your own thing:

- Be yourself, write what you want to write.
- Don’t be hard on yourself.
- It’s your journal so be creative with it.

One felt that a model would be helpful:

- I would show them my journal.

And one simply declared:

- You have to try it. It is the best time ever.

Results of Instructor Evaluations

Ten CWES instructors taught the lesson, some just once and others up to four times. Each filled out a four-page questionnaire about the experience. A series of initial questions were to be answered before teaching the lesson, and the others afterwards (Appendix D).
Because instructors were working with a condensed 10-page lesson plan rather than the full draft of the guide, the pilot test was not a trial of the guide as a whole. However, it does indicate certain conclusions about nature journaling in a nonformal setting that are of use to the design of the guide as a whole. Because of the small sample size, no statistical analysis was performed on the data.

**Instructors’ Feelings about Preparation.** The instructors’ questionnaire responses indicate that they found the lesson plan sufficient preparation for teaching the lesson, as shown in Figure 4.13. On a scale from 1 (not well) to 5 (very well), the average response regarding preparation was 4.5 on a 5 point scale, with responses ranging from 3 to 5.

![Figure 4.13 How well did the lesson plan prepare you to teach the lesson?](image)

Some of the instructors received additional training and modeling along with the lesson plan, while others did not. Of those who did not, one expressed a desire for additional training, while the others seemed to feel that the plan alone prepared them adequately. Although their level of previous experience varied, all but one of the instructors were undergraduate students; more experienced professionals at a nonformal center are likely to be more confident in their abilities to translate written information into a lesson without additional training. Therefore, it seems reasonable to conclude that the information contained in the guide alone will be adequate preparation for nonformal educators who wish to use nature journaling with students.

**Instructors’ Enthusiasm and Confidence.** The instructors reported an increase in their levels of both enthusiasm and confidence after teaching the
way from 1 (not enthusiastic) to 5 (very enthusiastic). After teaching, the average response rose to 4.3 – a small shift, but interestingly all responses were 3 or higher after teaching the lesson. Confidence increased more dramatically, from an average of 4.0 before to 4.4 afterwards. The responses are shown in Figure 4.14.

The experience seems to have been generally positive and confidence-building for all instructors, regardless of where they started along the continuum. Some expressed enjoyment of the experience and a desire to teach it more. Several commented that their initial skepticism was replaced by a more positive attitude.

- I enjoy this topic and really want to try to do more.
- I was skeptical, but at the end I wanted to teach it all the time.
- I still wouldn't do it myself but I feel good about teaching it.

**Instructors’ Expectations and Goals.** Instructors’ answers about what they hoped students would gain from nature journaling fell into three main categories: 1) enhanced observation and reflection skills; 2) a deeper understanding of journaling and a good experience with it; and 3) new perspectives on and appreciation for the natural world.

**Reactions to Activities.** Natural Alphabets, Partner Drawing, and Memory Test were all mentioned as particularly effective activities for this setting. Comments on what made them effective included the following:

- Nature Alphabet – they love it! It’s neat to see them start finding letters and looking at nature so closely to do it.
- Partner Drawing because it makes them realize how important describing things in great detail is!
- They loved the Natural Alphabets and Memory Test.

Place Descriptions, Sound Maps, and Graffiti Wall also received positive comments. However, two instructors felt that Place Descriptions and Quote Responses were potentially too advanced for this age group.

- The Place Descriptions seemed a little over their head...I think the “point” was too accelerated for these students.
- Hardly any of the students understood the quotes and I had to interpret them so they could write about them.

These activities might be better suited to a classroom setting when more time can be devoted to them and teachers are more familiar with students’ previous experience and
abilities. A number of the instructors also felt that the introductory discussion on historical naturalists was not a particularly effective use of time.

- I don't think it makes sense to talk about the historical journalers because the students won't hear about them again for several years if not until college.
- The kids didn't seem very interested in who they were.

This topic also may be more appropriate for the classroom, when more time can be devoted to exploring it. Alternatively, the lives and writings of the historical naturalists could be incorporated throughout the lesson, perhaps between activities.

**Instructors' Overall Impressions.** The instructors commented positively on the students' responses and the value of the experience for the students:

- I felt it went well and the kids were really excited to do their own things instead of a worksheet!
- I think it is wonderful for students to have guided reflection.
- I really like it because it is a different perspective of how to enjoy and remember adventures they have in nature.

Regarding overall impression of the lesson, all ten instructors ranked it either *good* or *excellent* on the five-point scale, as shown in Figure 4.15. The average ranking was 4.6.

When asked whether they would choose to have students participate in this lesson if they were responsible for scheduling at a place like CWES, the average response was 4.5 on a scale of 1 (*definitely not*) to 5 (*definitely*), with responses ranging from 3 (*maybe*) to 5. The instructors clearly felt that there is a place for nature journaling in nonformal environmental education. The main challenges they noted for this setting were time constraints and weather. Those who taught the one-hour lesson felt that they didn't have enough time; it seemed that 1½ hours was more effective. On particularly cold or wet days, they found it challenging to motivate students to sit still or write outside.
Instructors’ Conclusions from the CWES Pilot Test. The final discussion meeting provided an opportunity for instructors to further discuss their experiences and collaborate to provide suggestions for improving the guide. Overall, the discussion participants commented positively on their experience and felt that students and teachers had also enjoyed it. The CWES director noted that all of the teachers who chose to participate expressed excitement about the lesson being offered; she had already added the lesson to the menu of lessons from which teachers could choose for the next semester.

In the course of the discussion, participants arrived at the following conclusions:

- The instructors agreed that the lesson plan sufficiently prepared them to teach, and they did not think additional training was necessary.

- Revisions/modifications recommended for nature journaling at CWES included: more examples of student journals in the kit; laminated photos of the historical naturalists which could be taken outdoors, as an alternative to the overhead transparency; and additional activities or adaptations for cold or wet weather. Participants also noted the importance of helping students clearly understand the value of journaling. Because students arrive at CWES with different backgrounds, it may be valuable to provide instructors with initial questions to assess students’ existing level of environmental awareness, appreciation, and interest.

- Regarding the role of nature journaling in the nonformal setting, a journal is first of all something tangible for students to take with them, to help them remember their field trip experience and perhaps spark discussion at home with their families. Nature journaling also introduces a quiet, reflective element into an otherwise very scheduled, active, and group-oriented day. Nature journaling could be incorporated into students’ experience at a nonformal center as a stand-alone lesson, as in the pilot test, or it could be integrated throughout the day, as part of opening or closing activities and/or within individual lessons.

- Nature journaling provides opportunities to enhance collaboration between formal and nonformal settings. Teachers who use journals with students in the classroom could be encouraged to have students bring their journals along on the trip. Staff at the center could be given ideas for how to make use of journals in the lessons they teach. The journals could also be used to connect the field trip experience to the formal
curriculum, with pre and post entries used to prepare for and follow up on the trip. The center could also provide classroom teachers with a selection of ideas for extending journaling back in the classroom.

Results of Visiting Teacher Evaluations
A total of twelve teachers - including at least one from each of the eight groups - filled out a three-page questionnaire during or after their observation of the nature journaling lesson (Appendix E). As a whole, teachers were very positive about the lesson. Because their backgrounds and reasons for bringing students to CWES varied, their comments provide valuable ideas about how nonformal educators can meet the range of expectations and needs of groups who visit their sites. Because of the small sample size, no statistical analysis was performed on the data.

Visiting Teachers’ Expectations and Goals. The teachers had a variety of aspirations for their students, from greater observation and recall skills, to a broader understanding of journaling and a greater appreciation for its benefits, to a reflective experience and a deeper appreciation of nature. In comparison to the CWES instructors, their goals were more focused on academic skills and less on appreciation of the natural surroundings (only two of the twelve mentioned nature or the surroundings, compared with seven of the ten CWES instructors). Their emphasis on writing skills, observation and recall skills, and reflective thought suggests that it is important for these skills to be addressed by the activities in the guide, and that when nonformal educators select activities for a lesson, they should try to incorporate a variety of these skills.

Visiting Teachers’ Reactions to Activities. Memory Test and Partner Drawing both got especially good reviews from the teachers. Fully half of the teachers mentioned Memory Test as particularly effective. Natural Alphabets and Sound maps also received several votes. Three teachers mentioned the making of the journals as a fun, hands-on element as well. Comments included the following:

- [Memory Test] was fun. It worked on visual skills/memorization.
- [Memory Test] – I think students need to concentrate and pay attention to what they see more today. They need to slow down and appreciate things.
- Visual partner drawing helped promote listening and communication skills.
Several echoed the concerns of the instructors about Quote Responses and Place Descriptions being too advanced for this age group. Another concern was with the historical naturalists. However, there was no clear consensus about the best approach: some teachers felt more time should have been spent, while others seemed to feel it would have been better to simply shorten the introduction and move straight into the activities. One solution may be to transfer some of the background on historical journal-keepers to pre- and post-visit activities, so that teachers can delve deeper into the lives of the naturalists before or after the experience at CWES if they choose.

**Visiting Teachers' Impressions of Student Responses.** The teachers believed that the majority of students benefited from the nature journaling experience. On a scale from 1 (*none*) to 5 (*all*), all twelve teachers indicated that either *most* or *all* benefited, with an average response of 4.3. They were also asked to comment on their impressions of students’ responses to the lesson; their responses are shown in Figure 4.16. Regarding how interested students were, the average ranking was 3.8 on a scale of 1 (*not interested*) to 5 (*very interested*). For students’ motivation, the average ranking was 4.0, and for how challenging the lesson was, the average ranking was 3.9.

The teachers were also asked about the appropriateness of the lesson for their students; their responses are shown in Figure 4.17. Regarding how well the lesson addressed students’ grade level, the average response was 4.6 on a scale from 1 (*not well*) to 5 (*very well*).
well). Generally teachers seemed to find it age-appropriate. Regarding its success in addressing individual learning styles, the average response was 4.1, and in addressing special needs, 4.0. Teachers’ responses reinforced the importance of providing activities that appeal to a range of learning styles and ability levels, and of finding ways to engage students who don’t enjoy writing.

**Visiting Teachers’ Overall Impressions.** The teachers’ overall impressions of the lesson were definitely positive. On a scale from 1 (poor) to 5 (excellent), all of the teachers ranked the lesson between 4 and 5 (Figure 4.18), with an average response of 4.6.

Teachers also responded favorably to the possibility of future participation in nature journaling at CWES. All indicated that they would either probably or definitely choose to participate in their next visit (Figure 4.19). The average response was 4.7.

Additional comments from the visiting teachers confirmed the effectiveness of the lesson at CWES and its value as part of a nonformal EE experience in general:

- I enjoyed this lesson! It gave me several ideas that I will incorporate.
- Met everyone’s needs – kept kids motivated and involved. Kids were excited.
- It kept 7th graders interested – and that is impressive.
- Great lesson that involves all students and makes the best of individual strengths, great emphasis on creativity and imagination.
- I believe this is an effective technique to get students’ thoughts down about what they have learned in their lessons and the importance of observations in science.
- It is a connection between nature, the field trip to CWES, and schools.
- It adds variety to the program and provides students with excellent closure.
The Classroom Pilot Test: Nature Journaling in a Formal Setting

Eight teachers and their students (ten classes total) in the Stevens Point school district participated in the formal pilot test. Six of the eight teachers taught at Jackson Environmental Discovery Center, a public elementary school that became an environmentally-focused charter school the previous year. The Jackson classes ranged from third through sixth grade. Although the guide was designed to begin at the fourth grade level, several interested teachers had mixed third and fourth grade classes, so the decision was made to allow third grade students to participate. The Jackson students also represented a wide range of ability levels: one classroom was a gifted and talented group, while another was a self-contained learning disabilities classroom. The other two teachers in the pilot test included a sixth grade teacher from Madison Elementary and a seventh and eighth grade science teacher from Ben Franklin Junior High. The activities were therefore tested throughout the grades for which the guide was designed, although representation was greater for the lower grades than at the junior high level.

Table 4.2. Classes Participating in the Classroom Pilot Test

<table>
<thead>
<tr>
<th>School</th>
<th>Grade Level</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jackson Elementary</td>
<td>3</td>
<td>29</td>
</tr>
<tr>
<td>Jackson Elementary (learning disabilities)</td>
<td>3-4</td>
<td>12</td>
</tr>
<tr>
<td>Jackson Elementary (gifted and talented)</td>
<td>3-4</td>
<td>19</td>
</tr>
<tr>
<td>Jackson Elementary</td>
<td>4</td>
<td>26</td>
</tr>
<tr>
<td>Jackson Elementary</td>
<td>5</td>
<td>24</td>
</tr>
<tr>
<td>Jackson Elementary</td>
<td>5-6</td>
<td>27</td>
</tr>
<tr>
<td>Madison Elementary</td>
<td>6</td>
<td>28</td>
</tr>
<tr>
<td>Ben Franklin Junior High (science)</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>Ben Franklin Junior High (science)</td>
<td>7</td>
<td>24</td>
</tr>
<tr>
<td>Ben Franklin Junior High (science)</td>
<td>8</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total Number of Students:</strong></td>
<td></td>
<td><strong>232</strong></td>
</tr>
</tbody>
</table>

Results of Student Evaluations

Evaluations captured the students' nature journaling experience from a variety of angles. Surveys gathered their initial expectations and final impressions of nature journaling, as well as information about their general environmental attitudes before and after the pilot test. Activity evaluations provided in-depth comments on three specific activities. A drawing and writing exercise conducted at the beginning and end of the pilot test afforded
a deeper look into the actual outcomes that nature journaling promoted. Not all teachers completed all the evaluations with their classes, and not all students in a given class were present for each component, so the number of student responses on each aspect varied.

**Expectations for Nature Journaling.** Before beginning the pilot test, students filled out a survey (Appendix I) that asked about their expectations for nature journaling. Two hundred students from nine classes responded to the statement, “I am looking forward to keeping a nature journal.” Responses were distributed as shown in Figure 4.20, with 25% replying *a lot*, 34% *sort of*, 25% *not sure*, and 15% *not at all*. Their responses clearly suggest a wide range of initial attitudes about beginning nature journals, and responses to the open-ended question “Why or why not?” further reflect this variety. Positive responses included:

- I think it will be fun.
- I can learn a lot.
- I like recording information.
- I want to learn more and you get to have some adventure in your day.
- When I have grandchildren I can pass it on to them.
- If I go outside and study nature, I might enjoy it more.
- I want to observe and record behavior patterns, habitats...I want to make the society aware of what pollution and logging, etc. does to the environment.
- Because I like nature, trees, and animals a lot. I can’t wait!

Many who were not sure expressed uncertainty about what nature journaling would involve, or whether it would be what they hoped:

- I have never kept a nature journal so I don’t know what it is going to be like.
- I don’t know, I am not used to learning about nature.
- Depends on what sort of things we do.
- I do not like having limits. I like to go freely and for as long or as short as I wish.
- I'm into going outside and looking at stuff and drawing but not writing about it.
- I kind of like just watching nature and I think it's a little hard to write a journal and watch nature at the same time.
• It’s more fun when you don’t have to do it every day.
A few were quite certain they wouldn’t enjoy it, and explained:
• Journals are okay but I like doing other things.
• I don’t like journals.
• I’m not good at writing.
• I don’t enjoy nature much, I would rather be inside.
• Boring.

**Activity Assessments.** Of the ten activities teachers were asked to do with their students, three activities were required and the others they chose. The three required activities – Natural Alphabets, Sound Maps, and New Perspectives – were chosen because they address three different goals of the guide and had been field-tested successfully in a variety of settings and audiences. By having all the classes participate in these three activities, it was possible to draw wider conclusions about student reactions and effectiveness. Student evaluations consisted of a half-page form with Likert-scale and open-ended questions regarding the experience (Appendix H).

**Natural Alphabets.** This activity begins with a picture book called *The Butterfly Alphabet*. Students looked at close-up photographs of butterfly wings that reveal each letter of the alphabet. Then they went outdoors and looked for the letters in their names in the patterns of their surroundings, from tree branches and bark to sidewalk cracks and the geometric shapes of buildings. Once they learned how to look in new ways and see the letters, they drew their discoveries into their journal, as shown in the illustrations. After completing the activity, 158 students (from seven classes) filled out an evaluation form. Student response to this activity was very positive overall. Two-thirds of the students (66%) found the activity *fun,* as shown in Figure 4.21. When asked whether they felt it helped them look closer at nature (one of the main goals of the activity), 89% responded either *a lot* or *a little;* only 11% said *not at all* (Figure 4.22).
Open-ended questions asked students to comment on what they liked most and least about the activity. Their responses were categorized, and certain themes emerged. The majority of students in all the classes reported that finding the letters was their favorite part. Two other common themes were going outside and looking closer at the natural world. Specific comments included:

- The letters you find look neat.
- Really being aware of your surroundings.
- I was looking closer into nature.
- Getting to go outside and calm down.
- Just walking around and viewing nature.

In regard to what they liked least, many mentioned cold or wet weather. Quite a few students reported not having enough time, and some also commented on the difficulty of finding letters or feeling constrained by boundaries, other students, or the rules. One class used digital cameras to photograph their discoveries, and evidently the cameras caused conflict because many students said they did not like that people were fighting. Specific comments included:

- I wish we could have spent more time outside.
- The boundaries were too small.
- It was noisy with everybody.
- Not running outside and not playing made it hard.
- Having to stop and go inside.

Students were also asked what they would change if they were in charge. Some suggested doing it on a warmer day and allowing more time, and a number of them would have liked the additional challenge of finding all the letters of the alphabet.
• I would have us try to find the whole alphabet as a challenge, because I found both of my initials the first thing I got out there, and the rest of the time I spent just observing things.

**Sound Maps.** In this activity, students made a map of all the sounds they heard around them, both “natural” sounds and those created by humans. Nine classes, with a total of 180 students, filled out the activity evaluation sheet. Again, the response was quite positive, with 63% reporting that the activity was *fun* and only 8% reporting *not fun* (Figure 4.23). The majority of students felt that it did help them hear more of the sounds around them, though in this case more students responded *a little* than *a lot* (Figure 4.24).

![Figure 4.23 Sound Maps was:](image)

![Figure 4.24 Sound Maps helped me hear more of the sounds around me:](image)

Regarding what they liked most about the activity, the most frequent comment involved the opportunity to listen closely and hear the outdoor sounds. Many also mentioned going outside as a positive aspect. A number of students liked the quiet, relaxing atmosphere. Specific comments included:

- Getting to spend time in nature.
- We got to sit and just listen.
- Watching and hearing the ice cracking.
- The birds chirping and dogs barking.
- Got to get fresh air!
- The quiet time. It was peaceful.

Least favorite aspects focused on classmates making too much noise and feeling uncomfortable in the cold or wet weather. Some found it difficult to sit still and stay quiet, while some would have preferred to spend more time outside. Comments included:

- The class kind of made more noise than nature.
- Talkative people around me.
- How wet the ground was.
- The chilling wind.
- We got to relax in the grass.
- Listening to the world around me.
- Sitting outside, feeling the wind.
- Hearing a lot of sounds you might not hear unless you were listening.
- I heard more with my eyes closed.
- I felt free.
• We had a short time to be out there.
• The part were we were had to come back.

Students suggested the following changes: spread out more, make sure everyone stays quiet, don’t do it when other kids are out for recess, move around while listening, spend more time, and do it on a warmer day.

**New Perspectives.** In this activity, students took on the voice of another animal, plant, or inanimate object and wrote a journal entry from its perspective. Some teachers also had students illustrate the entry. Five classes, totaling 93 students, filled out the evaluation form for this activity. Response to this activity was slightly less positive than the other two, but still over half of the students (52%) reported finding it fun. The goal of the activity was to help students empathize with other living things; 43% of students thought it helped them think about how other things see the world a lot, 44% said a little, leaving 13% with not at all.

<table>
<thead>
<tr>
<th>Figure 4.25 New Perspectives was:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fun</td>
</tr>
<tr>
<td>52%</td>
</tr>
<tr>
<td>Okay</td>
</tr>
<tr>
<td>37%</td>
</tr>
<tr>
<td>Not fun</td>
</tr>
<tr>
<td>11%</td>
</tr>
<tr>
<td>N=93</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Figure 4.26 New Perspectives helped me think about how other living things see the world:</th>
</tr>
</thead>
<tbody>
<tr>
<td>A lot</td>
</tr>
<tr>
<td>43%</td>
</tr>
<tr>
<td>A little</td>
</tr>
<tr>
<td>44%</td>
</tr>
<tr>
<td>Not at all</td>
</tr>
<tr>
<td>13%</td>
</tr>
<tr>
<td>N=93</td>
</tr>
</tbody>
</table>

The most positive aspects of the activity mentioned by students were going outside, writing the story or drawing, getting to choose their own subject, and using their imagination or seeing from a different point of view. They said:

• We got to go outside and pick a part of nature and write about it.
• We got to see it in the object’s point of view.
• Using my imagination.
• Thinking of what the thing felt.

For some, the least favorite aspect was the writing, and for others, the drawing. A number of them would have liked to have more time. Some suggestions for changes included:
• I would make it so you pick two items close together and write about how they communicate.
• Let us have more time to explore the tree, and maybe even let us write the story near the tree.
• I would give us a tiny bit more time.
• Work on it in pairs.
• I would have a group write a story.
• Make it a comic book with captions.

Additional Activity Assessments. The final survey also asked students to comment on their reactions to all the activities they did. There was a great deal of variety in which activities responses to individual activities; for every student that said s/he didn’t enjoy a particular activity, another student noted that activity as his or her favorite. This reinforces the importance of providing a variety of types of activities to appeal to different learning styles.

Impressions of Nature Journaling. The post-survey (Appendix I) included seven multiple choice questions that gathered information about how enjoyable and beneficial students found the nature journaling experience. (The same questions were asked of students in the CWES pilot test.) A total of 94 students – from five classes and including third through seventh graders – completed the post-survey. Regarding enjoyment, 43% said that working on the journal was fun, 48% said it was okay, and only 9% reported finding it not fun (Figure 4.27). This is a less positive trend, overall, than responses to this same question in the CWES pilot test. It seems likely that their attitudes reflect the fact that this was part of the regular school day, rather than a special field trip experience that was ungraded and in a new setting. Very few school assignments are likely to be regarded as unqualified fun, so the fact that 91% of the students reported nature journaling as either fun or okay is perhaps fairly positive. It should also be noted that the months of November and December 2003, when most of the classroom pilot activities took place, were exceptionally cold. The weather could certainly have affected students’ perceptions.
The remaining questions look at the outcomes of nature journaling. Regarding whether the experience helped them look closer at nature and learn more about it, the majority of students responded *a little*, as shown in Figures 4.28 and 4.29.

The same trend continues with regard to whether the activities helped them appreciate the natural world (Figure 4.30), and whether they were interesting to students (Figure 4.31).

Creativity is emphasized in the nature journaling guide. 36% of students felt they could be *very* creative in their nature journals, 50% *somewhat* creative, and 14% said *not at all* creative (Figure 4.32). When asked if they would like to keep working on their journals, 42% said *yes*, 27% said *maybe*, and 31% said *no* (Figure 4.33). Considering that initially only 25% reported looking forward to keeping nature journals *a lot*, and by the end 42% wanted to continue, it seems to have been a positive experience for many of the students.
The lower rankings for the outcomes questions in the formal versus the nonformal pilot test could be related to students' previous experience. The majority of the students in the formal pilot were from Jackson, where they have already been doing many activities focused on environmental awareness and knowledge. Compared with students who start at a lower level of awareness and knowledge, these students may have a higher threshold for feeling that they became more aware or learned something new. Additionally, several of the teachers noted in the final discussion that they felt students' written responses did not truly reflect their opinions; the teachers believed that some students were swayed by peers or were reluctant to express their enjoyment.

**Environmental Attitudes.** Seven questions on the pre- and post-surveys (Appendix I) addressed general environmental attitudes. Because each survey had a class code and the student’s first name, it was possible to compare individual students' responses to the pre-survey and the post-survey. This was intended to provide information about possible impacts of nature journaling on environmental attitudes. However, without a control group, results proved inconclusive. There were too many confounding factors to find conclusive trends in the data. For instance, the initial surveys were completed in late fall, while the final surveys were completed in the coldest part of the winter; this could certainly affect students' perceptions of whether they would prefer to be inside or outside, or whether they can find things to do in nature. However, the results do suggest some interesting avenues for further investigation, so they are included here.

Four classes (86 students) completed both the pre- and post-surveys. The data is shown below in Figure 4.34. The class codes indicate the school and grade level(s) of the
students. The numbers represent changes in answers to the given question by individual students. The first column for each class shows the number of students whose response changed in a positive direction (e.g. from a little to a lot). The second column shows the number whose response changed in a negative direction (e.g. from a lot to a little). The final column totals the positives and negatives to find the sum of the changes across the four classes. There was little change in the first three questions. Interestingly, the question with the highest positive change was the fourth: “I like sitting quietly and observing nature.” Because this is an opportunity that nature journaling promotes more than many other environmental education experiences, it would therefore be interesting to investigate this further. Meanwhile, the last three questions dropped dramatically, a trend that also bears further investigation in a more rigorous experimental design.

<table>
<thead>
<tr>
<th>Questions</th>
<th>J34 Change</th>
<th>J5 Change</th>
<th>M6 Change</th>
<th>B7 Change</th>
<th>Total Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>I like spending time outside.</td>
<td>+5</td>
<td>-3</td>
<td>+2</td>
<td>-9</td>
<td>+4</td>
</tr>
<tr>
<td>I would rather be: Inside/Outside</td>
<td>+3</td>
<td>-2</td>
<td>+3</td>
<td>-4</td>
<td>+4</td>
</tr>
<tr>
<td>I like exploring in nature.</td>
<td>+2</td>
<td>-3</td>
<td>+1</td>
<td>-7</td>
<td>+4</td>
</tr>
<tr>
<td>I like sitting quietly and observing nature.</td>
<td>+5</td>
<td>-8</td>
<td>+6</td>
<td>-3</td>
<td>+9</td>
</tr>
<tr>
<td>I like watching and learning about animals.</td>
<td>0</td>
<td>-6</td>
<td>0</td>
<td>-7</td>
<td>+4</td>
</tr>
<tr>
<td>I can find lots of things to do in nature.</td>
<td>+5</td>
<td>-5</td>
<td>+1</td>
<td>-7</td>
<td>+3</td>
</tr>
<tr>
<td>I would like to learn more about nature.</td>
<td>+3</td>
<td>-3</td>
<td>+1</td>
<td>-8</td>
<td>+2</td>
</tr>
</tbody>
</table>

**Table 4.3 Changes in Responses to Environmental Attitudes Questions**

*Pre- and Post-Assessment Drawing and Writing Exercise.* Before and after the pilot test, teachers took students on a short walk around the schoolyard. Back indoors, students completed a one-page assessment (Appendix J). Half the page was blank with the instructions, “In the box below, please draw any parts of nature that you noticed on your walk.” Below this was a set of lines for writing with the instructions, “What kinds of things did you see, hear, feel, or think as you walked?” The assessment was intended to serve as a comparison of students’ observation skills and capacity for self-expression before and after the nature journaling experience. A detailed comparison of individual students’ work proved beyond the scope of this study, and it would likely have been
inconclusive due to the variability of students' experiences. However, the students’
drawing and writing samples do provide evidence that nature journaling addressed and
promoted the aims and goals of the guide.

As indicated by the results of Objective 1, the goals of the guide are to promote sensory
awareness, curiosity and wonder, observation skills, exploration and connection with
place, biophilia, and personal reflections. A survey of students’ work illustrates clear
connections between the journaling experience and the guide outcomes at all levels (third
through eighth grade). Although this exercise was only one of a number of activities the
students did, it was the most open-ended of any of them, and provided opportunities for
students to record their observations and experiences in many different ways. As one
sixth-grader put it, “My favorite was the nature walks because you got to see, hear, taste,
feel, and do all kinds of things.”

Sensory Awareness. Many of the students included descriptive
words and phrases in their writing that communicated sensory
awareness. In just a few sentences, students managed to evoke
vivid sights, sounds, smells, and textures.

- I felt moss on trees. (Kendall, 3rd/4th)
- I smelled pine needles. And I saw water droplets on the
  leaves. (Lauren, 3rd/4th)
- I hear wings flapping, the wind, and the rustling
  [rustling] of the leaves. (Mitchell, 3rd/4th)
- I heard birds whistling all over but didn’t see one. I felt the leaf it was moist and
  kind of soft. (Catherina, 7th)
- You hear leaves crunching under your feet...feel rough ridged bark (Brian, 3rd/4th)
- I heard the wind brush the leaves around and the smell of fall. (Danny, 5th/6th)
- I heard the icy snow crunch under my feet. (Hannah, 3rd/4th)
- I felt cold, and the snowflakes landing on my face. (Vanessa, 3rd/4th)
- I hear the wind blowing the grass and I hear the little rocks moving. (Kong, 6th)
- I walked by some whistling trees. (Dominique, 6th)
- I felt the wind in my hair and felt the snow crunch under my feet. (Jason, 6th)
- I could hear the wind whistling through the treetops and the swaying of the grass
  as the wind blows it. (Ryan, 6th)
- I only felt the dew on the grass seep into my shoe. (Madalyn, 7th)
- I felt the leaves that were smooth in the middle, but as you moved your fingers
  outward the edges became jagged and not as smooth. (Ray, 7th)
• I saw dark, whispy smoke-like clouds...shards of ice laying around...also I saw the crisp light-blue sky. (Taylor, 6th)
• I felt a big tree that was wet with the dew from the morning. It was ruff [rough] and had little sawlike ridges. (Megan, 7th)

**Curiosity and Wonder.** Elements of the students’ writing also demonstrated curiosity, speculation, or a sense of wonder, all of which the guide activities seek to promote.

• I thought about wild animal[s] that mite live in the woods. (Kyle, 5th)
• I thought we might see deer. (Aaron, 6th)
• I thought about what it would be like to be stranded in the wilderness for a day. (Cassie, 6th)
• I saw mice tracks! (Luke, 5th)
• All of the trees I saw had ice shining on them. I’d never seen anything like it. It was really cool. (Julia, 6th)
• I saw this red flowery thing on the trail. It almost look[ed] like a bunch of berries. (Mariah, 6th)
• I was thinking of how cool everything is going to look when it’s covered with snow. Also I was thinking of how many more clouds are in the sky and the difference it makes in light. (Jenna, 4th)
• When I saw the tree I thought of it being upside [down] and looking at the roots. (Bailey, 7th)

Along with curiosity and wonder, the guide seeks to help students enjoy and appreciate the beauty and intricacy of the natural world. A number of students used this exercise as an outlet for expressing their appreciation and enjoyment of the outdoors.

• I thought as we were walking how pretty everything looked. (Vanessa, 3rd/4th)
• I felt cold but happy to walk around and enjoy nature. (Jessica, 7th)
• As I walked I thought nature is cool. (Dustin, 5th)
• It was quiet and peaceful. (Irene, 5th)
• I thought that nature is butufle. (Rachael, 5th)
• I think it is very wonderful to be in the outdoors. (Megan, 5th/6th)
• When we were walking I thought it was kind of fun and cool to hear the wind and the leaves crunching and the nature sounds. (Kyle, 5th/6th)
• I felt alone and quiet and at peace with nature. (Aaron, 8th)
• When I was walking I thote I was in heaven. I thote the forest was very butufle [beautiful] and wonderfule. (Shannon, 3rd)
• It felt very relaxing outside. I wish we could have stayed longer before we came back in. (Caitlin, 8th)
• The cool breeze was a refreshing break from the indoors. (Megan, 8th)
• I felt nice and calm walking through the cool air. I thought about staying outside all day. I love being outside. (Melissa, 8th)
• I thought how cool nature is and how cold nature is in winter. (Jim, 3rd/4th)
Observation Skills. Both the drawings and writing indicate close observation of the environment. Students were clearly noticing and remembering what they saw around them; many of the drawings and descriptions demonstrate careful attention to detail. Some also referred to phenological clues that indicated the changing seasons, or drew comparisons to other walks. Both skills are important components of close observation.

- I saw trees, water, leaves, needles, holes, and a Cooper’s hawk. I heard a blue jay, people, wind. (Jim, 3rd/4th)
- I saw trees, deer prints that looked fresh. Most of the trees had no leaves except two. The grass was brown except the soccer fields which were still green. Some red berries looked rotted and ready to fall from the trees. (Julia, 6th)
- I saw a lot of trees, some hardly up to my knee. I also saw loads of fallen leaves. (Hannah, 3rd/4th)
- I saw four trees in one. I thought the “four tree” was the biggest tree in the forest. (Mark, 3rd/4th)
- I saw bare trees covered with snow. I could feel the ice crack when I walked. (Alexandria, 6th)
- I saw snow! Something I didn’t see on our first walk. (Julia, 6th)

Connection with Place. The guide activities are intended to help students explore their place from a variety of perspectives and feel a greater sense of connection, caring, and belonging in that place. A number of students indicated a personal history in the schoolyard:

- I walked by the flower we planted. (Grant, 5th)
- I saw a steak [stake] with my name and Kayla’s name on it. (Shanaya, 5th)
- When I was in first grade and second grade I thought that the soccer field was so big that no one can get to the other side of it. (Tou Kao, 5th)

A few showed a deeper sense of connection and belonging:
• I saw 'my tree'. (Brook, 3rd/4th) [His class did the Special Tree activity where each student chose a tree to explore and write about. He explained that he liked the activity because "I got attached to my tree." ]

• I thought that the wind talked to me. (Kirstie, 3rd)

One student’s writing before and after the pilot test suggests that journaling may help students look beyond the generalities of the environment and its associated problems and begin to understand and appreciate the specifics of a place. In the pre-assessment, Emily (grade 6) wrote, “I realized how important our environment is and how much people injure our planet. I also realized how it affects the nature and wildlife.” She is clearly demonstrating knowledge and concern about the environment, yet this information is very general and disconnected from the walk she just took, as well as from the drawing she made. Her post-assessment writing sample is very different. She says, “I saw ice-covered trees that felt so very smooth. I heard the crunching of snow beneath my feet. I saw bunny tracks.” Here she is attuned to her own relationship with her local surroundings, communicating a much deeper awareness of detail and sensation.

Biophilia. Along with a connection with and care for a place, the guide seeks to promote familiarity and empathy with other living things (biophilia). Several students demonstrated empathy or concern for the animals that inhabited their schoolyard. In particular, being out in the cold weather seemed to help students empathize with the hardships of winter for other animals.

• I saw a bird on a branch. The bird looked cold. (Richie, 6th)

• I thought about the animals that are outside and are freezing. (Dustin, 5th)

• Something I felt and thought was cold, and bad for the animals who had no home who had to stay out in the cold too. (Nicole, 5th)

• I think that a squirrel are going to come to me, and I feed him a nut. (Jayang, 5th)

• I thought about what it would be like to be an animal and have your home be gone when people throw trash and wrappers on the ground. (Ashley, 6th)

Personal Reflection. Another important goal of the guide is to help students explore their feelings, clarify their own values, and express themselves in a way that reflects their
Personal voice. Even without directly requesting personal reflection, the exercise inspired many students to consider their feelings and state their own views on what they observed and experienced.

- I feel very calm and not worried. (Courtney, 3rd/4th)
- I like to go on nature walks, because I can explore. (Emily, 3rd/4th)
- I thought about how much I liked the outdoors and what I’m going to do this hunting season. (Aaron, 5th)
- It was very beautiful outside. The sun shown just right. I saw an empty soda bottle. Someone should have picked that up. (Alexandria, 6th)
- I thought nature would be more beautiful if there wasn’t as many “human” noises. (Megan, 7th)
- I did not like that my friend and I found trash as we were on our walk, we found stuff like soda bottles, plastic bags, candy rapers. (Katherine, 6th)
- I didn’t like the trash in the woods. I liked to see deer tracks. (Kourtney, 6th)
- It surprised me how little litter there was. (Julia, 6th)
- I felt very calm and peaceful until we had some people talking. I thought it was a wonderful way to admire and see what we can see. And I think we should do it more often. (Cora, 5th/6th)
- I thought about how sad it is to have to end nature journaling. (Irene, 5th)

Some students even found an opportunity to reflect on deeper meanings or consider their spiritual beliefs.

- I thought about what little is left of nature in cities and how much there is in other places. (Joey, 6th)
- I felt the air, wind, grass and trees. I thought about would we be able to live here without any of this? (Katie, 7th)
- I thought how cool it is that God made it so we could still see the moon in the day. (Austin, 7th)
- I thought how much effort God must have put into making a world so beautiful. (Jim, 3rd/4th)

Interdisciplinary Perspectives. The results of this exercise also demonstrate the interdisciplinary nature of nature journaling. Not only did students use both drawing and writing to communicate their observations and experiences, they also made use of different perspectives within these media. For example, some students used a scientific voice and outlook to record what they noticed:

- I saw a dropping. It was a bunny or a deer. Then a deer track was on the ground. When we got to the tall grass the deer tracks were gone. (Richie, 6th)
- There were trees with no leaves, but then had little piles of leaves which I assumed were nests. (Beth, 8th)

Others wrote from a literary perspective, effectively using descriptive words to help a reader imagine the scene:

- I heared the wilsoling [whistling] of the wind throwing the leaves around and around. I heared the leaves snaping in the wild wind. I saw the magnificent [magnificent?] trees swuping to side to side. (McKenna, 4th)
- I saw a leaf tornatow [tornado]. (Matt, 3rd)

The students’ drawings, too, show this interdisciplinary character. They ranged from detailed scientific sketches with careful labels (see below, upper drawing), to maps that showed the path traveled and the relation of different elements to one another, to artistic renderings of the snowy landscape (see below, lower drawing).
Overall, the range of writing and drawing exhibited by the students in the pilot test confirms that nature journaling can promote the goals identified in the framework. A more detailed analysis of students' work and its significance regarding the outcomes of nature journaling would be a valuable follow-up to this study. It would be interesting to analyze whether individual students' sensory awareness, curiosity and appreciation, observation skills, connection with a place, biophilia, and capacity for personal reflection increased after a prolonged experience with nature journaling, and what types of journaling activities were most effective in promoting these outcomes.

Results of Teacher Evaluations
Seven of the eight pilot test teachers filled out a pre-questionnaire addressing their expectations and feelings of preparedness. Some of the teachers completed questionnaires for each activity they completed with their students, while others returned only some of the activity questionnaires or none at all. Five teachers also completed a final questionnaire at the conclusion of the experience. Their responses provide insight into the role of nature journaling in the formal classroom. Because of the small sample size, no statistical analysis was performed on the data. For questionnaires, see Appendix K.

Teachers’ Impressions of the Nature Journaling Materials. All the teachers had used journals with students in the past, although only two reported using nature journals. The teachers provided positive feedback regarding the guide materials and how well those materials prepared them to teach nature journaling. According to both their written questionnaires and comments made during discussion at the final meeting, they felt the introductory material and activities were clearly written and concisely organized. On a five-point scale from 1 (not at all) to 5 (very), the group’s average rankings for the clarity, completeness, and usefulness of the materials were 4.8, 5.0, and 4.4, respectively (Figure 4.35).
The teachers also ranked each of the four introductory chapters of the guide individually. Their responses to all of these chapters averaged 4.8 or higher (Figure 4.36).

Comments on the materials shared in the final meeting included the following:

- The activities were extremely clear and extremely easy to follow.
- You have the lessons nice and concisely organized. A substitute could come in and take off with what she needs, so that is nice.
- I did like your introductory material. I used a lot of the quotes and information to introduce the whole idea of what is the nature journal, why are we doing it, how are we going to use it.

Teachers were asked how well they felt the activity descriptions prepared them to teach the activities. On a scale of 1 (not well) to 5 (very well), the average ranking was 4.4, and all responses were either 4 or 5 (Figure 4.37). Several teachers also felt that the guide materials allowed room for adaptations based on teachers’ previous experience or present needs.

- Good info, very easy to adapt and expand upon based on classroom needs.
- Gave enough information while leaving room to adapt lessons to things I’d taught or would be teaching.
- A wonderfully organized guide to writing using nature as your foundation.
**Teachers’ Experience, Enthusiasm, and Confidence.** The teachers reported an increased level of both enthusiasm and confidence in teaching nature journaling after participating in the pilot test (Figure 4.38). Before the pilot test, the average enthusiasm ranking was 4.0 on a scale of 1 (not enthusiastic) to 5 (very enthusiastic). Afterward, the average response rose to 4.6. Confidence increased dramatically, from an average of 2.6 before to 4.4 afterwards. Although the sample size is small, the responses indicate that the experience was both positive and confidence-building.

**Teachers’ Expectations and Goals.** When asked what they hoped students would gain from participating in nature journaling, teachers identified the following major outcomes in their written questionnaires: 1) enhanced observation and communication skills; 2) confidence in sharing their observations; 3) a deeper understanding of the value and purpose of writing; and 4) greater awareness and connection to the natural world.

Several other goals emerged from the discussion during the final meeting. The teacher of students with learning disabilities hoped to give them an opportunity to recognize strengths in themselves and their classmates that may not be apparent in other subject areas. She felt that nature journaling was indeed an approach that promoted this outcome, explaining that it helped them, “identify different strengths they didn’t know they had or that they enjoy and would like to use more often.” Several of the teachers at Jackson hoped that nature journaling would help develop attitudes and behavior conducive to using the outdoors as a learning environment rather than simply a play space. One explained, “A global outcome we have in our building is that [students will] realize when they’re outside it’s another place to learn, that behaviors stay school-oriented and focused – it’s just another part of our learning environment at Jackson School, still a place we go to learn.” The teachers agreed that this is a process that takes time and effort, but felt that activities like nature journaling carried through from the early grades on would help.
Several teachers noticed differences in students' skills and awareness from the beginning to the end of the pilot test. Those who took students on both the pre- and post-walk felt that students seemed more aware the second time. A 6th grade teacher noted, “When they went out that second time, they were set to look for things on their walk...They were much more aware.” She went on to say that when she had the students write a conclusion to the unit, “a lot of them commented that now when they’re outside they really hear more things and pay attention to more things that they see out in nature.”

**Teachers' Reactions to Activities.** Teachers identified a wide range of activities as being most effective with their classes. No doubt this reflects the variety of grade levels and goals of the teachers involved, and it suggests that the guide can meet a range of needs. Teachers expressed satisfaction with the fact that the activities encouraged written, spoken, and artistic forms of expression; one said, “I thought there was a wonderful variety.” A sixth grade teacher indicated Sound Maps, Natural Alphabet, and Partner Drawing as particularly effective because students were responsible for a product and thus took them seriously. A third/fourth grade teacher found that students especially enjoyed Rock Pass because they got to keep their rocks. Another volunteered, “The favorite one for my third graders was the Natural Alphabets. They were looking so differently at things. They just really enjoyed it.” Snail Trails, Treasure Maps, and Natural Alphabets all received good reviews for their ability to help students notice less obvious things, and Mystery Bags for helping students explore their other senses. Special Place helped one teacher connect nature journaling to her language arts curriculum.

Regarding less effective activities, one teacher felt that the walks (including Silent Hike) were difficult with a large class and recommended smaller groups. A third grade teacher found Sound Maps too advanced for her students. The biggest challenge they noted was the weather. Because the pilot test took place in November and December, cold and wet weather sometimes prevented them from spending as much time outdoors as they planned. However, one found that the winter season offered more than she expected. “I was nervous about the time of the year...but it was amazing what they did notice out there – the ice freezing on the trees, etc...to me it was surprising how much they did find.”
Teachers’ Impressions of Student Responses. “My sixth graders loved it. They really looked forward to it,” stated one teacher. As a whole, the group believed that the majority of students gained something of worth from participating in nature journaling. Regarding how many of their students benefited from the experience, the average response on a scale from 1 (none) to 5 (all) was 3.8. They were asked to comment on their impressions of students’ responses to the lesson; their responses are shown below in Figure 4.39.

Regarding how interested students were, the average ranking was 3.8 on a scale of 1 (not interested) to 5 (very interested). Students’ motivation was ranked 4.3 on average, and the extent to which the lesson challenged them, 4.0.

Several teachers found that simply being outdoors and moving around appealed to their students, and the emphasis on sensory appreciation and drawing gave students with weaker language abilities other opportunities for discovery. One teacher noted that journaling appeals to the introverted students, but incorporating sharing time at the end helps to draw in those who are more extraverted. Another felt that the activities provided good opportunities for students with disabilities to join in an experience. She particularly noted Celebrations as an activity where, “Even if they couldn’t traditionally write down sentence structure...they could participate in sharing a piece of themselves.” The average response to how well the lesson addressed students’ grade level was 4.3 on a scale of 1 (not well) to 5 (very well). Generally teachers seemed to find that the activities could
be used successfully with the range of grade levels represented in the pilot test (3-8).
Regarding its success in addressing individual learning styles, the average response was
3.8, and for addressing special needs, 4.0. See Figure 4.40.

**Teachers’ Thoughts about Curriculum Connections.** Not surprisingly, the Jackson
teachers felt that nature journaling tied in well with their curriculum and philosophy. One
teacher said, “This unit fits right into our school’s environmental curriculum and
integrates environmental education into language arts beautifully.” Several other teachers
noted connections with the language arts curriculum, particularly with a program called
“The Six Traits of Writing” which focuses on skill development in areas such as word
choice, ideas, and voice. The sixth grade teacher from Madison Elementary found
another way to tie it into her curriculum. “I used it with a literature unit called “All About
Me” and students were to get a sense of themselves within the environment they live.
Perspective and descriptive writing also fit into our curriculum.” The teachers felt that the
experience opened their eyes to the potential to integrate journaling throughout the
curriculum. One stated, “It opened new methods to make connections with what students
were learning in a variety of

**Teachers’ Overall Impressions.**
The teachers’ overall impressions of the nature journaling experience
were unquestionably positive. All
responses regarding their overall
impressions were between good
and excellent, with an average ranking of 4.6 (Figure 4.41).

**Teachers’ Conclusions from the Classroom Pilot Test.** The final discussion meeting
provided an opportunity for teachers to further discuss their experiences and collaborate
to provide suggestions for improving the guide. The six teachers who attended the
meeting commented very positively overall on the value of the experience. A major
conclusion that emerged was that the guide is indeed suitable for both formal and
nonformal settings, and can effectively address the needs of both audiences. Several
teachers admitted to being nervous, before the pilot test, about whether the guide could
meet their needs for accountability in the formal setting. The general consensus of all the
teachers present was that the activities successfully met both the need for open-ended,
creative outdoor experiences and for accountability. A fifth/sixth grade teacher explained,
"Your finished product allows us to do both. It allows us to celebrate the child who has
the artistic ability, who sees things, hears things, observes things differently, and still say,
now that you've done that, let's just branch off and do some writing. And maybe that
child will write more enthusiastically because they were able to do this other part too." A
sixth grade teacher agreed that a positive experience with journaling could set the stage
for better and more enjoyable writing: "I think that every time those children enjoy the
activity and they've really thrown themselves into the activity, it makes it easier for them
to write."

The Jackson teachers were already discussing how to integrate nature journaling
throughout their curriculum. They felt that it would be important for them to get together
and designate certain activities for certain grade levels to avoid duplication. However,
they thought some activities could be duplicated with good effect at different seasons or
grade levels to highlight changes in the environment or in personal growth. They also
believed it wasn't necessary for the guide to address the question of activity sequencing;
teachers in a school could and should plan their own sequence.

Regarding additions or revisions to the guide, the teachers unanimously agreed that more
activities would be valuable and not overwhelming. Several felt that a specific lesson on
nature journalists of the past and present would be helpful. Some teachers found their
students were inherently interested in the topic, while others needed more engaging ways
to present the information. They mentioned the value of including more contemporary
role models among the published authors represented (not just the "old and dead" folks!),
and also suggested that community members who keep journals could come and talk to
students. Interestingly, they felt that the pre- and post-assessment, which wasn't included
in the guide as a specific activity but was simply added as a way to assess students'
progress, would be a valuable addition to the guide. They saw it as both an assessment tool for the teacher and as a way for the students themselves to measure their progress.

Objective Five

*To develop a final draft of the guide using conclusions drawn from the pilot tests and reviewer comments.*

Compilation of Instructors' and Teachers' Conclusions from the Pilot Tests

Conclusions about the structure and content of the nature journaling guide were compiled from the teacher and student responses to the CWES and classroom pilot test evaluations, as elaborated above. Overall, the results indicate that the guide in its draft form was highly effective. Educators found the structure user-friendly and complete, the content of the introductory chapters received high marks, and in general the activities were enjoyable to the students and promoted the outcomes of the guide. Where the results indicated potential for improvement in any of these areas, the conclusions were used to generate a list of recommended guide revisions.

Recommended Revisions from the Pilot Tests. The following list represents recommendations for guide revisions that emerged from the pilot tests.

- Provide additional suggestions for dealing with inclement weather.
- Elaborate on the roles of nature journaling at nonformal education sites, either as a stand-alone lesson or integrated into other lessons, as well as opportunities to use nature journaling to enhance collaboration between formal and nonformal settings through the use of journals before, during, and after field trips.
- Develop additional activities to provide a wider selection.
- Add more diversity in the biographies of nature journalists, including contemporary as well as historical figures, and add a lesson plan for presenting information about them to students.
- Incorporate the pre- and post-assessment activity from the pilot test into the guide.
Conclusions from the Reviewers

The graduate committee and the nonformal educators who participated in the focus group also reviewed the first draft of the guide and provided comments on a written questionnaire. As with the pilot tests, their responses were compiled and conclusions drawn about the overall effectiveness of the guide's structure and content. Reviewers provided positive feedback on the introductory material, the section themes, and the activity descriptions and layout, with weaknesses noted in the number of subject areas addressed and skill-building potential and action orientation of the activities. The reviewers' suggestions for improvements were compiled and used to complete the list of recommended guide revisions.

Rating of Guide Components. The questionnaire asked reviewers to comment on and rate the components of the guide. The introductory chapters received positive comments from the reviewers. On a scale from 1 (not clear) to 5 (very clear), all five reviewers ranked the introductory chapters as 5. They also all chose 5 for completeness. The average response for usefulness was 4.8.

They also ranked each of the four introductory chapters individually. On a scale from 1 (poor) to 5 (excellent), Chapters 1, 3, and 4 received all fives, and the average ranking for Chapter 2 was 4.75 (Figure 4.42). One reviewer offered the following comments about the introductory material:

- Your language exudes passion. It's welcoming and reassuring. If this book doesn't encourage people to journal, I don't know what will. It's a wonderful invitation.
- This chapter (Chapter 1) in particular shows you have a genuine understanding of and respect for the writing (or any creative) process. Your emphasis that "process" is different for everyone is important.

Reviewers also offered positive comments on the potential for the introductory material and activity descriptions to prepare educators to facilitate nature journaling. On a scale from 1 (not well) to 5 (very well), all five reviewers’ rankings for the introductory
chapters were 5, and the same for the activity descriptions. Regarding both the section themes and the layout and description of activities, the average response for the group was 4.8 on a scale from 1 (not effective) to 5 (very effective). For the effectiveness of the activity selection in accommodating a full range of learning styles/multiple intelligences, the average response was 4.6. All of these rankings suggest that the first draft of the guide was satisfactory in each of these areas.

The one area that received a lower ranking was the effectiveness of the activity selection in addressing a range of subject areas. Here the average response was 4.2. One reviewer explained, “It really is focused on language arts, and EE. Some science skills apply.” This indicated potential to branch out into other subject areas by, for example, emphasizing science more strongly and building in social studies and math connections, through additional activities or extensions to existing activities.

Reviewers’ overall impression of the nature journaling guide averaged 4.9, with responses distributed as shown in Figure 4.43. A reviewer commented, “I would enjoy teaching from the guide as much as children would enjoy doing the activities.”

This same reviewer suggested incorporating a greater emphasis on using these activities to set the stage for more open-ended writing: “The activities in your guide are great – but be sure that they are not the only journaling options. You may want to suggest “freewriting” journaling time once they have completed some of these and students have models to follow and know the expectations.” Ultimately, all the activities in the first draft of the guide could be seen as bridges that lead gradually from active structured outdoor exploration into more open-ended reflection and expression. This realization
suggests that a greater emphasis in the guide on using the activities as bridges may help teachers feel empowered to include free-writing time once their students reach that level. It also suggests that there may be potential for the guide to clarify how nature journaling can be used not only as an end in itself, but also as an addition or enhancement to other environmentally-focused lessons, in order to help students construct and cement meaning and reflect on the learning process.

“Guidelines for Excellence” Ratings. The reviewers also compared the guide with key characteristics in the North American Association for Environmental Education’s publication *Environmental Education Materials: Guidelines for Excellence*. These characteristics include: instructional soundness; fairness and accuracy; usability; depth; emphasis on skill-building; and action orientation. Average reviewer rankings for each characteristic are shown in Figure 4.44. The first four characteristics all received an average rating of 4.8, indicating that the guide addresses these areas well. The last two characteristics received lower scores: an average of 4.6 for emphasis on skill-building, and an average of 4.2 for action orientation. Although both these scores are still relatively high, this suggests room for additional improvement in these areas.

![Figure 4.44 Reviewers’ Rankings of NAAEE Guidelines for Excellence Characteristics](image)

In regard to enhancing skills and action on environmental subjects, one reviewer recommended, “Encourage journaling on lifestyle issues and other environmental concerns.” Another suggesting having students use journaling to consider the consequences of certain actions, and to build in a greater emphasis on “empowerment”.

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**Recommended Revisions from the Reviewers.** The following list represents recommendations for guide revision drawn from the reviewer comments.

- Add greater emphasis on the value of journaling as a way to meet goals in the formal classroom, and incorporate these connections into the framework.
- Build in more connections with other subject areas.
- Seek ways to add more elements of the skill-building and action goals of EE, by encouraging reflection on lifestyle choices and consequences, and by promoting empowerment.
- Incorporate a greater emphasis on providing students with time for free-writing.
- Add more sample journal entries.
- Add one or more sample assessment rubric(s) for teachers.

**Final Draft of the Guide.** The final draft of the guide follows the same format as the first draft but incorporates the recommendations identified above. Several additional activities were added, and a page of brief descriptions for more activity ideas was incorporated into each section, in order to broaden the subject areas addressed and the options for teachers throughout the grade levels. The importance of moving from active, structured exploration into more open-ended reflection was emphasized more strongly. Several questions intended to serve as writing prompts were also added to each section to help teachers build in a greater emphasis on personal reflection, in order to address the skill-building and action goals of environmental education. The number of biographies of historical and contemporary naturalist writers was expanded in Chapter 4. Additional information on the role of nature journaling in nonformal settings was incorporated into Chapter 1, and more sample entries from students and the researcher were added throughout the guide. See Appendix Y for the guide in its entirety.
CHAPTER FIVE
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Overview
This chapter summarizes the project, including the goal and objectives, key findings of the literature review, the methodology, and the results. It then describes the major conclusions derived from the results. Finally, it proposes a series of recommendations for further guide development and dissemination, and future research on the effectiveness of nature journaling in educational settings.

Summary of the Study
The goal of this study was to develop and evaluate a nature journaling guide for formal and nonformal educators of upper elementary and middle school students. A review of published literature revealed a growing interest in nature journaling and a number of valuable resources on the subject for adult audiences, but a lack of information designed specifically to encourage and assist educators in using nature journals with students. This study sought to fill that gap by creating a nature journaling guide that 1) addresses the specific needs of formal and nonformal educators and 2) provides activities expressly designed for a student audience. To ensure a quality product, pilot-testing was also employed to confirm and refine the guide's usability and effectiveness. The development and evaluation of the guide was accomplished through five major objectives.

A Framework for Nature Journaling. First, a review of the related literature established important links between nature journaling and environmental education. The processes associated with nature journaling (regular contact with the outdoors, writing, drawing, integration of disciplines, and self-reflection) make it a useful technique for achieving both general educational goals and the goals of environmental education. Not only does nature journaling address basic literacy skills, critical and creative thinking, effective communication, and reflection on the learning process, it also provides experiences that are connected with the development of environmental sensitivity, sense of place, a
naturalist’s outlook on the world (also known as naturalist intelligence), and clarification of personal values and self-identity. These links were used to construct a framework of broad aims and more specific goals for the nature journaling guide. The framework was then placed into a visual model that depicts the goals as the roots of a tree, the processes as its trunk, and the aims as the three main branches; on the branches grow leaves that represent skills and attitudes developed through the opportunities nature journaling provides (see Figure 4.1 on page 49). The model illustrates to guide users the potential of nature journaling to help students sink roots in their places and branch out toward greater environmental literacy.

**A Vision for the Guide.** With the framework of aims and goals in place, the second step was to formulate a vision for the structure and content of the guide. Published literature provided background information on the use and value of journaling in education, techniques for effective facilitation of journaling, definitions of nature journaling, and models of well-designed activity guides in other topic areas. A focus group of formal and nonformal educators provided written and oral comments on many pertinent aspects, including the strengths of journaling as a teaching method; barriers to its use; definitions of nature journaling; the ideal structure, content, and types of activity for the guide; and essential elements for preparing educators to use nature journaling successfully. The published literature and the comments of the focus group participants were compiled and used to create a vision for the guide. The vision proposes a complete, stand-alone resource for nature journaling, covering both facilitation techniques and activity procedures, and incorporating a broad definition of nature journaling and justification for its use in both formal and nonformal education.

**Development of the Nature Journaling Guide.** Third, the framework and vision were employed to create a first draft of the guide. Four introductory chapters cover definitions of nature journaling, the aims and goals of the guide, facilitation techniques, and ideas to introduce and conclude a nature journaling experience with students. The activities are arranged into six sections that correspond with the goals of the guide. Appendices cover additional information for the educator such as correlations with subject areas and options for assessment.
Evaluation of the Nature Journaling Guide. The fourth step was to evaluate the usability and effectiveness of the guide through pilot tests in a nonformal setting (the Central Wisconsin Environmental Station, or CWES), and a formal setting (upper elementary and middle school classrooms in the Stevens Point area).

At CWES, 335 6th and 7th grade students participated in a 1 to 1½ hour nature journaling lesson as part of their school’s visit to the station. Ten instructors from the station taught the lesson. Students, instructors, and visiting teachers who observed the lesson all completed written evaluations, and several of the instructors participated in a final discussion. Overall, the students’ responses reflect a very positive reaction to the lesson. 61% indicated that they found the activities fun, and the majority of students seemed to feel the writing and drawing activities were a creative outlet and an enjoyable and beneficial addition to their experience at CWES.

The CWES instructors expressed a positive view of the benefits of nature journaling in a nonformal setting such as this one. Their overall impressions of the lesson all fell between good and excellent. They reported an increase in their own levels of both enthusiasm and confidence after teaching the lesson, and also commented positively on the students’ responses and the value of the experience for the students. They clearly felt that there is a place for nature journaling in nonformal environmental education, and reported time constraints and inclement weather as the largest challenges.

The visiting teachers also were very positive about the lesson, with their overall impressions all falling between good and excellent. They had a variety of goals for their students, and in general all were satisfied that the lesson addressed those goals. They also responded favorably to the possibility of future participation in nature journaling at CWES. All indicated that they would either probably or definitely choose to participate in the lesson as part of their next visit. Their comments confirmed the effectiveness of the lesson at CWES and suggest that it would be valuable as part of environmental education experiences in other nonformal settings as well.

The formal classroom version of the pilot test involved eight teachers and 232 students (3rd through 8th grade) from Stevens Point area schools in a month-long nature journaling unit. Teachers received the draft guide and were asked to complete ten activities with
their students, as well as a pre- and post-assessment activity. Teachers completed a pre-questionnaire, activity evaluations, and a post-questionnaire, and six of them attended a final discussion. Students completed a pre- and post-survey, three activity evaluations, and a pre- and post-assessment drawing and writing exercise.

The students expressed a wide range of initial attitudes about beginning nature journals, but in the end only 9% reported finding it not fun. The remaining 91% were nearly evenly split between fun and okay. Responses to the three required activities – Natural Alphabets, Sound Maps, and New Perspectives – were also positive; 66%, 63%, and 52% of students reported them fun respectively. The most positive aspects of the nature journaling activities mentioned by students included spending time outdoors, the quiet and relaxing atmosphere, looking closer at the natural world, listening to the outdoor sounds, and using their imagination or seeing from a different point of view. Least favorite aspects included cold or wet weather, lack of time, and classmates making too much noise. Student responses regarding favorite activities were highly variable, a pattern that reinforces the importance of providing a range of activity types to appeal to different learning styles. Results regarding the impact of nature journaling on environmental attitudes were inconclusive, but the students’ drawing and writing samples provided evidence that the process of nature journaling did address and promote the goals of the guide: sensory awareness, curiosity and wonder, observation skills, a connection with place, biophilia, and self-reflection.

The teachers’ impressions of the guide materials and the nature journaling experience were unquestionably positive. For overall impressions, all responses were between good (4) and excellent (5), with an average ranking of 4.6 (the same as for the CWES instructors and teachers). They found the guide materials clear and concise, and reported an increased level of both enthusiasm and confidence about teaching nature journaling after participating in the pilot test.

The group as a whole believed that the majority of students benefited from participating in nature journaling. Teachers noted that being outdoors and active appealed to their students, that the emphasis on sensory appreciation and drawing gave students with weaker language abilities other opportunities for discovery, and that journaling appeals to the introverted students, but incorporating sharing time at the end helps to
draw in those who are more extraverted. Some also mentioned the value of the journaling activities in drawing in students with disabilities. Several teachers noticed differences in students’ skills and awareness from the beginning to the end of the pilot test. Those who completed both the pre- and post-assessment agreed that students seemed more aware the second time they went out for a walk and then recorded their observations.

According to the teachers, the biggest challenges posed by nature journaling were the weather, large class sizes, and the necessity to keep up with the established curriculum. However, the teachers found a number of creative ways to connect nature journaling with other subject areas, and they also believed that the pilot test experience opened their eyes to the potential to integrate journaling throughout the curriculum.

**Refining the Guide.** The fifth step was to develop a final draft of the guide using the conclusions of the pilot tests and comments from other reviewers. Reviewers’ overall impression of the first draft of the nature journaling guide averaged 4.9 (with 5 being excellent). They provided positive feedback on the introductory material, the section themes, and the activity descriptions and layout. Weaknesses they noted were the number of subject areas addressed and the skill-building potential and action orientation of the activities, a result which suggested room for additions in these areas. Overall, the pilot test conclusions and reviewers’ comments confirmed the effectiveness and usability of the guide. Where the results indicated potential for improvement, these conclusions were used to generate a list of recommended guide revisions. The revisions were incorporated into the guide to produce a final draft, thus completing the final objective of the study.

**Conclusions**

The major outcome of this study was the nature journaling guide. The reactions of the pilot test teachers and students confirm the usability and value of the resource. In general, the teachers’ responses also indicate that the guide alone is sufficient preparation for facilitating nature journaling with confidence; they felt that additional training, while it would be valuable for generating enthusiasm and building skills, was not essential. Therefore, this nature journaling guide successfully begins to close the gap in resources available for educators who wish to use nature journaling with students in grades 4-8.
In addition to the guide, there were three key questions to which the study sought answers. These answers form the major conclusions of the study.

**Question #1. What links exist between nature journaling and the goals of environmental education?** The literature review clearly established a number of strong connections between nature journaling and the goals of environmental education. As elaborated in Chapter Two and the summary above, nature journaling can be linked to the development of environmental sensitivity, sense of place, a naturalist outlook, and self-identity. Nature journaling provides opportunities for regular contact with the outdoors, close observation, sensory awareness, an intellectual understanding and emotional connection with places and other species, interdisciplinary exploration, self-reflection, and values clarification. All of these opportunities have important implications for enhancing environmental literacy and thus for the achievement of the ultimate goal of environmental education: taking action on behalf of a quality environment.

**Question #2. Is there strong justification for using nature journaling in both formal and nonformal educational settings?** At the final meeting for both the formal and nonformal pilot tests, educators unanimously expressed the opinion that nature journaling is a valuable technique for both settings. At nonformal EE centers, the connections between nature journaling and the goals of environmental education provide strong justification for incorporating it into programming, where it can introduce an element of solitude and personal reflection into a field trip experience that is often tightly scheduled and highly active and group-oriented. The CWES instructors and director fully supported the idea that nature journaling can contribute to achieving the goals of nonformal environmental education, and also noted opportunities to use nature journaling to enhance collaboration between formal and nonformal settings. The classroom teachers agreed that the guide is also well-suited to formal settings. They believed that the activities successfully provided open-ended, creative outdoor experiences and at the same time met the need for accountability that formal teachers face. They felt that the balance between creativity and accountability would allow the guide to effectively address the needs of both formal and nonformal audiences. The links between nature journaling, EE, and many general educational goals highlighted in the literature review established a strong
preliminary justification for nature journaling in the formal classroom as well as in nonformal education settings. The pilot tests confirmed its value as a teaching method.

In order to meet the needs of formal and nonformal educators and the students they serve, a number of important considerations emerged that were essential for this nature journaling guide (and any other effective nature journaling resource) to address:

- **Variety is essential.** The pilot tests confirmed the importance of variety in the types of activities offered by a nature journaling resource. First of all, students reported a wide range of favorite activities, which reinforced the importance of appealing to different learning styles through different types of activities. Second, variety helps keep journaling from becoming too routine and therefore boring. Teachers also identified a wide range of activities as being most effective with their classes, which no doubt reflects the difference in grade levels and goals of the teachers involved. In order for a guide to meet these needs, variety is important.

- **Provide for a range of expectations and needs.** In their written questionnaires, teachers explicitly noted a wide range of expectations for the outcomes of participating in a nature journaling experience. The CWES instructors tended to focus on fostering awareness and appreciation of natural surroundings. Teachers visiting CWES with their students focused more on academic skills such as writing, observation and recall, and reflective thought. The classroom teachers hoped students would gain observation and communication skills, confidence in sharing observations, and understanding of the value and purpose of writing, as well as a greater awareness and connection to the natural world. In the discussion with the classroom teachers, they brought up several additional goals. They felt nature journaling should provide an opportunity for students to recognize strengths in themselves and their classmates (particularly those students who struggle with other academic subjects). They also hoped it would help students recognize the outdoors as a learning environment and not just a play space, and develop appropriate behaviors to use it as such. Clearly it is essential to be aware of all these aspects in developing activities for a nature journaling resource, as each user group may have a different set of desired outcomes. Furthermore, it is important to emphasize to nonformal educators planning a nature
journaling program that they may need to take into account not only their own goals, but those of the visiting teachers, who may have different expectations.

- **Build in creativity, open-endedness, and adaptability.** In order to meet the needs of nonformal educators who regularly adapt activities to fit their unique setting and programming options, nature journaling resources need to incorporate a certain measure of flexibility. Classroom teachers, too, are more likely to find ways to use nature journaling if it can be easily adapted to fit into different aspects of the curriculum. Furthermore, for nature journaling to meet its full potential, it should be open-ended enough that students feel empowered to be creative and express themselves in innovative and personal ways, rather than feeling confined by a rigid and inflexible structure.

- **Build in accountability.** At the same time, formal classroom teachers are required to meet curriculum requirements and mandated academic standards. They struggle to address the many important aspects of students’ development with which they are entrusted. Although nature journaling should certainly provide students with a creative outlet and a chance to explore personal interests and values, it should also provide teachers with a way to assess students’ progress and encourage them to continue building essential skills. If it cannot do this, most teachers simply will not be able to use it, even if they want to. Therefore a truly useful nature journaling resource needs to address not only environmental awareness but other academic skills, and should include suggestions for assessment and possibly sample rubrics for teachers to modify for their needs. Correlating activities with state academic standards is also a valuable way to justify their value and help teachers find a place for nature journaling in the curriculum.

**Question #3. Is nature journaling an effective technique to foster students’ environmental awareness and connection to their places?** Because the guide was the major outcome of the study, a stronger emphasis was placed on formative than summative evaluation. However, preliminary results suggest that nature journaling holds strong potential for fostering environmental awareness and connection. The students’ self-reported perceptions of whether nature journaling helped them look closer at nature,
learn more about nature, and appreciate nature more were higher for the CWES pilot test than for the classroom pilot, but in both cases the great majority of students reported either *a lot* or *a little* in each of these categories. The writing and drawing samples from the pre- and post-assessment in the classroom pilot test further confirmed the potential for nature journaling to address the goals of the guide (sensory awareness, curiosity and wonder, close observation, explorations of place, biophilia, and self-reflection). The guide’s success in promoting these goals was reflected in part in the students’ brief samples of drawing and writing. More extensive samples might reveal still greater achievement in these areas. These preliminary conclusions could be followed up with a more thorough investigation of the impacts of nature journaling on environmental awareness and connection with place.

**Recommendations**

The process of developing and evaluating the nature journaling guide suggested a series of recommendations for further work in this area. The following recommendations deal with the development of additional nature journaling resources, dissemination of this and other resources, and opportunities for future research on the effectiveness of nature journaling in educational settings.

**Recommendations for further development of nature journaling resources.** This study explored and confirmed the value of nature journaling in education. In response to a gap identified in nature journaling resources available to educators, it produced a nature journaling guide for this audience. However, the gap is by no means filled; additional resources could continue to address other needs in this area. The nature journaling guide produced in this study is designed for grades 4-8, so an obvious next step would be to develop guides for a younger audience (K-3) and a high school audience (9-12).

Nature journaling also holds potential for students at the post-secondary level. The close observation and personal reflection it promotes may play an important role in the preparation of environmentally aware, knowledgeable, and skilled educators. The increased visibility of nature journaling promoted by this project at the University of
Wisconsin-Stevens Point produced an unanticipated result: over the course of the two academic years of this project, a number of UWSP professors have begun requiring their students to keep nature journals. The researcher was invited to provide presentations on nature journaling in NR 370 (an environmental education course for preservice classroom teachers), NR 302/502 (Foundations of Environmental Education, for environmental education majors and minors) and NR 482 (Practicum in Environmental Education, a capstone experience for environmental education majors). Students in each of these courses made entries in a nature journal as part of their coursework. Clearly there is potential for a nature journaling resource that addresses this audience as well.

Although there are existing resources for adults, a number of guide reviewers and workshop participants suggested that many of the activities in the 4-8 guide could also be valuable for adults or families. Yet another guide could place much of this same information in the context of personal exploration rather than formal or nonformal education, and thus reach a wider audience.

Another avenue to explore is the creation of a nature journaling website. One of the pilot test teachers suggested that a website could provide an array of additional information and resources for nature journaling, a forum for teachers to share their experiences and techniques, and a place for classes to share their observations and journal entries with others. A website would not only provide a more interactive context for nature journaling, but could also be regularly updated to reflect new developments.

*Recommendations for dissemination of nature journaling resources.* In order for any of these resources to be used, educators need to know they are available. The nature journaling guide produced in this study will be distributed to all the teachers and schools that participated in the pilot tests, a strategy that will increase contact with the resource on a local level. However, a wider distribution is desirable for greater impact. The guide will be available to educators throughout the state through the Wisconsin Center for Environmental Education, located in the UWSP library. The Wisconsin Environmental Education Board will receive a copy of the guide as part of the final report for the grant that funded the project. Broader distribution is planned through a proposed session at the next North American Association for Environmental Education (NAAEE) conference.
The researcher also intends to pursue publication of the guide through a publishing company. Additional conference appearances, the aforementioned website, and marketing by a publishing company all would further increase contact with the materials.

**Recommendations for future research on the effectiveness of nature journaling.** In this study, information about the impacts of nature journaling was inconclusive but suggested excellent potential for further research. Regarding the impacts of nature journaling on general environmental attitudes, an interesting trend was noted. Positive change in student responses occurred more frequently in the statement “I like sitting quietly and observing nature” than in any of the other statements. As nature journaling promotes quiet observation more than many other environmental education experiences, it would be interesting to investigate this trend further and see whether it appears in a more rigorous experimental design.

The students’ brief drawing and writing samples provided preliminary evidence that nature journaling addressed and promoted the goals of the guide: sensory awareness, curiosity and wonder, observation skills, exploration and connection with place, biophilia, and personal reflections. The collection of students’ work as a whole illustrates clear connections between the journaling experience and the guide outcomes at each of the grade levels from 3 through 8. A more detailed analysis of students’ work and its significance regarding the outcomes of nature journaling would be a valuable follow-up to this study. It would be interesting to analyze whether individual students’ sensory awareness, curiosity and appreciation, observation skills, connection with a place, biophilia, and capacity for personal reflection increased after a prolonged experience with nature journaling, and what types of journaling activities were most effective in promoting these outcomes.

It would also be valuable to develop an instrument that could measure changes in the broader aims of the guide: environmental sensitivity; sense of place and naturalist outlook; and self-identity. Some of the students’ work suggested that journaling may have helped them look beyond the generalities of the environment and its associated problems and begin to understand and appreciate the specifics of a place. Following up on this intriguing hypothesis would be a fascinating extension of this project.
Implications

In conclusion, it is clear that the state of the global environment depends on citizens who are curious, observant, and environmentally aware; who are critical and creative thinkers, confident in their personal convictions, and effective in their communication skills; and who feel a deep sense of connection with and care for their place. The results of this study indicate that nature journaling may well be a valuable technique for promoting these outcomes in the current generation of upper elementary and middle school students. The usefulness and effectiveness of the nature journaling guide produced in the study has been confirmed by the feedback of pilot test participants and a panel of reviewers, and it will therefore serve as a valuable resource to assist educators in using nature journaling with their students. The study also sets the stage for further research in this area, with important implications for both formal and nonformal environmental education.
REFERENCES


Western, Linda. 1996. *Writing Journals: Activities Across the Curriculum (Grades 4-6).* Good Year Books.
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Appendix A. Focus Group Letters and Questionnaire

Invitation: A Nature Journaling Guide for Teachers

Dear Educator: April 24, 2003

We would like to invite you to be part of a focus group to discuss the development of a teacher's guide to nature journaling activities. We believe you would bring valuable expertise and enthusiasm to the project, and we hope you will consider joining us.

What is the purpose of the project? We feel that nature journaling is a technique that holds great potential for helping students develop a deeper understanding of their surroundings, as well as their ability to express their connection to a place in both words and art. To assist educators in using nature journaling with their students, this project (funded by the Wisconsin Environmental Education Board) will produce a nature journaling guide for use by teachers of students in the upper elementary and middle school grades.

How can you get involved? The focus group has the important function of providing suggestions for an effective and useful design for the guide. First, we will ask you to complete a questionnaire addressing your ideas about nature journaling and the guide. Then, we will meet as a group to discuss these ideas further. The total time commitment for both questionnaire and meeting is approximately 2½ hours. The meeting will take place on Thursday, May 15 from 6:30-8:30 pm at the Boston School Forest.

What are the benefits of participating? Your time is valuable...and valuable to us! To express our appreciation, we are offering participants a $25 stipend (payable in a few months when grant money becomes available) and a copy of the completed nature journaling guide (one year from now).

Should you choose to participate, we will send you an information packet and questionnaire by May 1.

Future Opportunities. If you are interested in further involvement with the project, keep in mind the following upcoming opportunities (with additional stipends available):
- Review of the first draft of the guide (September 2003)
- Pilot tests of the guide in your classroom and/or during a field trip to the Central Wisconsin Environmental Station in Amherst Junction (October 2003)
- A one-day workshop to gain hands-on experience with nature journaling (May 2004)

We hope to hear from you, and look forward to the opportunity to work with you!

Sincerely,

Karen Dostal
Environmental Education Coordinator
Boston School Forest

Joe Passineau
Professor of Environmental Education
UW - Stevens Point

Kate Hofmann
Environmental Education Graduate Student
UW - Stevens Point
Appendix A. Focus Group Letters and Questionnaire

Focus Group Meeting: Developing a Nature Journaling Guide

Dear Educator,

May 1, 2003

Thank you for agreeing to participate in the nature journaling focus group! We sincerely appreciate your interest and willingness to share your ideas. Your suggestions will help us design an effective and useful nature journaling guide. Here’s what we are asking you to do:

1) Questionnaire. Please complete the enclosed questionnaire prior to the meeting and bring it with you. To make the most of our time together, please answer each question as thoughtfully and completely as possible. This will:

   • Facilitate efficient use of time at the meeting, as we plan to address each topic on the questionnaire during the discussion.
   • Ensure that your ideas are heard. We will collect the questionnaire at the end of the meeting. You will have an opportunity to add notes throughout the meeting, as our discussion sparks new ideas. Your name will not be included on the questionnaire.

If you find yourself unable to attend the meeting, we still want to hear from you! Please return your completed questionnaire to us by mail so that we can include your ideas.

2) Meeting. At the meeting, we will describe the project and discuss the potential of nature journaling. We will then invite you - the experts - to tell us what would be most valuable to you in an effective and inspiring nature journaling guide!

   Meeting Time: Thursday, May 15 from 6:30 to 8:30 pm
   Meeting Location: Oelke Lodge, Boston School Forest (see map)

Where will all this take us? This meeting is the first step in developing the nature journaling guide. The guide will be geared toward teachers and other educators, for use both in the classroom and at nonformal environmental education sites such as nature centers. The guide will help teachers successfully use nature journaling with students in the upper elementary and middle school grades. We hope it will also provide a new way to foster in students a deeper understanding of their surroundings, and their ability to express that connection to a place in both words and art.

Thank you again for your help! In appreciation, you will receive a $25 stipend and a copy of the completed nature journaling guide. Partial funding for this project is provided by a grant from the Wisconsin Environmental Education Board (#2003-0029). If you have any questions, please feel free to contact us. We look forward to working with you!

Sincerely,

Karen Dostal
Environmental Education Coordinator
Boston School Forest
715-345-7383

Joe Passineau
Professor of Environmental Education
UW - Stevens Point
715-346-3764

Kate Hofmann
Environmental Education Graduate Student
UW - Stevens Point
715-342-6951
Appendix A. Focus Group Letters and Questionnaire

Informed Consent to Participate in a Research Project

Explanation of Procedures: The College of Natural Resources at the University of Wisconsin – Stevens Point is developing a nature journaling guide for classroom teachers and nonformal educators of upper elementary and middle school students. Suggestions from educators will be gathered to inform the development of the guide. Activities in the guide will be pilot-tested in both formal classrooms and at the Central Wisconsin Environmental Station. Partial grant support for the project is provided by the Wisconsin Environmental Education Board (#2003-0029).

We appreciate your participation in this project; your contributions will assist in the preparation of an effective and useful nature journaling guide. The results of this questionnaire and meeting discussion will be used to incorporate your ideas as the guide is developed.

Risk: We don't believe there is any risk, physical or social, involved in your participation in this questionnaire and meeting.

Safeguards: The information gathered will be kept completely anonymous. We will not release any information that would identify you. If you wish to withdraw from the project at any time, you may do so without penalty. Any information collected from you will then be destroyed.

Benefits: All participants will receive a $25 stipend and a copy of the completed nature journaling guide.

Questions/Results: Once the project is completed, we would be glad to provide you with the results, in addition to a copy of the guide. In the meantime, if you have any questions, please contact the project coordinators at UWSP:

Kate Hofmann
Graduate Student
College of Natural Resources, UWSP
Stevens Point, WI 54481
(715) 342-6951
chofm058@uwsp.edu

Joseph Passineau
Professor of Environmental Education
College of Natural Resources, UWSP
Stevens Point, WI 54481
(715) 346-3764
jpassine@uwsp.edu

Third party: If you have any concerns about your participation in this study, please call or write:

Dr. Sandra Holmes, Chair
Institutional Review Board for the Protection of Human Subjects
Department of Psychology
University of Wisconsin - Stevens Point
Stevens Point, WI 54481
(715) 346-3952

Although Dr. Holmes will ask your name, all complaints are kept in confidence.

I have received a complete explanation of the study and agree to participate.

Name __________________________ Date __________________

This research project has been approved by the UWSP Institutional Review Board for the Protection of Human Subjects.
# Nature Journaling Focus Group Questionnaire

Thank you for your participation in the nature journaling focus group! Please complete this questionnaire before we meet on May 15. Your thoughtful and complete answers will be extremely valuable in developing an effective and useful nature journaling guide. If you need additional space, feel free to use the back page. We will follow the same question structure in our discussion at the meeting.

## Background

1. Which of the following best describes your position?
   - [ ] Classroom Teacher: Grade Level _____ Number of years teaching _____
   - [ ] Preservice Teacher
   - [ ] EE Center Administrator
   - [ ] Other EE Center Staff
   - [ ] Graduate Student
   - [ ] Other __________________________

2. Any past positions/experiences you may have that are relevant to this project:

   _____________________________________________________________

   _____________________________________________________________

## Experience with Journaling

3. Do you or have you kept a journal? [ ] Yes [ ] No

4. If so, how would you describe your journal(s)? (travel journal, daily diary, field notes, etc.)

   _____________________________________________________________

   _____________________________________________________________

   _____________________________________________________________

5. Did you find it to be an enjoyable and/or beneficial process? Why or why not?

   _____________________________________________________________

   _____________________________________________________________

   _____________________________________________________________

6. Have you ever used any form of journaling with students?
   - [ ] Yes – Please go on to #7
   - [ ] No – Please skip to #14

7. How do/did you use journals? (Subject areas, grade levels, type(s) of assignments)

   _____________________________________________________________

   _____________________________________________________________

   _____________________________________________________________
Appendix A. Focus Group Letters and Questionnaire

8. What do you see as some of the strengths of journaling as a teaching method?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

9. What kinds of challenges did you encounter with journaling?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

10. What types of journaling activities did you find most effective?
    (open-ended vs. structured assignments, response journals, dialogue journals, etc.)

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

11. How did you prepare your students to use journals successfully?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

12. How did you assess students' progress?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

13. Do you feel that all students can benefit from journaling, or do individual learning styles
    play a role in journaling success?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

**Interest in Nature Journaling**

14. Would a guide to nature journaling activities be useful to you? □ Yes  □ No

15. If so, how do you see yourself using the guide?

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

16. Do you think other teachers at your school or center would be interested in using the
guide?

    □ Very interested    □ Somewhat interested    □ Not interested

Please explain:

______________________________________________________________________________

______________________________________________________________________________

**Structure of the Nature Journaling Guide**
Appendix A. Focus Group Letters and Questionnaire

17. What are the **most important** features of a user-friendly activity guide?

<table>
<thead>
<tr>
<th>Feature</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division into chapters by theme</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Conceptual framework</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Illustrations</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Matrix showing skills by activity</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Matrix showing subject areas by activity</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Ready-to-copy student pages</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

Other important features:

18. What are the **most important** components to include in individual activities?

<table>
<thead>
<tr>
<th>Component</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>A &quot;nutshell&quot; summary of activity</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Objectives/outcomes for activity</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Concepts addressed</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Estimated time needed for activity</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Background information for educator</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Correlation with academic standards</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Suggestions for sequencing activities</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Adaptations for different settings/learners</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Extensions for using journal entries as jumping-off points for other assignments</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

Other important features:

**Content of the Nature Journaling Guide**

19. What types of journaling activities do you feel would be **most effective** with upper elementary/middle school students? (Check those that apply and provide more detail if possible)

- Drawing/sketching
- Creative prose
- Poetry
- Personal narrative
- Sensory descriptions
- Notes on weather/seasons
- Scientific observations/experimentation
- Other activities:

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Appendix A. Focus Group Letters and Questionnaire

20. Do you think students would respond better to highly structured assignments or to open-ended assignments? Or would a combination be most effective? Please explain.

21. What types of introductory or supplementary material would be most helpful to you?

<table>
<thead>
<tr>
<th>How to introduce nature journaling to students</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>How to take students outdoors</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>How to assess students' work</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>How to integrate journaling into the curriculum</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>How to address multiple intelligences</td>
<td>5</td>
<td>4</td>
<td>3</td>
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<td>Information about historical naturalists and journals</td>
<td>5</td>
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<tr>
<td>Connections with children’s literature</td>
<td>5</td>
<td>4</td>
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<tr>
<td>Bibliography/Additional resources</td>
<td>5</td>
<td>4</td>
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</table>

Other important features:

Nature Journaling and Curriculum Considerations

☐ For Classroom Teachers:

22. Do you teach by subject or through an integrating theme?

23. What subject areas do you feel nature journaling can best address?

24. Do you see opportunities to use nature journaling to meet existing curriculum requirements?

25. Do you see opportunities to collaborate across disciplines with nature journaling?

☐ For Nonformal Educators:

26. Do you see opportunities to use nature journaling as part of existing programming at your site? To create new programming based on nature journaling?
Appendix A. Focus Group Letters and Questionnaire

Teacher Preparation

27. Do you think teachers who lack personal journaling experience can effectively facilitate journaling with students? Please explain.

________________________________________________________________________
________________________________________________________________________

28. Would the written guide be sufficient for a teacher to effectively facilitate nature journaling, or would additional preparation (workshops, training, etc.) be necessary? Please explain.

________________________________________________________________________
________________________________________________________________________

29. What do you see as essential elements to include – whether in the guide or in a workshop session – to prepare teachers to facilitate nature journaling successfully?

________________________________________________________________________
________________________________________________________________________

Other Comments

30. Is there anything else you’d like to discuss or that you feel we should take into account when developing the guide?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Thank you! We sincerely appreciate your interest and willingness to share your ideas.
Please bring this questionnaire with you to the meeting:
Thursday, May 15 from 6:30 – 8:30 pm at the Boston School Forest

If you are unable to attend the meeting, please call the Boston School Forest at 715-345-7383. We still want to hear your ideas! Please send your completed questionnaire to: Kate Hofmann, Graduate Student, College of Natural Resources, UWSP, Stevens Point, WI 54481.
Nature Journaling

In a Nutshell. Students make their own nature journals and then use them as a tool for closely observing the natural world at CWES. They participate in a variety of sensory, observation, and reflection activities. Through writing and drawing about their experiences in the outdoors, they develop a deeper awareness of the environment and express themselves in creative and personally meaningful ways.

Materials
- Tray and bandanna for Memory Test
- A variety of natural objects: acorns, pinecones, leaves, seed pods, stones, flowers, twigs, bark, shells, antlers, etc.
- Overhead transparencies and/or laminated photos of historical naturalists
- Sample journal pages in a variety of styles
- Journal-making supplies:
  Cardstock, white paper, hole punch, rubber bands, and an assortment of sticks
- Pencils, crayons, and/or colored pencils
- Materials for specific activities: Butterfly Alphabet Poster, handlenses, jar lids, large sheet of paper

Objectives
After participating in this lesson, students will be able to:
1. Name three historical naturalists who kept journals.
2. Provide three benefits of keeping a nature journal.
3. Name four living and four nonliving components of the ecosystem at CWES.

Background
What is a Nature Journal?
A nature journal is a record of observations, events, and experiences in the natural world. Like other journals, it is a place to sift through the daily occurrences of life and record the ones most significant to you. What makes a nature journal unique is that the place where those events happen plays a central role. There is a deeper awareness of the setting, the changing seasons, and the lives of other species. The subject is both the observer and the observed world.

A nature journal is a snapshot of a moment in time. When you distill your experiences down to their essence and capture them between the pages of a journal, they stay fresh and vivid instead of gradually fading away. Now will soon be a month ago, a year ago,
Appendix B. CWES Pilot Test Lesson Plan

ten years – but in the pages of your journal it will still be the fresh, raw present. You’ve planted a flag in time. You can relive that moment anytime you wish.

Through the lens of a nature journal, you see the world in new ways. It is a tool for arousing curiosity, tuning the senses, sharpening observation skills, and building knowledge. Keeping a journal is a form of discovery, a way to open your eyes to the wonder and beauty and intricacy around you. A nature journal is many things in one:

- An explorer’s log of your adventures and discoveries.
- A field guide to the natural history of your place.
- A map of reflections about how you are part of that place, and it is part of you.

This definition leaves a great deal of room for creativity. Nature journaling is flexible; it can incorporate many styles of expression and engage many different types of learners. A journal can include everything from personal narrative to detailed scientific observations to poetry, sprinkled with sketches and drawings, pressed plants, photos, maps. Essentially, a nature journal is anything that helps people reflect on their relationship with the world around them and express their thoughts creatively.

How do Nature Journals fit into Environmental Education?

Environmental education seeks to help children grow into responsible citizens who are knowledgeable and skilled and motivated to work toward a quality environment. Although this is the ultimate goal, it begins with awareness. In the 1950s, Rachel Carson made a strong case for the importance of fostering children’s emotional, sensory connection with nature. “If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow,” Carson wrote in *The Sense of Wonder*.

Perhaps the most important thing we as educators environmental educators can do is to help children form positive relationships with their local natural surroundings. David Sobel suggests, “If we want children to flourish, to be truly empowered, then let us allow them to love the earth before we ask them to save it.” Frequent, direct contact with the outdoors in childhood, in solitude and with positive role models, has been identified by research as the major factor in developing *environmental sensitivity*, an important step on the ladder to responsible environmental action later in life.

Because nature journaling is a flexible medium that can and should include many different types of activities, it can be used at all levels – from emergent writers to accomplished authors, from students with learning disabilities to those with exceptional talents. It can highlight each student’s unique gifts, fostering both self-confidence and appreciation for the accomplishments of classmates.

Nature journaling has an especially important role in nonformal educational settings like CWES. School groups only have a few hours to a few days here, and every minute of their time is scheduled. Though students may be exposed to an inspiring natural setting, they rarely have time to really absorb their surroundings without the constant stimulation of group activity. Nature journaling offers students a chance to slow down, observe carefully, make connections to their own lives, and reflect on the personal meaning or deeper significance of the experience.

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How Can I Facilitate Nature Journaling Effectively?

As the facilitator of a nature journaling lesson, you have an important and somewhat challenging job. On the one hand, you want to guide and motivate your students to expand their perceptions and successfully translate their observations and thoughts into a journal entry. On the other hand, you don’t want to stifle their creativity; you want them to feel ownership and pride in what they create, develop their own style, and feel that the final product is uniquely theirs. Here are some strategies for striking that balance:

Create an Environment for Journaling. Journaling asks students to take a leap into the realm of self-expression. You need to start by establishing an atmosphere where they feel comfortable sharing personal opinions and emotions. Foster mutual respect by listening carefully to what students have to say. Send the message that their opinions are valuable, their voices are worth listening to, and their ideas will be respected. This will help create a place where students feel safe enough to take risks and develop their own voices.

Going out together to discover new places is the surest way to be reminded that we do not see the world with the same eyes, nor smell it with the same nose. It sings different songs to each of us.

- Gary Nabhan -
The Geography of Childhood

Be a Role Model. The best preparation for teaching this lesson is to experiment with some of the journaling activities yourself. Strive to stretch your own comfort level. For example, if writing comes easily to you but you rarely draw, be sure to try some drawing activities. Expanding your repertoire will give you more angles from which to engage students, and at the same time it will help you understand some of the challenges they may face.

Think of yourself a guide who walks with students and helps them see in different ways, providing them with opportunities to make their own discoveries. Journal along with them; let them see you doing the same activities you ask them to do. You will demonstrate your own enthusiasm and convey the value of the process. You may not be able to teach wonder in the presence of nature, but you can exude it!

Celebrate Individuality. There is no right way to keep a nature journal. The process of journaling does not lead down a straight path to a single answer. Let students know that their journal won’t – and shouldn’t – look like anyone else’s journal. Each one of them has a unique way of looking at the world and expressing what they see, and their journals will reflect that. Strive to provide a diversity of activities that will engage the many different types of learners in your group. Give students choices. If they can tailor their work to fit their own preferences and interests, they will find it more meaningful.

Structure Activities to Build Comfort Levels Gradually. If students are new to journaling, start slowly. Proceed at a pace that gradually builds students’ comfort level with the process of journaling and with expressing their creativity and deeper feelings. Generally this means moving from more structured to more open-ended types of activities over time. Begin with opportunities to simply record observations and events in words or pictures. Next challenge them to make connections between the objects they choose to focus on and the broader context of the world around them. Finally, urge them to record their personal feelings and the meaning of the observations in their own lives.
Preparation and Set-Up

Before teaching the nature journaling lesson, familiarize yourself with the activities. Try them yourself if you haven’t already; this is the best preparation for teaching them.

Prepare the materials for making the journals and set them up in an assembly-line format, so students can create their journals efficiently. Cut the cardstock and copy paper in half so each page is 8½ x 5½ inches. Punch two holes at the top of each page, making sure all the holes are lined up. Collect the sticks ahead of time, or find a place where you will take students to collect their own.

Set up the overhead projector with the transparency of historical naturalists if you plan to use it. For the Memory Game, arrange an assortment of ten or twelve different natural objects (leaves, twigs, stones, flowers, seeds, pinecones, etc.) on a tray and cover them with a cloth. Choose locations for the other activities you plan to do, and be sure to coordinate with other staff so that a class won’t be walking by just when your students have settled in for some quiet reflection. Gather any supplies you will need for outdoor activities and put them in a backpack.

Introduction

Greet students and introduce yourself. Learn their names and give them an overview of the class ahead. Then gather them into a circle for the following activity.

Memory Game. Put the covered tray with an assortment of natural objects in the center of the circle. Explain to students that they will have one minute to look at the objects and try to remember as many as possible. Uncover the objects. After a minute, cover them up again, pass out pencils and paper, and have students try to write down or draw as many of the objects as they can remember. When they have finished, ask volunteers to name objects one at a time. Hold them up for all to see as they are named. Discuss their success. Was it easy to remember all the objects? Do they think they could improve their performance with practice? Explain that keeping a nature journal is one way to practice – it will help them notice more of what’s around them and remember more of what they see.

What’s a nature journal? Why keep one? Before you launch into the activities, it is very important to set the stage by discussing what a nature journal is and the reasons for keeping one. Many students will have kept journals before in school or on their own. Some students may have negative feelings about journaling, while others may be avid journal-keepers. Give them a chance to share their experiences. What don’t some of them like about it? What are reasons that others enjoy keeping a journal? Try to assess their attitudes, interests, and previous experiences, so you can find ways to engage them at the level they are starting from.

Explain that a nature journal is somewhat different from other kinds of journals. Like other journals, it is a place to record what you see and do and think and feel. Unlike other
journals, the place where you are doing all these things is very important. A nature journal can be lots of different things – written words, of course, but also drawings or photos or even an audio tape of your thoughts. You can even call it something else if you don’t like the word journal: a nature notebook, an explorer’s log...

Ask students if any of them brought cameras to CWES. Why? Photos will help them remember their trip here and show family members where they were and what they did. Explain that a journal is another kind of snapshot. It’s a picture of a very particular place and time, and it can help us remember all kinds of things that we would forget otherwise. There are certain things that a photo can’t capture, and that’s why it’s great to have both a camera and a journal. When a deer leaps away down the trail just five feet in front of you, you probably won’t have time to wind your camera and snap its photo. But you could write in your journal about how you caught your breath in surprise and your heart started beating faster, and you could draw what the deer’s white tail looked like as it disappeared into the trees...and you can look back ten years from now and it will still be there on the pages, just as fresh as if it just happened.

Nature Journals aren’t New! Tell students that they’ll be in good company as keepers of nature journals. Scientists, explorers, naturalists, writers, artists and others have used journals for centuries to help them keep track of their observations and discoveries and realizations. Ask students if they know anyone famous who kept a journal. At this point, you could show students the pictures of the historical naturalists and share some of their stories, emphasizing how they used their journals to accomplish the things we still remember them for today. Alternatively, you could wait and sprinkle some of this information throughout the lesson, in between activities.

Charles Darwin (1809-1882) is well known for his theory of evolution, but he could never have come up with it if he hadn’t kept detailed notes in The Voyage of the Beagle, his daily log of a sailing trip around the world. In it, he describes the many plants and animals he saw, including the finches on the Galapagos Islands whose specialized beaks he explained by natural selection.

Henry David Thoreau (1817-1862) is one of the first well-known American nature writers. He is best known for Walden, a philosophical work inspired by his life at Walden Pond in Concord, Massachusetts. Not so many people know that Thoreau assembled Walden from the pages of his daily journal, which he kept for 40 years and which was 15 volumes long in the end!

John Muir (1838-1914) was a devoted advocate for the preservation of the Sierra Nevada, father of Yosemite National Park and founder of the Sierra Club. While wandering in wild places, he kept a
journal to remember the rocks, plants, and animals he saw (there were no portable cameras then). He referred to his field notes later as he wrote many books and articles about the western regions – places that lots of his readers would never visit but could imagine from his descriptive writing.

Aldo Leopold (1887-1948), our own Wisconsin conservationist, used his writing to help him understand humans’ relationship to the land. *A Sand County Almanac* gives us poetic monthly sketches of life at his family’s shack in rural Wisconsin. He was a careful observer and a deep thinker, and he argued persuasively for conserving the land and treating other living things with respect.

Rachel Carson (1907-1964) was a scientist whose book *Silent Spring* awakened the world to the danger of pesticides like DDT in the 1960s. Not only an accomplished biologist, Carson was also an award-winning author and a dedicated journal-keeper. Her journal entries are filled with examples of the curiosity, empathy, and wonder that made her scientific discoveries possible.

Emphasize to students that the most important thing to remember about a nature journal is that it is yours. Your journal won’t look like John Muir’s or mine or anybody else’s, because every one of you sees the world in a different way. We could go on a hike and walk down the exact same trail, but we would all notice different details, feel different things, think different thoughts. Empower them to interpret the activities they’ll do today creatively and in a way that reflects their own style. A journal is a work in progress, not a final product, and there’s no such thing as the wrong way to do it!

**Examples and Modeling.** If students are new to journaling, they may need some guidance to help them understand what goes into a successful entry. Even if they are experienced, they may benefit from seeing some examples to inspire them with the range of possibilities. Pass around the examples of different journaling styles. Encourage them to comment on what they like and what looks like fun. You might also model how to make an entry before you send them off to do it on their own. Verbalize your thought process, and translate your thoughts into words or drawings on paper while the students watch. Or, write an entry together as a class.

**Making Journals**

Have students begin by making their own journal to use in the activities that follow.

- Each student will need two cardstock covers, 6-8 pieces of white copy paper, and a rubber band. Sandwich the white paper between the cardstock covers.
- Choose a stick that is about six inches long and as big around as your finger. (Take students into the woods to find their sticks, or collect an assortment ahead of time.)
- From the back of the book, thread a loop of the rubber band up through each of the two holes. Place the stick on the front side of the book, and loop the two rubber band ends around the stick. This will hold the book together nicely.

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It’s best to wait and give students writing utensils just before you begin the first activity. You might tell them that if they stay focused throughout the lesson, you will save some time at the end for them to decorate their covers.

**Nature Journaling Activities: Warming Up**

Make sure all students have their journals and something to write with. Provide a variety of writing and drawing implements from which students can choose (pencils, colored pencils, crayons). Then head outside for the activities, unless the weather is nasty — in that case you could do either of these warm-up activities indoors. If it is particularly cold or wet, you may want to have students leave their journals inside throughout the lesson, going out to look for things or absorb sensory experiences, and then returning indoors to write or draw about what they just did.

**Partner Drawing.** To begin this activity, model for students a detailed description of an object. Hold up an object from nature — a pinecone, for example. Ask students how you could describe this object to someone who has never seen it before. The word “pinecone” won’t mean anything to this person. Instead you will have to explain that it is about as big as your fist, that it is cone-shaped with a wide base and a narrow tip, that the surface is made of small scales that overlap like shingles on a roof. You could give one of the adults a dry erase board and have him or her turn around and, without looking at the object, draw what s/he imagines as you describe it. Describe it very thoroughly. Then, if you’ve had an adult draw, show the drawing to the students and compare it with the object.

Now have students pair up. Partners should sit back to back and choose an Artist and a Describer. Artists close their eyes. You can either have Describers go and choose a nearby natural object (quickly — give them 30 seconds!) or they can raise their hands while you hand each one an object. Then Artists open their eyes and get their pencils ready. The Describer’s job is to describe the appearance of the object as accurately and in as much detail as possible — size, shape, number of different parts, relation of these parts to one another. The Describer does not name the object or give clues about its identity. Emphasize that this is not a guessing game. The Artist’s job is simply to try to draw exactly what they are told. Reassure them that you don’t expect a masterpiece, you just want them to try to capture what makes this particular object different from any other. Artists can ask questions if they need clarification. When a pair finishes, they can compare the object and the drawing. Encourage the Artist to tell the Describer what parts of the description were especially helpful.

Then have them switch roles with new objects. Afterward, discuss which job was more difficult. Do they notice more about the object after trying to describe or draw it? Discuss the importance of being very clear and very descriptive so that your partner can see in his or her mind what you see in front of you.

**Painting CWES with a Word-Brush.** Now that students have tried to describe and draw a single object, have them zoom out so their view includes all of CWES. Explain that a good way to start a journal entry is to note where you are and the date and time.
This is helpful when you look back at your journal. Give them a minute to record this on a fresh page in their journal. Then ask what kinds of details they would use to paint a word-picture of this particular day at CWES. Have them imagine they’ve just dropped down out of the sky. With no idea where they are, or what time of the day or year it is, what kinds of clues would help them solve this mystery? Are they in a forest, a meadow, a desert, a tropical beach? Is there snow on the ground? Leaves on the trees? Is the breeze they feel on their face warm or cold? Is the sun high or low in the sky? Give them time to write a few sentences describing the time and place. What do they see, hear, feel, and smell around them? Encourage them to include lots of sensory clues so that a reader would feel like they are sitting right there beside you. Afterward, you could go around the circle and have each student say one of their lines aloud – together, each sentence becomes one brush stroke in a big painting depicting this day at CWES.

**Nature Journaling Activities: Digging In**

Now that students have gotten a taste of both drawing and writing, and have considered the importance of close observation and detailed sensory description, it is time to dig a little deeper into the environment at CWES. Choose among the following activities to give them a variety of experiences.

**Natural Alphabets.** A nature journal is a way to see the world with new eyes. Show students *The Butterfly Alphabet* by Kjell Sandved. It is a collection of close-up photographs of butterfly wings that resemble each letter of the alphabet. Sandved, a photographer, looked at the pattern on a butterfly wing one day in a new way and discovered a letter there. After that he started looking for letters and he found them everywhere. Finally, after years of searching all over the world, he found the entire alphabet in butterfly wings! Explain to students that you are going to try to see the world this way too. Since you don’t have years, you’re going to look for letters in any of the patterns of nature – tree bark, branches, leaves, clouds, mud cracks, shadows – and you’ll just look for the letters in your first names. This is a good activity to do as you walk on the trail from one place to another, or you can stay in one place and let students spread out and search within the boundaries you set. Tell students that they should look both up and down, think big and think small. Each time they find a letter, they should draw it in their journal just the way they found it. They could also make notes about where they found each letter. Afterward, invite them to share their favorite discoveries and discuss the process. Were they surprised at how many letters they found once they started looking?

**Sound Maps.** Choose a place with a variety of interesting sounds and an area large enough for students to spread out. Have students make an X in the center of their page, and explain that it will be a map, with the X marking their own location. Explain that each time they hear a sound, they should make a mark to show its location. Marks should be interpretive – a symbol that indicates the type of sound, like a musical note for a bird song or a wavy line for the wind. Agree on a signal for starting and stopping. Give
students a minute to find a listening place where they can sit comfortably, away from others, without moving or talking until you call them back. After five minutes or so of listening and mapping, call the group back together to share what they heard. What sounds did they especially like, or not like? Was there anything they heard that they couldn’t identify and were curious about? How did the sounds here compare with what they might have heard if they did this back at school or at home?

**New Perspectives.** Ask students if, as they were listening as part of previous activities, they wondered what any of those other creatures were saying. What were the birds whistling about? What was that chattering squirrel trying to tell us? Could it be that even the wind had something important to say?

Then have students look around and find some other being (alive or not) whose story they’d like to tell. They should imagine seeing the world through the ‘eyes’ of a rock, a tree, a decaying log, a bug under the log... Encourage them to experiment with what the world looks like from that vantage point – get down on their bellies with their noses on the ground if they’re writing as an ant or worm, lie down on their backs and look up into the sky if they’re a bird. Then they should take on the identity of the being they chose and write in its own voice – make a leap of imagination from facts to the real life of the thing.

I do not know whether it is possible to love the planet or not, but I do know that it is possible to love the places we can see, touch, smell, and experience.

- David Orr -
*Earth in Mind*

Challenge them to really imagine what it might be like to be this other being: how does it feel to be this object, what does a day involve, who do you interact with, how do you experience the passing of time? This could take a variety of forms – a first-person account, letters, a picture book, a conversation. If time allows, let a few share their entries with the group.

**Close Up Drawing.** Give each student a handlens. Have them trace around a jar lid to make a circle on a page in their journal. Then set boundaries and send them out to search for some small object they can observe through their handlens (lichens, flowers, leaves, bark, rocks, etc.). Demonstrate how to hold the lens right up to your eye and then move closer and closer to the object until it comes into focus. Emphasize that they don’t need to collect the object; they can just observe it right where it is. After observing it carefully, they should draw what they see in the lens inside the circle on their paper.

**Treasure Walk.** Go on a treasure walk. Walk slow. As you hike along, look for things that are surprising or new – unexpected gifts given to you by the world. Have students make a treasure map of the path they travel, marking each interesting thing they encounter along the way on the map. Alternatively, or in addition, you could designate a starting place and send students out individually or in groups to find one thing they think is particularly interesting or beautiful. Have them make a map showing the path from the starting place to their discovery. Then, have them exchange maps with another student or group and follow the map to find the treasure.

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**Graffiti Wall.** Spread out a large sheet of paper. Give students markers and crayons and let them cover it with writing and drawing – but specify that all entries need to be in the voices of other, nonhuman species with whom we share CWES. Ask them to think about what these plants, animals, and others might have to say to the people here. What kind of messages would they leave for us?

**Brainstorm Poetry.** Choose some aspect of the environment at CWES – a particular tree, the clouds, an acorn on the ground – and have students call out all the words they can think of to describe it. Aloud, it becomes a spoken poem. If you write down the words on a big sheet of paper or board as they say them, students can then take the words and arrange some or all of them into their own poems. Haiku is a good form for this: three lines with five, seven, and five syllables each.

**Freewriting.** This is a good reflective exercise for the end of the lesson. Give students an opportunity to write and/or draw whatever they are noticing and feeling right now. Encourage them to use the rich sensory descriptions they practiced earlier – the sounds, smells, sights, and textures of being in this place. Encourage them to also connect these details with their own responses. What are they especially enjoying? Are they reminded of anywhere they’ve been before?

**Conclusion**

Giving students an opportunity to share their work with each other is a meaningful way to conclude the lesson. It encourages further reflection and reinforces new understanding, and helps students appreciate their own and their classmates’ abilities.

Try one of the following techniques for sharing journal entries. Encourage comments and discussion but emphasize the necessity for positive, constructive feedback. Model appropriate responses. Not all students will be equally comfortable with sharing their work. Encourage, but don’t force.

Review some of the benefits of keeping a journal that you discussed in the beginning. Have students compare the reasons that historical journalists kept journals with what they experienced today. Ask students to think about how these activities helped them notice and discover new things. Suggest that they can continue adding observations, drawings, and stories to their journals while they’re here at CWES, and can share these memories with others when they return home.

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**Techniques for Sharing Journal Entries**

- **Partner Sharing.** Divide students into pairs or small groups to share and respond to one another’s entries.

- **Sharing Circle.** As a class, form a circle and go around one at a time, inviting students to share an entry with the group if they choose. Encourage discussion.

- **Talking stick.** Designate a special stick or other object for sharing sessions. Whoever is holding the object is the speaker, and has the undivided attention of the class until s/he passes it on.

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Concepts
- All living and non-living components of an ecosystem are interrelated and interdependent.
- Every component is part of a cycle and is in a constant state of change.
- Humans are just one strand in the web of life.
- The natural environment influences the quality of human life. Stewardship benefits humans as well as the environment.
- Writing and art express awareness, knowledge, and emotions about nature.
- Communicating our ideas with others and understanding their ideas enables us to work effectively as a community.

Academic Standards
Wisconsin Model Academic Standards addressed by this lesson include:

Environmental Education
A. Questioning and Analysis: A.8.4; A.8.5; A.8.6
B. Knowledge of Environmental Processes and Systems: B.8.2; B.8.3; B.8.10
C. Environmental Issue Investigation Skills: C.8.1
D. Decision and Action Skills: D.8.5; D.8.7.
E. Personal and Civic Responsibility: E.8.1

Language Arts
B. Writing: B.8.1
F. Research and Inquiry. F.8.1

References
Leopold, Aldo. A Sand County Almanac.

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- Nature Journaling: Tell us what you think! -

1. Overall, working on my nature journal was:  
   ![Smiley](😊) ☹️ ☹️  
   Fun  Okay  Boring  

2. The activities helped me look closer at nature.  
   A lot  A little  Not at all  

3. The activities helped me learn more about nature.  
   A lot  A little  Not at all  

4. I appreciate nature more after doing these activities.  
   A lot  A little  Not at all  

5. The activities we did were interesting to me.  
   Very  Somewhat  Not at all  

6. I felt like I could be creative in my nature journal.  
   Very  Somewhat  Not at all  

7. I would like to keep working on my nature journal on my own after I leave CWES.  
   Yes  Maybe  No  

8. What activity did you like most? Why?  

9. What activity did you like least? Why?  

10. If you were in charge, what would you change about the activities to make them better?  

11. What advice would you give to someone your age who was about to start a nature journal?  

12. Is there anything else you’d like to tell us about nature journaling at CWES?
Appendix D. CWES Pilot Test Instructor Questionnaire

Evaluating The Nature Journaling Lesson

Please complete these questions BEFORE you teach the lesson.

1. Have you used journals (of any type) with students in the past? [ ] Yes [ ] No

Have you used nature journals in particular? [ ] Yes [ ] No

2. If so, please describe the ways you have used journals (subjects, types of assignments, etc.)

Preparation and Expectations for the Nature Journaling Unit

3. How would you describe your feelings about teaching nature journaling?

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<td>Not Enthusiastic</td>
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<td>Not Experienced</td>
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<tr>
<td>Not Confident</td>
<td>Somewhat Confident</td>
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4. Please comment on the following qualities of the lesson plan:

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<td>Not Clear</td>
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<tr>
<td>Not Complete</td>
<td>Somewhat Complete</td>
<td>Very Complete</td>
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5. How well do you feel the nature journaling lesson plan prepared you to teach the lesson?

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<tr>
<td>Not Well</td>
<td>Somewhat Well</td>
<td>Very Well</td>
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</table>

Please explain: ____________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

6. What do you hope the students will gain by participating in this lesson?

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________
Appendix D. CWES Pilot Test Instructor Questionnaire

Evaluating The Nature Journaling Lesson
Please complete these questions AFTER you teach the lesson.

Date __________ Lesson Time _______________ Number of Students ______
School ___________________________ Grade Level ________
Conditions (weather, any unusual circumstances) _______________________________________________________

What activities did you do? Please number them according to the order in which you did them.

- Partner Drawing
- Place Descriptions
- Natural Alphabets
- Sound Maps
- New Perspectives
- Freewriting
- Quote Responses
- Natural Metaphors
- Other

The Lesson

7. What did you feel went well?

_________________________________________________________________________
_________________________________________________________________________

8. What did not go well? What changes would you make if you taught the lesson again?

_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________
_________________________________________________________________________

9. Which activities did you find most effective? Why?

_________________________________________________________________________
_________________________________________________________________________

10. Which activities did you find least effective? Why?

_________________________________________________________________________

_________________________________________________________________________
The Students' Experience

11. How would you describe the students' responses to the nature journaling lesson?


1. Not Motivated 2. Somewhat Motivated 3. Very Motivated


Please explain: ____________________________________________

________________________________________________________________________

12. Did you find it necessary to modify the lesson to address different learning styles or special needs in your group? Do you have any advice about this for others who teach the lesson?

________________________________________________________________________

________________________________________________________________________

13. How many of the students seemed to benefit in some way from nature journaling?

1. None 2. A few 3. About half 4. Most 5. All

Please explain: ____________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Your Experience

14. How do you feel about teaching nature journaling after teaching this lesson?

1. Not Enthusiastic 2. Somewhat Enthusiastic 3. Very Enthusiastic

1. Not Confident 2. Somewhat Confident 3. Very Confident

Please explain: ____________________________________________

________________________________________________________________________

________________________________________________________________________

15. Would additional information on any topics have helped you feel more comfortable or effective in the teaching role?

________________________________________________________________________

________________________________________________________________________
Appendix D. CWES Pilot Test Instructor Questionnaire

16. Did you encounter any challenges while teaching the lesson? How could these be better addressed by the lesson plan?
______________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________

17. Do you have any suggestions for revising the lesson? (Was there additional information you needed, steps that were unclear, modifications you made that worked well?)
______________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________

18. What is your overall impression of the lesson?

   1  2  3  4  5
   Poor  Fair  Average  Good  Excellent

Please explain: ____________________________________________
______________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________

19. If you were responsible for scheduling at an EE center, would you want students to participate in this lesson as part of their visit?

   1  2  3  4  5
   Definitely not  Probably not  Maybe  Probably  Definitely

Please explain: ____________________________________________
______________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________

20. Do you have any other comments about this lesson?
________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________________

Thank you! We sincerely appreciate your participation and willingness to share your ideas.
Appendix E. CWES Pilot Test Visiting Teacher Questionnaire

INFORMED CONSENT TO PARTICIPATE IN A RESEARCH PROJECT

Explanation of Procedures: Kate Hofmann of the College of Natural Resources at the University of Wisconsin – Stevens Point is developing a nature journaling guide for classroom teachers and nonformal educators of upper elementary and middle school students. Activities in the guide will be pilot-tested in Stevens Point area classrooms and at the Central Wisconsin Environmental Station. Partial grant support for the project is provided by the Wisconsin Environmental Education Board (Grant #2003-0029). Your participation in this project provides valuable feedback for development of the guide. Your contributions will assist in the preparation of an effective and useful nature journaling guide.

Risk: We don't believe there is any risk, physical or social, associated with participation in this project.

Safeguards: The information gathered will be kept completely anonymous. We will not release any information that would identify you. If you wish to withdraw from the project at any time, you may do so without penalty, and any information collected from you will be destroyed.

Benefits: As a participant, you will gain knowledge and/or experience with facilitating nature journaling. You or your school will also receive a copy of the nature journaling guide.

Questions/Results: When the project is completed, we would be glad to provide you with the results, in addition to a copy of the guide. In the meantime, if you have any questions, please contact the project coordinators at UWSP:

Kate Hofmann  
Graduate Student  
College of Natural Resources, UWSP  
Stevens Point, WI 54481  
(715) 342-6951  
chofm058@uwsp.edu

Joseph Passineau  
Professor of Environmental Education  
College of Natural Resources, UWSP  
Stevens Point, WI 54481  
(715) 346-3764  
jpassine@uwsp.edu

If you have any concerns about your participation in this study, please call or write:

Dr. Sandra Holmes, Chair  
Institutional Review Board for the Protection of Human Subjects  
Department of Psychology  
University of Wisconsin - Stevens Point  
Stevens Point, WI 54481  
(715) 346-3952

Although Dr. Holmes will ask your name, all complaints are kept in confidence.

I have received a complete explanation of this study and agree to participate.

Name __________________________ Date ______________

This research project has been approved by the University of Wisconsin-Stevens Point Institutional Review Board for the Protection of Human Subjects.
Dear Teacher,

Thank you for participating in the nature journaling pilot test as part of your visit to CWES. This is a new lesson for CWES, and part of a larger project to create a guide of nature journaling information and activities for educators in a variety of settings.

Your impressions of this lesson will provide valuable feedback for improving the lesson at CWES and guide as well. Any information or suggestions you can give us will be greatly appreciated! If possible, please participate fully in the lesson, and fill out this questionnaire afterward.

We are looking more for feedback on the content of the lesson itself than on the teaching skills of the instructor. However, if you have suggestions regarding the most effective way to facilitate this lesson, feel free to include them.

Because this is part of a research project though the University of Wisconsin-Stevens Point, we are required to obtain consent from all participants. Please read and sign the consent form on the back of this page and return it with your questionnaire to the lesson instructor. The other copy is yours to keep.

Your school will receive a copy of the nature journaling guide when it is complete this spring.

Thank you!

Sincerely,

Kate Hofmann
Graduate Student
College of Natural Resources
University of Wisconsin - Stevens Point
Appendix E. CWES Pilot Test Visiting Teacher Questionnaire

**Evaluating The Nature Journaling Lesson**

Date ___________ Lesson Time _______________ Grade Level ______

**Your Expectations**

1. Have you used journaling (of any type) with students in the past? □ Yes □ No
   If so, please describe the ways you have used journals.
   ____________________________________________________________

2. What did you hope students would gain from participating in this lesson?
   ____________________________________________________________

3. Do you feel the lesson effectively promoted these outcomes? Please explain.
   ____________________________________________________________

**Evaluating the Lesson**

4. Which activities did you find **most** effective? Why?
   ____________________________________________________________

5. Which activities did you find **least** effective? Why?
   ____________________________________________________________

6. How effective was the **sequence** of the activities?

   1  2  3  4  5
   ____________________
   Not effective  Somewhat Effective  Very Effective

   Please explain: ____________________________________________________________

7. How effective was the **introduction** in preparing the students for the activities?

   1  2  3  4  5
   ____________________
   Not effective  Somewhat Effective  Very Effective

   Please explain: ____________________________________________________________

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Appendix E. CWES Pilot Test Visiting Teacher Questionnaire

8. How effective was the **conclusion** in bringing closure to the students’ experience?

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<tr>
<td>Not effective</td>
<td>Somewhat Effective</td>
<td>Very Effective</td>
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Please explain: ____________________________________________

9. What do you see as the biggest **strengths** of journaling as a teaching method? How well do you think this lesson made use of those strengths?

__________________________________________________________

10. What do you see as some of the **challenges** of journaling? How could these be better addressed in this lesson?

__________________________________________________________

The Students’ Experience

11. How would you describe your students’ responses to the nature journaling lesson?

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<tr>
<td>Not interested</td>
<td>Somewhat Interested</td>
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<td>Not Motivated</td>
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<tr>
<td>Not Challenged</td>
<td>Somewhat Challenged</td>
<td>Very Challenged</td>
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Please explain: ____________________________________________

12. How well did this lesson address:

Students’ grade level?

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<td>Not well</td>
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Individual learning styles?

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Special needs?

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<tbody>
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<td>Not well</td>
<td>Somewhat Well</td>
<td>Very Well</td>
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</table>

Please explain: ____________________________________________

13. How many of the students seemed to benefit in some way from nature journaling?
Appendix E. CWES Pilot Test Visiting Teacher Questionnaire

1 2 3 4 5
None A few About half Most All

Please explain: ____________________________________________

_________________________________________________________

Your Experience

14. Do you have any suggestions for revising the lesson to make it more effective?

____________________________________________________________________________________

____________________________________________________________________________________

15. What is your overall impression of the lesson?

1 2 3 4 5
Poor Fair Average Good Excellent

Please explain: ____________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

16. Would you choose to have your students participate again in your next visit to CWES?

1 2 3 4 5
Definitely not Probably not Maybe Probably Definitely

Please explain: ____________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

17. Do you have any other comments about this lesson?

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

____________________________________________________________________________________

Thank you! We sincerely appreciate your participation and willingness to share your ideas.
Appendix F. CWES Pilot Test Instructor Discussion Questions

Nature journaling at CWES - Discussion Questions

1. **How would you describe the students’ responses to the nature journaling lesson?**
   - If you experienced resistance at the beginning, how did you draw students in by the end? What techniques worked to engage them?
   - Do you have ideas for involving reluctant journalers or groups who don’t want to share their entries?
   - Do you think this lesson worked well with 6th – 7th graders, and do you think it would work (equally well, better, worse) with younger or older students?

2. **Did you hear any feedback from teachers/chaperones regarding their impressions?**

3. **How do you feel about teaching nature journaling after teaching this lesson?**
   - If you were initially skeptical, what (if anything) helped you change your mind?
   - If you were initially enthusiastic, did this reinforce your enthusiasm?
   - Was anything particularly frustrating or enlightening?

4. **How well do you feel the nature journaling lesson plan prepared you to teach the lesson?**
   - Can you think of other materials or information that would have been helpful?
   - Do you think you would feel comfortable teaching nature journaling without any training/modeling/prior experience?

5. **What do you hope students will gain by participating in this lesson?**
   **Your Responses**
   - how to observe nature more closely and quietly
   - an understanding of the importance of observing/reflecting in nature
   - maybe feel a spark to journal more
   - understanding that being out in nature doesn’t always have to be a boisterous time
   - understanding of nature journaling, as well as knowledge of different historical figures who have kept nature journals
   - a good experience that doesn’t sour them to journaling
   - broader ideas of how to interpret their surroundings and to create a greater appreciation of the nature that is around them
   - newfound love for nature, realizing it is more than just trees & leaves & animals
   - I hope they will realize all journaling isn’t boring
   - a new way of looking at their surroundings and experience looking and listening
   - an open understanding of the environment surrounding them – and better ways to enjoy and absorb the natural world
Teachers’ Responses

- a sense of their surroundings
- to improve observation skills, memory
- a knowledge of different types of journaling and the benefits of journaling
- the pleasure and effectiveness of writing down their thoughts and images
- recall skills, writing skills, drawing skills, cooperative skills
- creativity, enjoyment of doing effective descriptive journaling
- reflective time following their experience – the lesson fits best at the end.
- reflection and connection, appreciation for nature, drawing skills
- to find journals a positive experience so they feel comfortable using them

- Is there anything else you felt they got out of it that isn’t included here?
- Did the lesson promote these outcomes, in your opinion?
- Could we more effectively promote them with other activities or approaches?

6. If you were responsible for scheduling at an EE center, would you want students to participate in this lesson as part of their visit?

7. What do you see as the role(s) of nature journaling at a nonformal EE center like CWES (as opposed to in the formal classroom)?

- Did students gain skills/experiences in this lesson that are important components of a visit to a place like CWES?
- How could we make this most effective and meaningful for them?
- How might formal and nonformal settings be able to collaborate using nature journaling?
Appendix G. Classroom Pilot Test Instructions

Nature Journaling Pilot Test - Instructions -

Thank you for assisting with the nature journaling pilot test!

Your experiences and opinions, as well as those of your students, will provide essential insights for creating a quality nature journaling guide - but only if we capture them! In order to evaluate the effectiveness of the journaling activities, please follow these instructions carefully.

Questions about any aspect of the pilot test?
Kate Hofmann  Phone- 342-6951  E-mail- chofm058@uwsp.edu

- Preparation -

In preparation for the pilot test, please read through the materials in this binder. Note especially the checklist that details each step to be completed throughout the pilot test. Please mark off each step on the checklist as you complete it.

Before beginning the nature journaling unit, you will need to:

- Decide what kind of journals you want students to use and how they will make or obtain them.
- Select the activities you wish to do with your students, and determine the sequence in which you will complete them. We highly recommend that you try the activities yourself before you do them with students!
- Plan how you will introduce the nature journaling unit to students, and how you will conclude it (see suggestions in the "Beginnings and Endings" chapter).
- Familiarize yourself with the materials available in the kit, and gather any additional materials you will need.

Now you are ready to proceed with the fun part!
Appendix G. Classroom Pilot Test Instructions

- Activities -

In the activity section of this binder, you will find a wide variety of activity options. We would like you to complete TEN ACTIVITIES over the course of three weeks. Most of the activities can be completed in 20 to 45 minutes.

Required Activities.
We are asking everyone to do the following three activities:

| Sound Maps |
| Natural Alphabets |
| New Perspectives |

Free Choice Activities.
You can then choose seven other activities according to what you find most appropriate to the needs of your grade level, curriculum, or interests.

- Assessments -

The assessment aspect of the pilot test is essential for capturing the information that will be used to refine the nature journaling guide. The assessment components include places for both you and your students to provide feedback about your experience.

1. Teacher Questionnaires
   Before beginning the pilot test ➔ Complete Questionnaire #1.
   For Each Activity you do ➔ Complete Questionnaire #2 - Activity Evaluation.
   After completing the pilot test ➔ Complete Questionnaire #3.

2. Student Assessments
   Before beginning the pilot test ➔ Give students the Pre-Assessment.
   After Sound Maps ➔ Have students complete the activity evaluation.
   After Natural Alphabets ➔ Have students complete the activity evaluation.
   After New Perspectives ➔ Have students complete the activity evaluation.
   After any Other activity ➔ If you choose, lead students in a discussion about the activity and fill out the Activity Evaluation Form with their responses.
   After completing the pilot test ➔ Give students the Post-Assessment.
Appendix G. Classroom Pilot Test Instructions

Nature Journaling Pilot Test
- Checklist -

In preparation for the pilot test:
☐ Read through all materials.
☐ Plan the introduction, sequence of activities, and conclusion for your unit.
☐ Choose the type of journal students will use.
☐ Familiarize yourself with the materials available in the kit.
☐ Gather any additional materials you need.

Before beginning the pilot test:
☐ Complete Questionnaire #1.
☐ Have students complete the Pre-Assessment.

Complete ten activities:

<table>
<thead>
<tr>
<th>Activity Title</th>
<th>Date</th>
<th>Student Assessment</th>
<th>Teacher Evaluation</th>
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<tbody>
<tr>
<td>☐ Sound Maps</td>
<td></td>
<td>☐ Written</td>
<td>☐</td>
</tr>
<tr>
<td>☐ Natural Alphabets</td>
<td></td>
<td>☐ Written</td>
<td>☐</td>
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<tr>
<td>☐ New Perspectives</td>
<td></td>
<td>☐ Written</td>
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At the end of the pilot test:
☐ Have students complete the Post-Assessment.
☐ Complete Questionnaire #3.

Please place all assessments in the envelopes labeled “Teacher Evaluations” and “Student Evaluations”. Kate will retrieve them when you finish the pilot test.

Thank you!
Appendix G. Classroom Pilot Test Instructions

- Timeline -

In order for the results of your pilot test to be included in the analysis, it will be important that we receive them in a timely manner. Please try to structure your pilot testing according to this timeline. Of course, we understand that there may be other factors that prevent you from following it exactly. If you anticipate that you won't be able to complete the activities by the deadline, please let us know so that we can plan accordingly.

It is essential that you complete the assessments as you do the activities - if you wait, valuable information will be lost through the cracks of forgetfulness! Not to mention that you'll be glad not to have it all piled up at the end 😊

<table>
<thead>
<tr>
<th>Date</th>
<th>What Happens:</th>
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<tbody>
<tr>
<td>Thursday, November 6</td>
<td>Pilot Test Orientation Meeting</td>
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<tr>
<td>November 7-14</td>
<td>Preparation Time</td>
</tr>
<tr>
<td>Monday, November 17 (or before)</td>
<td>Begin the Pilot Test</td>
</tr>
<tr>
<td>Friday, December 12 (or before)</td>
<td>Complete the Pilot Test</td>
</tr>
<tr>
<td>Monday, December 15</td>
<td>Return All Assessments</td>
</tr>
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</table>
Appendix G. Classroom Pilot Test Instructions

Student Assessment Instructions

- Pre-Assessment -

Before beginning the pilot test, take students on a short walk around the schoolyard and then return indoors to complete the Pre-assessment.

Let students know they will soon begin a nature journal, and that they will be some of the first ones to try out these nature journaling activities.

Tell them that before they get started with their journals, you are going to take a walk around the schoolyard. Don’t give them too many details or guide their observations at this point - this is simply an opportunity to assess what they already notice in their surroundings. Don’t tell them that they’ll be drawing and writing about the walk until you return indoors.

Take a 10-15 minute walk around the schoolyard.

Return inside and explain that we - the people writing the nature journaling activities - would like their help. We would like them to draw and write about what they just observed outdoors. Reassure them that this is not a test, and they won’t be graded. Pass out a copy of the Pre-assessment to each student with the drawing page face up.

Ask students to print their first name and last initial on the line in the right corner.

Read them the following directions:

We are interested in knowing what you observed in your school yard. Please draw all the parts of nature (animals, plants, and other non-living things) that you saw on the walk you just took. Everyone has different drawing abilities, and all we ask is that you do your best. Please also write the name of the animal, plant, or other thing next to or below each drawing. You will have 15 minutes to complete this. Thank you for helping us with this!

Give them 15 minutes to complete the exercise. Let them know when they have only a few minutes left to finish up.

Then, ask them to turn over their papers and answer the Student Survey questions on the back. For young students, you can read through the questions with them and explain any that they don’t understand.

When students are finished, collect the papers and put them in the “Student Evaluations” envelope.
Appendix G. Classroom Pilot Test Instructions

- Activity Evaluations -

Explain to students that they are some of the first ones to try out these activities, so they have a special opportunity to help improve them. Tell them that the writers of the nature journaling guide are very interested in hearing their opinions, and we thank them for sharing their ideas!

Required Activities.
After you do each of the three required activities (Sound Maps, Natural Alphabets, and New Perspectives), please save about 5 minutes at the end for students to complete the half-sheet evaluation for that activity.

- Explain to students that this is not a test. There is no right or wrong answer to any of the questions. Their honest answers will simply help us make the activities better for others who'll use them in the future.
- Pass out a copy of the evaluation to each student.
- Students do not need to put their names on the paper. They are already marked with a classroom code to help us keep them organized.
- When students finish answering the questions, collect the evaluations and place them in the envelope labeled "Student Evaluations."

Free Choice Activities.
Although there are no required evaluations for the free choice activities, student responses to these activities would be very valuable. If you have time and students are interested in providing feedback, you can use the general Activity Evaluation Form to lead them in a discussion after you complete an activity.

- There is an overhead transparency of the evaluation form which you can put up so that students can follow along with the questions.
- Write the activity title on the top of the form.
- Ask students to think about whether they thought the activity was fun, okay, or not fun. You could draw the corresponding faces on the board for focus. Then have them vote by closing their eyes and raising their hands. Write the number who voted for each category on the corresponding line.
- Discuss the other questions with students, and make notes of their answers as the discussion proceeds.
- Place the completed form in the envelope labeled "Student Evaluations."
Appendix G. Classroom Pilot Test Instructions

Student Post-Assessment

After you do the ten activities in your pilot test sequence, again take students on a brief walk around the schoolyard and have them complete the Post-Assessment. The directions for the Post-Assessment are the same as for the Pre-Assessment.

- Take a 10-15 minute walk around the schoolyard.
- Return inside and explain that the people writing the nature journaling activities would again like their help to find out what they noticed on the walk they just took outdoors. Pass out a copy of the Post-Assessment drawing page.
- Ask students to print their first name and last initial on the line in the right corner.
- Read them the following directions:

  We are interested in knowing what you observed in your school yard. Please draw all the parts of nature (animals, plants, and other non-living things) that you saw on the walk you just took. Everyone has different drawing abilities, and all we ask is that you do your best. Please also write the name of the animal, plant, or other thing next to or below each drawing. You will have 15 minutes to complete this.
  Thank you for helping us with this!

- Give them 15 minutes to complete the exercise. Let them know when they have only a few minutes left to finish up.
- Then, collect the drawing pages and pass out the Student Survey page. The survey asks them to comment on each of the activities they did. To help them recall the activities, you could them on the board. For young students you can read through the questions with them and explain any that they don't understand. Remind them to look at both sides of the paper.
- When students are finished, collect the papers and put them in the “Student Evaluations” envelope.

Thank You!
Appendix H. Student Activity Evaluations

- Sound Maps -

What kinds of sounds did you hear?

<table>
<thead>
<tr>
<th>What kinds of sounds did you hear?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

1. This activity was: ☑️ ☑️ ☐️  
   Fun       Okay      Not Fun

2. I wish we could have spent more time doing this activity.  
   Yes   Maybe   No

3. This activity helped me hear more of the sounds around me.  
   A lot   A little   Not at all

4. I would like to share this activity with my friends or family.  
   Yes   Maybe   No

5. What did you like most about this activity? ____________________________

6. What did you like least about this activity? ____________________________

7. If you were in charge, how would you change this activity? ____________________________
- Natural Alphabets -

Which letter was your favorite discovery? Where did you find it?

<table>
<thead>
<tr>
<th>1. This activity was:</th>
<th>😊 Fun</th>
<th>😞 Okay</th>
<th>😞 Not Fun</th>
</tr>
</thead>
</table>

2. I wish we could have spent more time doing this activity. Yes Maybe No

3. This activity helped me to look closer at nature. A lot A little Not at all

4. I would like to share this activity with my friends or family. Yes Maybe No

5. What did you like most about this activity? ____________________________________________

6. What did you like least about this activity? ____________________________________________

7. If you were in charge, how would you change this activity? ________________________________
### New Perspectives

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>When you did this activity, what did you choose to be? What did you write about?</td>
<td></td>
</tr>
<tr>
<td>1. This activity was:</td>
<td>☺️ Fun ☻️ Okay ☹️ Not Fun</td>
</tr>
<tr>
<td>2. I wish we could have spent more time doing this activity.</td>
<td>Yes Maybe No</td>
</tr>
<tr>
<td>3. This activity helped me think about how other living things might see the world.</td>
<td>A lot A little Not at all</td>
</tr>
<tr>
<td>4. I would like to share this activity with my friends or family.</td>
<td>Yes Maybe No</td>
</tr>
<tr>
<td>5. What did you like most about this activity?</td>
<td></td>
</tr>
<tr>
<td>6. What did you like least about this activity?</td>
<td></td>
</tr>
<tr>
<td>7. If you were in charge, how would you change this activity?</td>
<td></td>
</tr>
</tbody>
</table>
# Student Pre-Survey

Please circle the answer that makes the sentence most true for you.

This is not a test. There are no right or wrong answers. Thank you for your help!

<table>
<thead>
<tr>
<th>Question</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Have you ever kept a journal before?</td>
<td>Yes, No</td>
</tr>
<tr>
<td>2. If yes, where?</td>
<td>In school, On my own, Other</td>
</tr>
<tr>
<td>3. If yes, what did you think of it?</td>
<td>Fun, Okay, Not Fun</td>
</tr>
<tr>
<td>4. I like spending time outside.</td>
<td>A lot, A little, Not at all</td>
</tr>
<tr>
<td>5. I would rather be:</td>
<td>Inside, Outside</td>
</tr>
<tr>
<td>6. I like exploring in nature.</td>
<td>A lot, A little, Not at all</td>
</tr>
<tr>
<td>7. I like sitting quietly and observing nature.</td>
<td>A lot, A little, Not at all</td>
</tr>
<tr>
<td>8. I like watching and learning about animals.</td>
<td>A lot, A little, Not at all</td>
</tr>
<tr>
<td>9. I can find lots of things to do in nature.</td>
<td>Yes, Sometimes, No</td>
</tr>
<tr>
<td>10. I would like to learn more about nature.</td>
<td>Yes, Maybe, No</td>
</tr>
<tr>
<td>11. I would like to learn more about keeping a nature journal.</td>
<td>Yes, Maybe, No</td>
</tr>
<tr>
<td>12. What are you interested in learning about?</td>
<td></td>
</tr>
<tr>
<td>13. I am looking forward to starting a nature journal.</td>
<td>A Lot, Sort of, Not sure, Not at all</td>
</tr>
<tr>
<td>14. Why or why not?</td>
<td></td>
</tr>
</tbody>
</table>
# Student Post-Survey

Please circle the answer that makes the sentence most true for you.
This is not a test. There are no right or wrong answers. Thank you for your help!

<table>
<thead>
<tr>
<th>1. Overall, working on my nature journal was:</th>
<th>☑️ Fun</th>
<th>☑️ Okay</th>
<th>☑️ Not Fun</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Nature journaling helped me look closer at nature.</td>
<td>A lot</td>
<td>A little</td>
<td>Not at all</td>
</tr>
<tr>
<td>3. Nature journaling helped me learn more about nature.</td>
<td>A lot</td>
<td>A little</td>
<td>Not at all</td>
</tr>
<tr>
<td>4. Nature journaling helped me appreciate nature more.</td>
<td>A lot</td>
<td>A little</td>
<td>Not at all</td>
</tr>
<tr>
<td>5. The activities we did were interesting to me.</td>
<td>Very</td>
<td>Somewhat</td>
<td>Not at all</td>
</tr>
<tr>
<td>6. I felt like I could be creative in my nature journal.</td>
<td>Very</td>
<td>Somewhat</td>
<td>Not at all</td>
</tr>
<tr>
<td>7. I would like to keep working on my nature journal.</td>
<td>Yes</td>
<td>Maybe</td>
<td>No</td>
</tr>
</tbody>
</table>

8. Remembering all the nature journaling activities you did, tell us what you thought of each one.

<table>
<thead>
<tr>
<th>Activity Name</th>
<th>Fun</th>
<th>Okay</th>
<th>Not Fun</th>
<th>Why?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sound Maps</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
<td></td>
</tr>
<tr>
<td>Natural Alphabets</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
<td></td>
</tr>
<tr>
<td>New Perspectives</td>
<td>☑️</td>
<td>☑️</td>
<td>☑️</td>
<td></td>
</tr>
</tbody>
</table>


Please circle the answer that makes the sentence most true for you. This is not a test. There are no right or wrong answers. Thank you for your help!

<p>| | | | | | |</p>
<table>
<thead>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>10. I like spending time outside.</td>
<td>A lot</td>
<td>A little</td>
<td>Not at all</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. I would rather be:</td>
<td>Inside</td>
<td>Outside</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I like exploring in nature.</td>
<td>A lot</td>
<td>A little</td>
<td>Not at all</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I like sitting quietly and observing nature.</td>
<td>A lot</td>
<td>A little</td>
<td>Not at all</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. I like watching and learning about animals.</td>
<td>A lot</td>
<td>A little</td>
<td>Not at all</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. I can find lots of things to do in nature.</td>
<td>Yes</td>
<td>Sometimes</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. I would like to learn more about nature.</td>
<td>Yes</td>
<td>Maybe</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

17. What advice would you give to someone your age who was about to start a nature journal?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

18. Is there anything else you'd like to tell us about nature journaling?
1. In the box below, please draw any parts of nature that you noticed on your walk.

2. What kinds of things did you see, hear, feel, or think as you walked?

3. Did you add anything to your drawing after writing about the walk? Yes  No
Appendix K. Classroom Pilot Test Teacher Questionnaires

INFORMED CONSENT TO PARTICIPATE IN A RESEARCH PROJECT

Explanation of Procedures: Kate Hofmann of the College of Natural Resources at the University of Wisconsin – Stevens Point is developing a nature journaling guide for classroom teachers and nonformal educators of upper elementary and middle school students. Activities in the guide will be pilot-tested in Stevens Point area classrooms and at the Central Wisconsin Environmental Station. Partial grant support for the project is provided by the Wisconsin Environmental Education Board (Grant #2003-0029). Your participation in this project provides valuable feedback for development of the guide. Your contributions will assist in the preparation of an effective and useful nature journaling guide.

Risk: We don't believe there is any risk, physical or social, associated with participation in this project.

Safeguards: The information gathered will be kept completely anonymous. We will not release any information that would identify you. If you wish to withdraw from the project at any time, you may do so without penalty, and any information collected from you will be destroyed.

Benefits: As a teacher in the classroom pilot test, you will gain knowledge and/or experience with facilitating nature journaling. You will also receive a $50 stipend and a copy of the completed nature journaling guide.

Questions/Results: When the project is completed, we would be glad to provide you with the results, in addition to a copy of the guide. In the meantime, if you have any questions, please contact the project coordinators at UWSP:

Kate Hofmann  
Graduate Student  
College of Natural Resources, UWSP  
Stevens Point, WI 54481  
(715) 342-6951  
chofm058@uwsp.edu

Joseph Passineau  
Professor of Environmental Education  
College of Natural Resources, UWSP  
Stevens Point, WI 54481  
(715) 346-3764  
jpassine@uwsp.edu

If you have any concerns about your participation in this study, please call or write:

Dr. Sandra Holmes, Chair  
Institutional Review Board for the Protection of Human Subjects  
Department of Psychology  
University of Wisconsin - Stevens Point  
Stevens Point, WI 54481  
(715) 346-3952

Although Dr. Holmes will ask your name, all complaints are kept in confidence.

I have received a complete explanation of this study and agree to participate.

Name ____________________________ Date ____________________________

This research project has been approved by the University of Wisconsin-Stevens Point Institutional Review Board for the Protection of Human Subjects.
Appendix K. Classroom Pilot Test Teacher Questionnaires

Questionnaire #1. Expectations for the Nature Journaling Unit

Please complete these questions BEFORE beginning the pilot test.

Background

1. Number of years teaching _____ Grade Level(s) _____ Subject(s) __________

   Have you used journals (of any type) with students in the past? □ Yes □ No
   Have you used nature journals in particular? □ Yes □ No
   Have you used nature journals with this group of students? □ Yes □ No

2. Please describe how you have used journals – subjects, types of assignments, etc.

   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________

Preparation and Expectations for the Nature Journaling Unit

3. How would you describe your feelings about teaching nature journaling?

   Not Enthusiastic Somewhat Enthusiastic Very Enthusiastic
   1 2 3 4 5

   Not Experienced Somewhat Experienced Very Experienced
   1 2 3 4 5

   Not Confident Somewhat Confident Very Confident
   1 2 3 4 5

4. If you have used nature journals with your students already during this school year, how would you characterize their responses on average as a class?

   Not enthusiastic Somewhat Enthusiastic Very Enthusiastic
   1 2 3 4 5

5. What do you hope your students will gain by participating in this nature journaling unit?

   ___________________________________________________________
   ___________________________________________________________
   ___________________________________________________________

Intentions for the Future

6. After this pilot test is complete, do you anticipate continuing to use nature journaling during the current school year with your students?

   Definitely not Rarely if at all Sometimes Often Very Often
   1 2 3 4 5

   Please explain: ____________________________________________

Thank you! We sincerely appreciate your participation and willingness to share your ideas.
Appendix K. Classroom Pilot Test Teacher Questionnaires

Questionnaire #2. Activity Evaluation
Please complete these questions after EACH ACTIVITY you do.

ACTIVITY TITLE: ____________________________

Date _______ How long did it take? _______ Where did you do it? ________________

Conditions (weather, time of day, any unusual circumstances) _______________________

7. What did you hope students would gain from participating in this activity? _______________________

8. Do you feel the activity effectively promoted these outcomes? Please explain.

9. Overall, how would you describe your students’ responses to the activity?

<table>
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<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not interested</td>
<td>Somewhat Interested</td>
<td>Very Interested</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Motivated</td>
<td>Somewhat Motivated</td>
<td>Very Motivated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Challenged</td>
<td>Somewhat Challenged</td>
<td>Very Challenged</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please explain: ______________________________________________________

10. How did you prepare or introduce your students to the activity?

________________________________________________________________________

11. What do you feel were the most positive aspects of the activity? What went well?

________________________________________________________________________

12. What did not go well? Are there changes you would make if you did the activity again?

________________________________________________________________________
13. How well did this activity address:

<table>
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<tr>
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<th>1</th>
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</thead>
<tbody>
<tr>
<td>Students' grade level?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not well</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Somewhat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Well</td>
</tr>
<tr>
<td>Individual learning styles?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not well</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Somewhat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Well</td>
</tr>
<tr>
<td>Special needs?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Not well</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Somewhat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Well</td>
</tr>
</tbody>
</table>

Please explain:

14. Do you have suggestions for how to revise the activity so it will be more effective? (Was there additional information you needed, steps that were unclear, modifications you made?)

15. What is your overall impression of the activity? Would you use it again?

<table>
<thead>
<tr>
<th></th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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</thead>
<tbody>
<tr>
<td>Poor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other Comments:

Thank you! We sincerely appreciate your participation and willingness to share your ideas!
Questionnaire #3. Evaluating the Nature Journaling Unit

Please complete these questions AFTER you finish the nature journaling unit.

The Nature Journaling Materials

16. You received a first draft of the nature journaling guide, consisting of 4 introductory chapters about nature journaling plus activity descriptions. Overall, did you find these materials:

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unclear</td>
<td>Somewhat Clear</td>
<td>Very Clear</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Incomplete</td>
<td>Somewhat Complete</td>
<td>Very Complete</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Not Useful</td>
<td>Somewhat Useful</td>
<td>Very Useful</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please explain: 


17. What was your impression of each of the following introductory chapters? Please note any additional information or modifications you recommend to improve them.

**Ch 1: What is Nature Journaling?**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>Fair</td>
<td>Average</td>
<td>Good</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Improvements: 


**Ch 2: A Framework for Nature Journaling**

| 1 | 2 | 3 | 4 | 5 |

Improvements: 


**Ch 3: Facilitating Nature Journaling**

| 1 | 2 | 3 | 4 | 5 |

Improvements: 


**Ch 4: Beginnings and Endings**

| 1 | 2 | 3 | 4 | 5 |

Improvements: 


18. How well did the activity descriptions prepare you to teach the activities?

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Well</td>
<td>Somewhat Well</td>
<td>Very Well</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please explain: 


163
Appendix K. Classroom Pilot Test Teacher Questionnaires

The Nature Journaling Activities

19. Which activities did you find most effective? Why?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

20. Which activities did you find least effective? Why?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

21. How well did the selection of activities meet your needs and those of your students?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

The Students’ Experience

22. Overall, how would you describe your students’ responses to the nature journaling unit?

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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<tbody>
<tr>
<td>Not Enthusiastic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Enthusiastic</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Very Enthusiastic</td>
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<thead>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>Not Motivated</td>
<td></td>
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<tr>
<td>Somewhat Motivated</td>
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<td>Very Motivated</td>
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<tbody>
<tr>
<td>Not Challenged</td>
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<td></td>
<td></td>
</tr>
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<td>Somewhat Challenged</td>
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<tr>
<td>Very Challenged</td>
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</table>

Please explain: __________________________________________________________
________________________________________________________________________
________________________________________________________________________

23. Overall, how well did this lesson address:

Students’ grade level?  
<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not well</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat Well</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Very Well</td>
<td></td>
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</table>

Individual learning styles? 
<table>
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<tr>
<th></th>
<th>1</th>
<th>2</th>
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<tr>
<td>Not well</td>
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<tr>
<td>Somewhat Well</td>
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<td>Very Well</td>
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Special needs? 
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<tr>
<td>Not well</td>
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<td>Somewhat Well</td>
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<td>Very Well</td>
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Please explain: __________________________________________________________
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24. How many of your students seemed to benefit in some way from nature journaling?

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<tbody>
<tr>
<td>None</td>
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<tr>
<td>A few</td>
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<tr>
<td>About half</td>
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<tr>
<td>Most</td>
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<tr>
<td>All</td>
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Please Explain: __________________________________________________________
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Facilitating Nature Journaling

164
Appendix K. Classroom Pilot Test Teacher Questionnaires

25. How do you feel about teaching nature journaling after facilitating this unit?

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</thead>
<tbody>
<tr>
<td>Not Enthusiastic</td>
<td>Somewhat Enthusiastic</td>
<td>Very Enthusiastic</td>
<td></td>
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<tr>
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<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Not Confident</td>
<td>Somewhat Confident</td>
<td>Very Confident</td>
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</table>

Please explain: ______________________________________________________
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26. Would additional information on any topics have helped you feel more comfortable or effective in the teaching role?
__________________________________________________________________
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27. How did you prepare your students to use journals successfully? What advice would you give to other teachers about how to accomplish this?
__________________________________________________________________
__________________________________________________________________
__________________________________________________________________

28. How did you assess students’ progress? Do you have advice for other teachers on this topic?
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Nature Journaling and the Curriculum

29. How well did the nature journaling unit fit into and enhance your curriculum?

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<tbody>
<tr>
<td>Not well</td>
<td>Somewhat well</td>
<td>Very well</td>
<td></td>
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Please explain: ______________________________________________________
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30. At this time, do you anticipate continuing to use nature journaling during the current school year with your students?

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</tr>
</thead>
<tbody>
<tr>
<td>Definitely not</td>
<td>Rarely if at all</td>
<td>Sometimes</td>
<td>Often</td>
<td>Very Often</td>
<td></td>
</tr>
</tbody>
</table>

Please explain: ______________________________________________________
__________________________________________________________________
Appendix K. Classroom Pilot Test Teacher Questionnaires

Overall Impressions

31. What is your overall impression of this nature journaling unit?

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<tbody>
<tr>
<td>Poor</td>
<td>Fair</td>
<td>Average</td>
<td>Good</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

32. What do you see as the biggest strengths of journaling as a teaching method? How could the guide materials make better use of these?

________________________________________________________________________
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33. What kinds of challenges did you encounter with journaling? How did you surmount them? How could these be better addressed by the guide materials?

________________________________________________________________________
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34. Please elaborate on any other comments, concerns, or suggestions for improving the guide

________________________________________________________________________
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Thank you! We sincerely appreciate your participation and willingness to share your ideas.
Discussion Questions

1. How well do you feel the materials prepared you to teach the nature journaling unit?
   - Was the information in the introductory chapters useful? Complete yet concise? Would any additional information have been helpful?
   - Were the activity descriptions clear and complete? Was there other information you needed to teach them successfully?

2. How well did the selection of activities meet your needs?
   - Did the variety of activities included help you engage multiple learning styles in your class? Were any needs not addressed?
   - Were you able to find ways to connect the activities to your curriculum and academic standards? Could the guide better assist you with this (without compromising its usefulness to teachers in other grades/states/educational settings)?
   - Would more activities in the final version of the guide be useful or overwhelming?

3. What did you hope students would gain by participating in this unit? Do you feel these outcomes were promoted/achieved through the activities you did?

Some aspects noted on Questionnaire 1:
- observational skills
- communication skills (both writing and drawing)
- a sense of the purpose for writing
- confidence in recording observations
- use of all the senses
- respect and appreciation for nature
- awareness of the environment and their place in it
- connection to the natural world
Appendix L. Classroom Pilot Test Teacher Discussion Questions

4. How would you describe student responses to the nature journaling unit?
   o If you experienced resistance or reluctance in the beginning, what techniques did you use to engage students?
   o If students were initially enthusiastic, did the activities reinforce their enthusiasm or diminish it?
   o Were students willing to share their entries with one another or the class as a whole? Do you feel this was a valuable component?
   o How well did the activities work with your grade level? Were some activities more appropriate for younger or older students?

5. How do you feel about facilitating nature journaling after teaching the unit?
   o If you were initially skeptical, what (if anything) helped you change your mind?
   o If you were initially enthusiastic, did this reinforce your enthusiasm?
   o Was anything particularly frustrating or enlightening?
   o Are there things you would do differently if you did the unit again?

6. Would you like to continue using nature journaling in your classroom?
   o If yes, why?
   o If no, what are the impediments?

7. Do you see opportunities to use nature journaling to enhance collaboration between nonformal environmental education centers and formal classrooms?
   o How do the role(s) of nature journaling differ between these two settings?
   o Do you think the guide can effectively address both audiences?
Appendix M. Reviewer Questionnaire

Evaluating the Nature Journaling Guide

This questionnaire will help focus your critical eye as you review the nature journaling guide. The first part looks at various aspects of the guide in depth. The second part asks for your overall impressions of the material. Of course, you are welcome to provide additional comments beyond those on the questionnaire – either here or directly on the draft of the guide.

The Introductory Chapters

1. Overall, did you find the four introductory chapters:

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<tbody>
<tr>
<td>Unclear</td>
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<tr>
<td>Somewhat Clear</td>
<td></td>
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<tr>
<td>Very Clear</td>
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<tr>
<td>Incomplete</td>
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<tr>
<td>Somewhat Complete</td>
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<tr>
<td>Very Complete</td>
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<tr>
<td>Not Useful</td>
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<tr>
<td>Somewhat Useful</td>
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<tr>
<td>Very Useful</td>
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</table>

Please explain: _____________________________________________________________
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2. What is your impression of each of the following introductory chapters? Please note any additional information or modifications you recommend to improve them.

Chapter 1: What is Nature Journaling?

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<thead>
<tr>
<th></th>
<th>Poor</th>
<th>Fair</th>
<th>Average</th>
<th>Good</th>
<th>Excellent</th>
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</table>

Chapter 2: Nature Journaling Framework

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Chapter 3: Facilitating Nature Journaling

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</table>
Appendix M. Reviewer Questionnaire

Chapter 4: Beginnings and Endings

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<th>Fair</th>
<th>Average</th>
<th>Good</th>
<th>Excellent</th>
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</table>

3. How well do you feel this introductory information would prepare an educator to effectively facilitate nature journaling?

1 2 3 4 5
Not Well Somewhat Well Very Well

Please explain: ____________________________________________
____________________________________________________________________
____________________________________________________________________

The Nature Journaling Activities

4. How effective did you find the organization of the activities into the six section themes?

1 2 3 4 5
Not Effective Somewhat Effective Very Effective

Please explain: ____________________________________________
____________________________________________________________________
____________________________________________________________________

5. How effective did you find the layout and information included in each activity description?

1 2 3 4 5
Not Effective Somewhat Effective Very Effective

Please explain: ____________________________________________
____________________________________________________________________
____________________________________________________________________

6. Which activities do you feel are most effective? Why?

____________________________________________________________________
____________________________________________________________________
____________________________________________________________________

7. Which activities do you feel are least effective? Why?

____________________________________________________________________
____________________________________________________________________
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8. The final guide will contain several more activities in each of the six sections. Do you have suggestions for additional activities to include (either specific activities or areas to address)?

____________________________________________________________________
____________________________________________________________________
Appendix M. Reviewer Questionnaire

9. How well do you feel the activity descriptions would prepare an educator to lead the activities?

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<tr>
<td>Not Well</td>
<td>Somewhat Well</td>
<td>Very Well</td>
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Please explain: ____________________________________________________________

10. How well do you feel the selection of activities accommodates a full range of different learning styles/multiple intelligences?

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<td>5</td>
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<tr>
<td>Not Well</td>
<td>Somewhat Well</td>
<td>Very Well</td>
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Please explain: ____________________________________________________________

11. How well do you feel the selection of activities addresses a variety of subject areas?

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<td>5</td>
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<tr>
<td>Not Well</td>
<td>Somewhat Well</td>
<td>Very Well</td>
<td></td>
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</table>

Please explain: ____________________________________________________________

12. What do you see as the biggest strengths of nature journaling as a teaching method? How could the guide make better use of these?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

13. What kinds of challenges do you think nature journaling poses? How could the guide better equip educators to surmount them?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Overall Impressions

14. What is your overall impression of this draft of the nature journaling guide?

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<td>1</td>
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<td>5</td>
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<tr>
<td>Poor</td>
<td>Fair</td>
<td>Average</td>
<td>Good</td>
<td>Excellent</td>
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</table>

Comments: ____________________________________________________________
Appendix M. Reviewer Questionnaire

15. The following six characteristics are drawn from the North American Association for Environmental Education's "Guidelines for Excellence" in environmental education materials. Now that you have reviewed the guide in some depth and formed an impression of it as a whole, please rank it according to each of the characteristics below (there is no need to review the materials further to answer these questions).

<table>
<thead>
<tr>
<th>Instructional Soundness</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Poor</td>
<td>Fair</td>
<td>Average</td>
<td>Good</td>
<td>Excellent</td>
</tr>
<tr>
<td>Does the guide encourage the learner to construct new knowledge?</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>Does it offer opportunities for different modes of learning?</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>Does it present information and techniques that are relevant to learners' everyday lives?</td>
<td>3</td>
<td></td>
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<tr>
<td>Does it promote the expansion of learning beyond the boundaries of the classroom?</td>
<td>4</td>
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<tr>
<td>Does it make effective use of the interdisciplinary nature of environmental education?</td>
<td>5</td>
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<table>
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<tr>
<th>Usability</th>
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<th>2</th>
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<tbody>
<tr>
<td></td>
<td>Poor</td>
<td>Fair</td>
<td>Average</td>
<td>Good</td>
<td>Excellent</td>
</tr>
<tr>
<td>Is the overall structure of the guide clear and logical?</td>
<td>1</td>
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</tr>
<tr>
<td>Is it inviting and easy to use?</td>
<td>2</td>
<td></td>
<td></td>
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<tr>
<td>Is it long-lived and adaptable to a range of learning situations?</td>
<td>3</td>
<td></td>
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<tr>
<td>Does the guide fit within national and state requirements for education?</td>
<td>4</td>
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<table>
<thead>
<tr>
<th>Fairness and Accuracy</th>
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<tbody>
<tr>
<td></td>
<td>Poor</td>
<td>Fair</td>
<td>Average</td>
<td>Good</td>
<td>Excellent</td>
</tr>
<tr>
<td>Are facts presented in the guide accurate and clearly referenced?</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>Does the guide present a balanced and fair perspective of differing views on the environment?</td>
<td>2</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Does it encourage learners to explore different perspectives and form their own opinions?</td>
<td>3</td>
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<tr>
<th>Depth</th>
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<tbody>
<tr>
<td></td>
<td>Poor</td>
<td>Fair</td>
<td>Average</td>
<td>Good</td>
<td>Excellent</td>
</tr>
<tr>
<td>Does the guide acknowledge the role of feelings, experiences, and attitudes in shaping environmental perceptions?</td>
<td>1</td>
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<tr>
<td>Does it present unifying themes and concepts rather than just facts?</td>
<td>2</td>
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<tr>
<td>Do the concepts reflect social, economic, and ecological contexts?</td>
<td>3</td>
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<tr>
<td>Does it explore a variety of scales in time and space?</td>
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<thead>
<tr>
<th>Emphasis on Skill Building</th>
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<tr>
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<td>Poor</td>
<td>Fair</td>
<td>Average</td>
<td>Good</td>
<td>Excellent</td>
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<tr>
<td>Does the guide challenge learners to use critical and creative thinking skills?</td>
<td>1</td>
<td></td>
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<tr>
<td>Does it prepare students to apply these skills to environmental issues?</td>
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<thead>
<tr>
<th>Action Orientation</th>
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<tbody>
<tr>
<td></td>
<td>Poor</td>
<td>Fair</td>
<td>Average</td>
<td>Good</td>
<td>Excellent</td>
</tr>
<tr>
<td>Does the guide encourage learners to consider and evaluate the consequences of their choices?</td>
<td>1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Does it strengthen learners' perception of their ability to influence the outcome of a situation?</td>
<td>2</td>
<td></td>
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Appendix N. Focus Group Questionnaire Responses

**Background**

1. Which of the following best describes your position?

   **Classroom Teacher**
   - CW - 8th grade + HS, 9 years
   - CS - 7-8th grade, 5 years
   - GK - 3-4th grade, 15 years (graduate student also)
   - BW - 5/6th grade, 17 years
   - LC - 6th grade, 12 years
   - KK - 4th, 21 years
   - JM - 9th, 8 years

   **EE Center Administrator/Staff**
   - BZ - residential EE center associated with UWSP (CWES)
   - KD - school forest associated with SP school district (Boston School Forest)
   - BF - CWES staff

   **Other**
   - DK - Writer, poet/freelance writing instructor
   - PD - Nature Writer, former EE center administrator
   - RC - Environmental Education graduate student

**Experience with Journaling**

2. Do you or have you kept a journal?

   Yes CS, CW, GK, BW, LC, KK, JM, BZ, BF, KD, RC, DK, PD

3. If so, how would you describe your journal(s)? (travel journal, daily diary, field notes, etc.)

   - CS - Travel and daily journals
   - CW - Travel journals – but only kept on wilderness-type trips, sometimes maintain daily journals for periods of time
   - GK - Field notes – birds and wildflowers – used guidebook for notes, gardening journals, daily – weekly journals – self, professional journals – class observation, special education
   - BW - recording daily events of family trips, key events in personal life (and of children)
   - LC - daily diary
   - KK - travel, field notes, classroom experiences
   - JM - Field notes – used as a reference tool for identifying organisms, “daily” diary – used to reflect on emotions/feelings/settings when alone in nature
   - BZ - travel journals, field notes
   - BF - Very sporadic writing – mostly at times when overwhelmed, frustrated, unsure
   - KD - travel journals, phenology log at the school forest
   - RC - I have a daily journal that I've kept since 5th grade, a field note journal I've had since high school (not up to date) and a drawing book where I draw plants, animals, birds, etc I want to remember
   - DK - A place for learning about myself and my surroundings, for “idea-getting”, “observation gathering.” A place to make poems, creative prose, sketches, collages...
   - PD - Garden diary (phenological records) enrichment journal – not daily, not weekly – no pressure, also I keep a “cabin journal” of nature and social events at our cabin/land; travel journal, field notes, poetry, essays.

4. Did you find it to be an enjoyable and/or beneficial process? Why or why not?

   - CS - More enjoyable when looking back at journal. Difficult while doing it.
   - CW - I like keeping journals on wilderness trips as a way of practicing observation skills, pulling together creative thoughts and expressing myself artistically-visually
   - GK - Enjoyable – like self-reflection
   - GK - Beneficial – more focused observations, reflection important
   - BW - I enjoy having a reading the record of past events more than the process of creating the journal – time is the key limiting factor
   - LC - No - don’t enjoy writing details. I tend to be very brief and factual.
   - LC - Enjoy talking and doing more than writing
   - KK - Yes, but only short term
   - JM - Quite honestly, I did not enjoy the daily process, nor did I find it beneficial (it was required for a course, so I did it) I think I didn’t like it because I didn’t feel it was purposeful/necessary – I already know how I feel and what I like/don’t like about nature etc. PLUS, I’m not confident in my writing skills and wanted more direction – what was necessary to complete the project, etc. The field journaling was okay, but again not a confident writer.
Appendix N. Focus Group Questionnaire Responses

BZ – Honestly, it almost seems a struggle for me. I am a very social person. I enjoy being around folks. When I sit down to write I either put such high expectations on myself - don’t like the outcome or I have so much to say it seems overwhelming?

BF – Definitely beneficial at the time – an outlet. To look back and realize how small (now) some of my concerns were is funny.

KD – Yes, it is a way to preserve memories.

RC – Yes – journals have helped improve my writing and love of writing. Journals have helped me remember events, places and things that otherwise would be lost, or a static memory in a photograph.

DK – Yes. It opens my senses and unleashes creativity. It gives me a better understanding of myself and provides ideas of where/how I belong on this planet.

PD – Absolutely – or I wouldn’t do it! I clarify my thoughts and emphasize my discoveries -> benefits/enjoyment. Also, my journals serve as memory books -> FUN to look back and “relive” the discoveries.

5. Have you ever used any form of journaling with students?

Yes  GK, CS, CW, BW, LC, KK, JM  BZ – kind of, BF, KD, RC, DK, PD

6. How do/did you use journals? (Subject areas, grade levels, type(s) of assignments)

CS – In reflection of labs and readings - science
CW – In 7th grade life science - observation journals…pick an outdoor setting, go there 3X a week for 4 weeks or so – spend 15 mins and record observations
CW – In other M.S. science classes – periodically use journaling for students to reflect on experiences, express opinions, set goals, etc…
GK – Occasionally looking back on week – thought ideas corresponding
GK – Journal writing within curriculum – science journals, reading journals
GK – Reading journal entries – historic views
BW – I have used some form of journaling in all the core curricular areas. The following lists some (not all) of the types of journaling used:

Reading:
I have had students keep a reading journal to log the books read during a given period of time. Students were expected to provide certain information about the book and were also encouraged to add personal opinions and recommendations to this journal.
Students have assumed the role of a character in a book and kept a journal of key events from this person’s perspective.
Students have written journal entries as reactions to specific books or chapters in books.

Writing:
Students have kept a daily journal for a set period of time. Students were offered the option of using daily writing prompts or writing on an area of personal interest.
I have communicated with students related to either a specific topic or a student-selected topic through response journals.

Science:
Students have adopted a tree at school and observed changes throughout the school year.
Students use a stenographer notebook to record observations and make inferences while quietly observing the natural surroundings. Sometimes I provide a specific area of focus…signs of animal life, etc.
Students record observations during long-term science experiments.

Social Studies:
Students have assumed the role of a historical character (soldier in the Civil War, etc) and then completed journal entries as we read about specific historical time periods or events.

LC – Language Arts – we have kept journals during literature groups
LC – science observations
KK – “Parents as PenPals” weekly notes home
JM – Earth Science – 8th grade – cloud journals – Although I myself don’t care for journaling, I realize some students might like it. We discussed types of clouds, then went outside for 1 period (45 minutes). Students were required to sit FAR away from others, no talking, and write – 1st ID the types of clouds, then it was open – poems, myths, feelings, etc. Then for the next week – week ½ - 2 we went outside 10-15 min/period to continue journaling. I would collect and respond every few days – not grading or reading aloud.

BZ – Online course, responses discussions
BF – Summer camp experiences – 1) making journals and then encouraging campers to write activities of week and rest of summer, 2) severely disabled where staff would write daily activities so caretakers would know more even though camper can’t communicate, 3) nature journal where campers took time by self outside to write/draw as they felt
KD – I have had students keep daily reflection journals and “learning logs”. We did nature journals each spring.
RC – I have used journals with school groups – as a free writing utensil, data gathering (math, charts, graph) and personal historical reference. Science journal. The ages for this were 5-12th graders. I have used journals with 9-14
Appendix N. Focus Group Questionnaire Responses

year olds in summer camp as a personal journal, used for time capsules, also to lead sharing circle discussions. Journals were also used in planning, data and emotion gathering for final presentation. Used a journal with an all girls camp self-esteem building project. Used on trips for personal reflection and H2O sampling data.

RC – Journals are good starting points for kids to share ideas (verbal discussions)
DK – I've worked with people of all ages – young children through elders. Journals provided a place for: “idea-getting,” creative prose, poetry, observation gathering, sketching, personal narrative, sensory description...
PD – “One with the Land” lesson (Old CWES lesson). As students learned about use of land/relationship with land by Native American peoples, they had writing prompts to offer them the chance to clarify their own relationship with the land. Grades 6-8.

7. What do you see as some of the strengths of journaling as a teaching method?

CS – It challenges students to think about what they are learning
CW – Frees students from confines of structured writing, opens window for individuality and creativity, allows students to reflect, personalize experiences, etc...
OK – Self-reflection, writing expression, focus – objective for learning, multi-sensory, individuals
BW – opportunity for realistic forms of writing
LC – Students are able to say things they may not say aloud. They can reflect on their own thoughts. It is a permanent memory for them.
KK – Communication that takes time and thought
KK – Good parent communication for those who took the time [in Parent PenPal program]
JM – Some students actually enjoy journaling – gets them interested, involved, motivated.
JM – Not really much chance at failure – kids will feel success.
BZ – Getting to know your students personally. Allowing your students to really speak their feelings/thoughts
BZ – Relationship with teacher, get to know students
BF – Allows for self-expression, seems to build confidence (perhaps a sense of control?)
KD – It gives students a chance to reflect on what they have learned and experienced. It helps them to process information.
RC – It’s a great way for teachers to get to know kids, and vice versa. Allows you to know learning styles.
RC – Journals are independent. Allows kids to share with you as an “adult” as themselves.
RC – Great technique to expand learning and creativity. Works well with other endeavors like a reading and science project.
RC – Allows kids to work together – good writers work with good drawers.
DK – My goal is for my students/workshop participants to get as much as I do from the journaling process (see #4 and #5)
PD – 1) Opportunities to apply what’s learned to the student’s personal life. 2) Continuity and documentation of growth. 3) Facilitates the making of connections between arts, language, science/nature, social studies.

8. What kinds of challenges did you encounter with journaling?

CS – Students fight it all the way – they don’t enjoy reflecting
CW – Some students resist any type of assignment or writing
CW – Not all students wish to have open-ended, creative, reflective work
OK – Initial journaling introduction of what it is
OK – Nonwriters especially in beginning
OK – Time constraints – testing
OK – Discipline to do it – teacher
BW – differences in motivation and interest level of students
BW – Some students can write lengthy entries with little or no direction and others write limited amounts regardless of the amount of direction.
LC – A substantial difference in quality. Some students fill a book. Others, write very little.
KK – finding time to be consistent
KK – lack of parent participation [in Parent PenPal program]
JM – first and foremost getting over my dislike of it
JM – some students wanted/needed more direction
JM – some were bored
BF – None
KD – Some kids lose enthusiasm for it if it becomes too routine
RC – Bad facilitation on the part of teachers. Made journal too antiseptic. Made them an assignment, instead of personal. Kids were often intimidated when they hear “writing” or see awesome journal examples. Especially kids with dyslexia, visual impairments, or other special needs.
DK – Sometimes students who are “too logical” or “grade-oriented” don’t see the point of journaling – then I explain that journaling provides writing practice the same way a piano player practices by doing scales.
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PD – It’s whatever the students make of it -> and we can’t “force” the benefits of journaling on students – no matter how good it may be or how rewarding it can be! Grading them can be a challenge.

9. What types of journaling activities did you find most effective? (open-ended vs. structured assignments, response journals, dialogue journals, etc.)

CS – Open-ended, response, dialogue
CW – I do all of these types of journals and for the most part I find all to be very valuable… I do few “structured assignments” however
GK – Response journals – answering questions, reflecting on a situation – learning
GK – Open-ended
BW – I have had most success with providing an option of open-ended or a given prompt. This seems to give direction to those needing it without limiting the more self-directed.
LC – Structured journals.
KK – Structured assignments
JM – Open-ended and response
BF – Didn’t experiment much
KD – Structured journals, response and dialogue
RC – Creative journal design help ie have the kids make them. For younger kids, basic “page starters” help like a thought-provoking quote or picture. You really need a mix of all the above techniques. For example, some kids absolutely need lined paper. Others hate lines. Be flexible.
DK – Open-ended, response journals, dialogue journals
PD – We didn’t use all of these kinds.

10. How did you prepare your students to use journals successfully?

CS – Model some behaviors in class
CW – Discussed how we view journaling as different from other types of writing, set guidelines and general expectations, shared examples
GK – Share and model with whole group – discuss, practice, share, do
BW – modeling
LC – We talked specifically about what should be included
KK – Modeling
JM – gave a brief intro on types of things they could write about – not much
BZ – Redefining what a journal is – doesn’t have to be written
BZ – Getting students to feel proud of their work
BF – [idea from meeting notes] regular time each day -> perhaps right away so start when get to school, prepare, mind not distracted
BF – Able to write however thy felt – poems, sentences, phrases, pictures. In relaxed environment, this worked well.
KD – Model for them what is expected
RC – We looked at historical examples: Aldo Leopold, Anne Frank, Laura Ingalls, Jane Goodall. We did practice runs. Also got kids VER.BALLY involved. Some kids aren’t great writers/drawers. Important that kids know you are “assessing” them individually.
DK – I model how I use journals. I also provide lots of examples and various writing exercises with which they can approach a blank page.
PD – Their teachers did more on prep than we could in our non-formal teaching center (pre-visit activities)

11. How did you assess students’ progress?

CS – Basically, just made sure they finished the assignment
CW – I assess journals on level of expression – depth, explanation of reasoning and thoughts… not on opinions, grammar, spelling. I look for students’ level of self reflection, observation, etc.
GK – Depends upon journal objectives/goals (reading – response, science, ss) Rubric
BW – Sometimes we had specific rubrics – sometimes they were able to write without worrying about assessment
LC – Reading – all of them! They were graded on clarity of thought and completeness
KK – Only monitored if the exchange was completed [in Parent PenPal program]
JM – informally – based on responses
BF – Didn’t choose to do this.
KD – Usually by writing back to them. If they weren’t complete I’d ask them questions (written) and they would need to write an answer
RC – Individually. Effort is important. Again, it depends on the goal of each child’s journal. One example, I wanted kids to use a journal to remember their overnight campout. Some wrote a ton, some drew pictures. One kid pressed flowers and had kids write quotes. All were valid efforts. If you are doing data collection, make the requests very clear (ie I want charts and graphs, see math work, complete sentences in your hypothesis).
Appendix N. Focus Group Questionnaire Responses

DK – I assess journals by “quantity” of pages over quality. I assess students’ progress by their growth toward what makes good writing: showing images and actions that make readers understand the writer’s beliefs, how the writing flows, use of active verbs, clarity, authenticity...

PD – Individual student progress evaluation was left for the teacher back at the classroom – BUT Large group discussion about their journals provided some assessment of success in writing in natural setting

12. Do you feel that all students can benefit from journaling, or do individual learning styles play a role in journaling success?
CS – Individual styles play a part – students who do not enjoy writing “just get it done”
CW – If journaling is offered with options and openness, I believe it can be used to address all individual learning styles, MI, personality types, etc... Variety and exposure to new/different ways of expressing oneself is important!
GK – With time all students will become familiar with journal format – gain confidence in own writing and will get benefit from writing (also include sketches, collection, rubbing, etc)
BW – All students should be able to benefit if a variety of response options are provided
LC – I think learning styles play a role as to how much the student enjoys journaling
KK – All can benefit, but style definitely plays a role
JM – I think it’s good to expose students to all different learning modalities but, I do believe learning styles play a big role in journaling success
BF – I feel learning styles do play a role. However, I also feel it’s important that all students exposed to journaling – perhaps by adjusting how to journal will include more learning styles
KD – I think all kids can benefit
RC – Yes and Yes. All students, even physically, emotionally, learning challenged can benefit. There must be clear expectations for all, with allowances for individual needs. Let the kids be involved. They’ll tell you what they need.
DK – All students can benefit. The journal can be adapted to each individual learning style.
PD – I believe individual styles play a role... but given proper individualized encouragement/guidance and an appropriate level of freedom for diversity (art, non-sentence journals, poetry, sound maps, ETC.) in their journaling experience would help us facilitate success for most students

Interest in Nature Journaling

13. Would a guide to nature journaling activities be useful to you?
Yes CS, GK, BW, LC, KK, JM, BZ, BF, KD, RC, DK, PD
Maybe CW
No

14. If so, how do you see yourself using the guide?
CS – More in reflection – thoughts about organisms, concepts in life science
CW – For new ideas/stimulate my creativity
GK – Increasing awareness, help in planning journal experiences by giving ideas – experience – formats that could be used within classroom – moving to other writing
BW – It would assist me in designing appropriate activities for a variety of nature lessons
LC – It would help focus thoughts/ideas, put it in a framework, give ideas as to topics
KK – It could be a focal point for displaying various types of writing by providing a narrowed purpose
JM – To give me ideas on how/what to do journaling since I’m not that interested
BZ – To give me ideas for personal journaling
BZ – To utilize with students and summer campers to develop a memory book of sorts of their visit
BF – Encouraging youth to write/draw is important. I see incorporating into programming in evenings or maybe after breakfast. (kind of a regular time so staff not confused as to when)
KD – I would possibly have students journal at the forest. I’d also have teachers use the guide in our forest curriculum materials
RC – It would be WONDERFUL for staff training. I have a really hard time explaining how you facilitate journaling. Some staff hate it, some love it. Plus, I always love new ideas.
DK – I would use it as part of my current nature writing programs and to develop new programs
PD – As a resource for my adult/youth journaling workshops, classes, activities

15. Do you think other teachers at your school or center would be interested in using the guide?
Very interested BF, GK, PD, BW
Somewhat interested CS, CW, BZ, KD, GK, LC, KK, JM
Not interested

Please explain:
GK – I know of 1 – maybe 2 other teachers that would find benefits in journaling and would be interested in using it. Several may feel not grade appropriate – K-1 and 6th grade not inclined toward experiencing new curriculum/activities
Appendix N. Focus Group Questionnaire Responses

BW – We have become an environmental ed. charter school with the intent of infusing this area of study into all areas of the curriculum
LC – It would depend on how many outside activities they have planned
KK – It would depend on how it could be used to enhance curriculum already in place – not an “add-on”
JM – Just like anywhere – some teachers are willing to try things, some aren’t
BZ – Everyone has different interests. Our staff changes frequently. We get different teachers in daily. Of those people, some would be interested. Also, depending on the child at our summer camps, some might be more interested and keep their own during their CWES visit.
BF – Staff are very open and excited about trying new things
RC – Who knows? Who cares! It’s on a class to class basis. I would be REALLY interested if journaling is covered anywhere in preservice teacher training. I think a good number of teachers use them. (Not always well…) I wonder where they get the idea.
PD – Standards-driven education = emphasis on language arts!

Structure of the Nature Journaling Guide

16. What are the most important features of a user-friendly activity guide?

<table>
<thead>
<tr>
<th>Feature</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Not Important</th>
</tr>
</thead>
<tbody>
<tr>
<td>Division into chapters by theme</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Conceptual framework</td>
<td>5</td>
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<td>3</td>
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<tr>
<td>Illustrations</td>
<td>5</td>
<td>4</td>
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<tr>
<td>Matrix showing skills by activity</td>
<td>5</td>
<td>4</td>
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<tr>
<td>Matrix showing subject areas by activity</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Ready-to-copy student pages</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

Other important features:
CW – None of these matter to me so much as the expression of creative and new ideas
GK – examples – models to help teacher start
JM – Organized well – bold, easy to read headings
KD – Examples of journaling styles and models for journaling
RC – Ring binder! So stuff can be photocopied, CD ROM maybe cool, examples of kids journals, other historical journals. Easy ways to align stuff to standards, lesson plans.
PD – excerpts

17. What are the most important components to include in individual activities?

<table>
<thead>
<tr>
<th>Component</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Not Important</th>
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</thead>
<tbody>
<tr>
<td>A “nutshell” summary of activity</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Objectives/outcomes for activity</td>
<td>5</td>
<td>4</td>
<td>3</td>
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<tr>
<td>Concepts addressed</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Estimated time needed for activity</td>
<td>5</td>
<td>4</td>
<td>3</td>
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<tr>
<td>Background information for educator</td>
<td>5</td>
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<td>3</td>
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<tr>
<td>Correlation with academic standards</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Suggestions for sequencing activities</td>
<td>5</td>
<td>4</td>
<td>3</td>
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<tr>
<td>Adaptations for different settings/learners</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Extensions for using journal entries as jumping-off points for other assignments</td>
<td>5</td>
<td>4</td>
<td>3</td>
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</tbody>
</table>

Other important features:
CW – Not important – I can figure all this out myself. I adapt everything to fit how and what I am doing with students based on individuals involved and my assessment of background experience and skills.
KK – variety of times – short/long term
BF – grade level matrix
RC – Materials needed, locations suggestions.
RC – Facilitation style suggestions! I am not sure how – really diagram how they should handle each situation.

Content of the Nature Journaling Guide

18. What types of journaling activities do you feel would be most effective with upper elementary/middle school students? (Check those that apply and provide more detail if possible)

7 Drawing/sketching RC – Needs to have flexibility
6 Creative prose   RC – you will need some verbal samples – to make sure kids are serious
Appendix N. Focus Group Questionnaire Responses

6. Poetry
   GK - Some students enjoy poetry and are good
   RC - With verbal sharing

9. Personal narrative
   RC - Iffy with this age group - if it happens, great!
   GK - Help create better writers - cross curricular

5. Sensory descriptions
   RC - Be specific what you want
   GK - Some can be included

7. Notes on weather/seasons
   RC - Be specific, set clear expectations so messy kids can succeed

7. Scientific observations/experimentation
   RC - All.
   BW - I think all of these would be effective for the variety of learning styles present in our classes.
   KK - Other areas [besides drawing, personal narrative, and scientific observations] could be subsets depending on a
   child's personal style
   JM - I think it all goes back to different learning styles - all can be effective with some students. Most effective is hard
to judge - if I had to choose probably drawing/sketching
   BZ - I suppose they are all important in some sense. If true EE is being incorporated then these would all be equal.
   Perhaps one key to implementing EE in schools is have the students carry a nature journal that requires them to do
   activities/journal in all the disciplines
   BF - Get students involved in the out of doors by "forcing" them to pay attention to it - foster respect for changing of
   the seasons
   DK - There is a better chance of discovering, knowing and appreciating the subject if it is approached in a variety of
   ways.

Other activities:
   CW - Creating the "vessel" for the journal.
   GK - Allow some leeway to students so they can include things important to them
   BF - Journal in a bag
   RC - Quotes, time capsules, "letters to selves", laboratory type writings ie) building up data to hypothesis, cartoons -
   story board building

19. Do you think students would respond better to highly structured assignments or to open-ended assignments?
   Or would a combination be most effective? Please explain.
   CS - Combination
   CW - (circled combination) - Different personality types need different types of prompts!
   GK - Combination - more structure can help in beginning and attaining specific goal - open ended would fit into
   writing curriculum
   BW - The different learning styles within classes would suggest that a combination might meet more needs.
   LC - A combination would be best for all types of learners
   KK - Combination: to address styles of teacher and students
   JM - (Again - different learning styles!) Probably a combination to reach the majority of students.
   BZ - Comb. - to hit both types of students. I think it is about giving students choices - breaking down the
   preconceived notion as to what a journal really is
   BF - Combination to better serve all - though mostly open-ended allow for more freedom of though and encourage
   later use
   KD - I think a combination would be effective
   RC - Definitely a combo - It's great if you give clear expectations so kids with poor penmanship, comprehension skills
   have a chance. Flexibility is good for kids to come up with their own methods.
   DK - A combination would benefit most people - we all take different approaches to learning
   PD - Open ended so they could make most relevant to their own needs/world/life.

20. What types of introductory or supplementary material would be most helpful to you?

<table>
<thead>
<tr>
<th>Material</th>
<th>Very Important</th>
<th>Somewhat Important</th>
<th>Not Important</th>
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</thead>
<tbody>
<tr>
<td>How to introduce nature journaling to students</td>
<td>5</td>
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<tr>
<td>How to take students outdoors</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>How to assess students' work</td>
<td>5</td>
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</tr>
<tr>
<td>How to integrate journaling into the curriculum</td>
<td>5</td>
<td>4</td>
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<tr>
<td>How to address multiple intelligences</td>
<td>5</td>
<td>4</td>
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<tr>
<td>Information about historical naturalists and journals</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Connections with children's literature</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Bibliography/Additional resources</td>
<td>5</td>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>
Appendix N. Focus Group Questionnaire Responses

Other important features:
CW - Curious to see others' ideas on this [assessment]
CW - Very important for many teachers [integration into curriculum]
RC - It would be good to access successful teachers already using the technique. Teacher workshops by someone would be great.
RC - Information about how to journal on their own [teachers or students?]
LC - [RE multiple intelligences] This should be done w/i the activities

Nature Journaling and Curriculum Considerations

☐ For Classroom Teachers:

21. Do you teach by subject or through an integrating theme?
CS - Subject - science
CW - Both - science integrated via teaming
GK - I do both - I do try to integrate science, reading, social studies whenever appropriate
BW - some of both methods
LC - Both - if we teach by themes we still separate them by subjects
KK - integrating theme
JM - subject

22. What subject areas do you feel nature journaling can best address?
CS - Most subjects -> any can go outside
CW - Science, Language Arts, Mathematics (looking for patterns)... really just about any subject if creative
GK - Environmental education, Science and social studies - WI topics, water, H. Resources, Reading/ Language Arts
BW - could be infused into all areas
LC - Math, language arts, science (obviously)
KK - science/language arts
JM - science (what I teach) but can be used anywhere! Especially - obviously - English

23. Do you see opportunities to use nature journaling to meet existing curriculum requirements?
CS - Yes - conceptual
CW - Absolutely - writing across the curriculum
GK - With some work it could be but I would need help doing that - I know I could add it to/enhance
BW - yes
LC - plant unit (5th), electricity-magnetism
KK - yes
JM - yes

24. Do you see opportunities to collaborate across disciplines with nature journaling?
CS - Definitely!
CW - Have done so with teaming already ex. Historical walk through W.R. - journaling on observations both natural, social, etc - local geology F.T. - observations/feelings prose and poetry
GK - Yes!
BW - yes
LC - survival [?](Lang. Arts)
KK - yes
JM - not many - lack of time

☐ For Nonformal Educators:

25. Do you see opportunities to use nature journaling as part of existing programming at your site? To create new programming based on nature journaling?
BZ - School - to create a lesson based on it for school groups
BZ - Summer - incorporate it into our summer camps
BF - Both - try to first incorporate into existing curriculum and check for success
KD - Yes, possibly - we could have students do this as an experience/lesson
RC - Yes. With multiple day visits - journals that are specific to each day's lessons with final culminating activity = great.
RC - Be a great summer camp idea. Nature writers! You could "publish" their work.
DK - Yes - Yes - I would welcome this source for both.
PD - [underlined “create new programming based on nature journaling] -> Yes.

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Appendix N. Focus Group Questionnaire Responses

Teacher Preparation

26. Do you think teachers who lack personal journaling experience can effectively facilitate journaling with students? Please explain.

CS - Yes - somewhat - we need to generate enthusiasm - if we don’t have it, it will be difficult to teach it.
CW - Maybe but I don’t advocate asking students to do anything I haven’t done or wouldn’t enjoy doing
BW - with an appropriate guide - most teachers do outside reading and use guides to develop new skills
LC - Yes, I think it is important to model
KK - yes - because I have in “short-term” or “revisited” times if there was a good purpose
JM - Actually yes – of course, I think it depends on the teacher – but most teachers can motivate and explain things so students can meet/exceed expectations. Maybe the first few times it may not be ideal – but, like student learning, it’s a process
BZ - I think these teachers might have reservations because more than likely they feel they are not good journalists or it’s not important so why do it
BF - Yes but they should journal some themselves beforehand. Then they have an idea of what thoughts might go through a person’s head.
KD - I think teacher modeling is so important that I’d have to answer no
RC - I don’t know what it is. People may have their own journals, but because they never jump out of the box with their own journal, they expect everyone’s to look like theirs. I think journaling is seen as fluffy vs. real learning.
DK - No - I firmly believe teachers must be very familiar with the process and the many possibilities
PD - Yes, given SOME kink of first-hand experience (thru training workshop, perhaps?) to know the wonders of and benefits of journaling at a personal level -> this would inspire the kids more than just “cold” curriculum infusion

27. Would the written guide be sufficient for a teacher to effectively facilitate nature journaling, or would additional preparation (workshops, training, etc.) be necessary? Please explain.

CS - 1 workshop
CW - Depends on the teacher – we all have different background experience and different needs for our personal development as teachers
BW - Workshops would be helpful but not necessary
LC - I would recommend some training with the journals
KK - Workshops would help – especially new teachers – but may not be necessary
JM - I think a guide would be great, but training even better
BZ - Workshops for some [those with less journaling experience]
BF - Better if trainings – more likely to use the guide, especially if don’t journal on own
KD - Could the guide prompt the user to write? I’m sure workshops would be important
RC - I think workshops would help. I am not sure if teachers would go. It’s almost like you don’t know how good it could be until you see another person do it...
DK - For those lacking journaling experience, workshops and training is essential (see below).
PD - No, the guide wouldn’t be enough [circled “workshops, training, etc.”] – needed. Research shows importance of being shown HOW, and to gain experience WITH curriculum to make it more likely to be used.

28. What do you see as essential elements to include – whether in the guide or in a workshop session – to prepare teachers to facilitate nature journaling successfully?

CS - Hard core ways to use – no concepts
CW - Have them do it
LC - Lots of different ideas
LC - Lots of different methods – utilizing maps, drawing, writing, responses to quotes
KK - variety
KK - clear formats
JM - Experience in journaling – but not spending entire blocks of time just journaling
JM - Teachers/educators that have used journaling in various ways – the actual responses, etc
BF - Actually have teachers do it – participate as if students. Include info on historical journalists
KD - Student pages, examples, methodology
RC - Teachers/facilitators must know their own personality type. Then they must try to prepare a journal TOTALLY different from their personality. They can see how they can learn lots about their students and how they learn from their journal style – and how hard it is to make someone learn differently than their personality.
DK - In a workshop: Take teachers through the writing process. Introduce them to all the possibilities of how journals can be used (see #19).
Appendix N. Focus Group Questionnaire Responses

PD – Help them have PERSONAL experiences for PERSONAL growth opportunities to develop a passion for journaling and teaching thru journaling

Other Comments

29. Is there anything else you'd like to discuss or that you feel we should take into account when developing the guide?

CW – I would include ideas for different “physical” journal structures – creating the vessel upon which writing, artwork, etc will be done – not just “book” format
CW – Use creative formats and have students personalize their creations
CW – Keeping photo journal – take a photo from the same place once a week for a year...or more (really cool for reviewing phenology without writing)
CW – Creating an imaginary story about a place using a combination of “pieces” collected, drawings, writing, etc... - my aunt used to send stories to e of this sort from her travels – they were awesome!
GK – How/what is journal made [of?]
GK – Preparation for teachers – training?
KK – durability for outside use
JM – Not everyone is an elementary teacher that can cross-curricular infuse things – have ideas that specific disciplines can use so jr. high/high school feel comfortable implementing
BZ – Start younger, reiterate reflection, connect with EE – tie together the various disciplines with a journal, clarify what guide really is (a how-to, activities), non-writers – other ways, does defining nature journaling limit it too much?
BF – Constructing your own journal during art class so students feel it is theirs. Inserting snippets from others’ journals throughout the guide. Famous quotes that are actually from a person’s journal.
KD – Make it a manageable size, make it visually appealing
RC – Special needs, facilitation skills, classroom vs. nature center -> how can they work together?
PD – Idea: computer journal, tape journal, bag journal
Appendix O. Focus Group Meeting Transcript with Categories

Types/Uses of Journaling
RC - I've kept a journal since the fifth grade, and I also have a nature painting journal and I have a little scientific journal, which I haven't been keeping up on because I think I know everything now, apparently, I don't know. I've done a lot of journaling with kids - I've done it on some Boundary Waters type trips, I've done it as a part of school group visits, with teachers, and have done it as a part of summer camps - we've done time capsules and stuff like that with kids.
KD - I've done a lot of journaling with my students. One of my favorite activities each spring is we would do a phenology journal where they would keep track of what's happening - you know, we'd start in March and take it into May, and then they'd take some of that information and actually write a field guide to a special place. And it was just a really lovely project - really fun. But I also had kids keep, you know, like many of us do, just keep keep like a math log, a learning log, what did you learn in reading that day, or, and sometimes just a general, what's happening, these are my thoughts kind of journal.
CW - I myself enjoy writing a lot - I used to journal all the time. A 9th grade teacher introduced me to the idea and I really got into it. ...when I became a parent with small children it pretty much stopped...I just write when I'm on trips now...I have done a variety of different types of journaling with students. When I taught life science, I had students do observation journals for a while...They had to pick a spot that they would spend 15 minutes so many times a week and just observe changes over time...I do journals where I set up a scenario - a totally impossible, something that couldn't be real, but imagine if - or observational types of things dealing with scientific experiments - just real open-ended opinions about topics that we've talked about in class, since I have to teach things like theories of how the earth formed, the big bang, and stuff like that, I like to give students the openness of responding to their impressions of those ideas.
GK - People have different opinions of what journaling is. I'm an artist...And so to me journaling is drawing and writing and scribbling. So I don't think journaling is just sitting down and making the kids write write write write write. Some kids draw. To me, journaling is a combination of writing and sketching and note-taking. I do a lot of different kinds of journaling. I do a garden journal, because I love to garden. ...I take flowers and put things in there, even seed packets, so that I can remember. ...I have a bird book and a flower book that travel with me in the car, and I scribble notes, when I spot a bird - to me that's journaling too - is putting the dates in and saying I saw this bird and where. So I journal like that - field notes. ...I'm a writer too, so I like to sit and just write...
BF - I've never done a lot of journaling. I tend to feel the need to write when I'm really upset about things, so it's hilarious to read my previous journals from, you know, back when I was graduating from college and oh my gosh, what am I going to do? So it's really funny. ...When I went to Europe I did a low-pressure journal, because I wanted to be able to journal every day. So I got one of those little notebooks that are this big, and I journaled on one page every day. And it was great.
BZ - Myself, I'm not a big journalist - one example of this is, I went to Costa Rica with Karen and I remember Karen journaling every night, and it was like, I should be doing that. That's usually when I do journal, when I travel, and I started out in the beginning in Costa Rica, but it just fades as the trip goes on.
PD - I have travel writing - when I feel compelled to do it...I have a cabin journal, so when we go to our land in Shawano County, my husband and I have a journal and I'll try to put an entry in every time we go...I have a garden journal...it has the full bird list of all the species that are ever in my airspace, sighted, or just heard...if there's a monumental day of planting - next year I can see, I'm four weeks late this year, or what the weather was doing, things like that.
...And the reason that I'm really here also is because DyAnne and I are working together to develop a nonprofit organization that will emphasize nature journaling for adults and youth. It's called EarthWhispers, it builds on some workshops that we've done with nature writing, and we're making progress. It will help people tune in, through writing, to the natural world around them.
LC? - I think someone mentioned before with science - observations kinds of things, with language arts we use journals during literature groups where they're doing predicting and responding.
KK - One of the things that I enjoy, because I had the experience of prairie restoration, we do have a prairie at our school, and I take the kids out and they choose a private space, and they often can get the solitude they need because they're little, they're down and the plants are bigger, so they can find a little spot. And I teach observation by having them choose a particular spot, and then record change over time. Several time periods through the year. Where they're told, this is my special place, and observe. And I can teach lessons within that, and they can bring their observations back to the classroom. Through their journals, which are writing and drawing. ...Some kids want a piece of what's near them, as well, as part of it to tape on. BW? One of the things my kids seem to like is the stenography notebooks where one column is for observations and then next to it they write inferences. Sometimes I'll give them some focus as to... evidence of animal life wherever you are sitting or... Sometimes it's totally open-ended. But they like to have both places to write.

Interest in Journaling/Testimony as to its Value
Enjoyment/Importance in personal life
RC - I've always loved it, and I've had the experience where kids have really enjoyed it, especially with the time capsule part of it where they get a chance to go back and look at some things.
PD - At heart, I'm a writer. I always have been a writer, and I always will be a writer. And I always will fit nature and writing together somehow, they don't even go separate to me. ...It means that nature literature, it means all the reading about other people's journals, it means being there with someone when you read the stuff that they wrote in a certain setting...are all things that are almost sacred to me. ...The other thing is that nature journaling and other kinds of journaling and writing continue to be really important parts of my life today.

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Appendix O. Focus Group Meeting Transcript with Categories

Want to help students enjoy writing/journaling
LC - I'm very interested in this - I haven't done a lot of nature journaling... But I think it's very valuable, I'm always thrilled with the things that I get out of my students when they're writing, and I always think that, boy, it's a shame that I didn't pick up that love of writing as a child, but I certainly want to help my students be writers.
KK - And I'm mostly into recording, but once in a while that little twitter hits and I might try something, and I do think addressing the various styles of the kids so that they appreciate it and if the mood hits them they're okay with it and they go with it.

BW - ...But I think a lot of us enjoy what we've done with the writing, but don't take the time to do the writing - we either don't enjoy the process as much, or just don't feel that we have the time to do it. But I'm looking forward to coming up with more ideas for how to do that with my students.

An important life skill
KK - But it's also the main way of communication, and the record-keeping that's involved - something very specific, step by step, that can happen, that can be a valuable tool, in the present, but also as a historical perspective.

A way to preserve memories
KK - I'm one of those who says, "Wouldn't it be great if I had kept journals and could go back and read them and wax sentimental, but eh, that didn't happen.

A way to increase awareness/creativity
DK - I'm very pleased to be a part of this - absolutely thrilled. Just a few things that I always like to pass on to people when I give freelance writing seminars is: writing, for me, opens up all of our senses, it makes us aware of where we are, who we are, what we are a part of. It really, I know a lot of you brought up the idea that you're too busy to write, well, if you actually sit down and write you lose that busyness, you lose that sense of busyness, and it opens up the creativity that we all have inside. Again, it brings about the awareness as to where and how we belong on the planet.

Meditativeness
JP - I've been intrigued by nature journaling for years. I can remember journaling as a kid when everybody else thought it was crazy - I could be killing frogs, or climbing trees or whatever, but I would be writing or sketching things. And as you talked, a lot of resonance with experiences I've had. Yours with the concept of meditativeness, in terms of centering.

Sense of Place
JP - I remember in Africa, though I took probably 3000 pictures in my 5 years in Africa, the things that I value the most are the short sketch book - just the intensity of the place.

Strengths of Journaling as a Teaching Method
Personal Expression/Flexible Medium
RC - I've never felt any pressure in journaling or working with kids that it had to be a certain way or look a certain way or had to have certain things in it. One of the things I always liked about it is it's very individualistic. It can fit any kid. And it can fit any situation.

CW - The thing ... I like about journaling with students is, in my opinion it's kind of a freer writing form. We discuss that this is not going to be graded on grammar or any of those sorts of things - it's more about ideas and thoughts, and you don't get graded on opinions or any of that sort of thing.

BF - I think giving students different ways to express themselves, and being able to focus on different strengths in different students, is very important as well.

Promotes Reflection
GK - ...on the use of the journals - reflecting back. We went through an era in our district where the kids did portfolios. I scheduled a time in each week where the kids reflected back on the week. They jot down the things that they've done and what they've learned. What are the things they remember. It's a communication for me, communication back to the kids. That way, they're all stapled together, and on Friday we take some time to think back... Reflective journals. The kids liked that.

An alternate form of communication
KK - I think you hear from the quiet ones. The ones that aren't going to speak up during class. A lot of times their insights and their ideas are so wonderful, and yet they won't share them verbally.

Getting to know students better/developing a personal relationship
KD - Like when you do response journals with kids where they write their thoughts and then the teacher writes back to them. It gives - I think the kids always really value what you write to them. Those few words that you put down are really important to them. It gives them a chance to have some absolute one-on-one time with the teacher, even though you might not be sitting next to each other.

BZ - With the online course, I felt like people talked in a way that they wouldn't normally talk in a classroom, and they would express their opinions and their feelings. And I think what it helped me to do as the instructor was to really develop a closer
relationship with my students. And I think journaling in the classroom, depending on the types of questions that you ask them or the things that you expect with the journal, you could really develop a close relationship, a one-on-one relationship with your student, but through words.

RC - The thing that's so cool about this is that you will get to know what your kids are like. They'll get to bond with you, and they'll get to say things that normally they don't get to say, but you'll get to know how they learn. So for example, if you're asking your kids to go out and document how many birds, I want you to find at least five birds, and you think you're being very clear, and a kid comes back and they're like, So how many lines? How many birds? Do we have to draw them? Doesn't this give you an insight into this kid?

LC - But you pretty much get that insight all year long!

**Nonjudgmental**

BW - It's kind of a nonjudgmental chance to communicate with the teacher without having someone evaluate what you're going to say.

BZ - I have developed online courses and worked with students that way, and the one thing that I've noticed is ... a lot of times in the classroom you may have questions or feelings or thoughts and you won't say them because you're afraid of your peers and you have that face – they know who you are, they really can get a sense of what you're thinking when you express your opinion or ask a question that people might think is stupid. With the online course, I felt like I didn't have that, I felt like people talked in a way that they wouldn't normally talk in a classroom, and they would express their opinions and their feelings.

**Enhances Learning**

KD - I also think that it gives them a time to cement their thoughts, their learning in their brain, it really helps commit it to memory. If you look at brain-based research, also, on what gets people to learn.

RC - But at the same time this is a great thing, because it will give them the practice to kind of think outside their own box, and also you as the teacher to say, “Am I teaching to these kinds of kids very well?”

**Builds self-awareness, self-confidence, self-identity**

PD - I think a strength is it's an opportunity to document personal growth. A chance to do something for themselves.

BF - It helps build confidence. Depending on the setting that you let them be in, perhaps that's the first time that they've really been alone, by themselves – you know, if you have them sit in your prairie, perhaps that's the first time they've really been alone. Even if someone's right next to them. Now they have this opportunity to just pay attention to what's around them. Perhaps to build confidence and along with that, a sense of control within that natural world. Because there they are, they're documenting it, they're recording it, they're thinking about their feelings.

JP - What I see a lot of you saying is something about self-identity. One step further from where you are.

PD - Building on what Becca just said, we do so much group work. Think about college, think about everywhere you go, everything's in groups. Well, it's almost like we're missing the chance to do something as individuals anymore. It's like the difference between what Kate said about the global environment, and really losing the local. It's the sense of the same thing at a personal level. This is a way to open that new door all over again.

**An opportunity to integrate EE throughout the curriculum**

BZ - And another strength I see of journaling is we're always trying to find this connection of how can we incorporate environmental education into all the disciplines. I feel like a journal, if it were to be something that a school system would incorporate at a very young age and require a student – I'm being idealistic here – but something that a student would carry with them throughout their years in school and throughout all the disciplines, to incorporate nature or environmental education – use a journal to incorporate it within all the disciplines. Somehow, maybe with your guide, develop activities for math, the sciences, the arts – and do it all within a journal. To somehow connect all the disciplines that way.

GK - Oh, the other value of journaling is, because I am a social studies teacher, one of the things that you use in social studies is journals. You go back and the historic journals are things that people learn from. That's an original source. So reading other people's journals – talk about WI forestry, the Peshtigo fire, we have some wonderful journal entries from there that the kids read, and that makes history alive for them. So journaling is something that's very viable in even social studies.

**Challenges of Journaling**

**Resistance to Writing - Educators**

LC - I haven't done a lot of nature journaling, because to be real honest I really dislike writing, with any kind of real sentiment – I was a probation officer so I'm real used to writing very factual things – so I've kind of avoided the whole "let's just expound for the sake of expounding."

BZ - I really consider myself a "nonjournalist". And part of this is because, I'm a very social person, I love to talk, I love to be out doing things, and when I get back indoors by myself, I just really want to sleep! I don't want to journal.

**Resistance to Writing - Students**

CW - One thing I would add, and I teach middle school. And I really value journaling, from the writing perspective, sometimes. I don't always leave it where there's other options because I think it's really important to write in all subjects. I deal with students who absolutely are turned off to writing, and the challenge then is how do you get them motivated to value this, because there is value in it for those students, absolutely, but there's a lot of resistance by that age.

RC - It's a lost art form, almost.

CW - And one of the things I deal with is the 7th grade teacher does a certain type of journaling with students, and by the time I get them they hate it. If I say anything with the word journal in it, oh my gosh! I just don't even use that word, and then I'm okay.
Appendix O. Focus Group Meeting Transcript with Categories

LC - I think you might get real frustrated, though, because to me they ask, “How long does it have to be?”

Dissatisfaction with the results

BZ - ...But part of the reason I’m afraid to journal is when I try because my journals don’t look like this. My journals are pathetic! I mean, my handwriting...I’m just embarrassed. And then I go back and read them and think, My God, I’m psychotic! What was I thinking? What is a journal supposed to be?

Lack of Time or Motivation

BW – I love to read what I’ve either written in the past or someone else has written, to recollect those wonderful things we’ve done, but I don’t ever take the time to do it. Part of it is I was a special educator for many years and did a lot of report writing, so the fun writing was never there. But I think a lot of us enjoy what we’ve done with the writing, but don’t take the time to do the writing – we either don’t enjoy the process as much, or just don’t feel that we have the time to do it.

BZ - And I’m also an extrovert – I’m motivated by other people. And I feel like a lot of you around the table, you seem to be more introverted and internally motivated. I...would wonder if there’s some sort of correlation between people who take the time to journal, and how can we get more extroverted people more interested in it...extroverted doesn’t mean gregarious, and talkative, it means how you’re really motivated. ...And I’m just hoping that we can share, find other ways, like, how can a talkative child – like maybe a journal is on tape, or maybe it’s through photographs, you know, just explore the different types of journals

BW? - I think DyAnne hit it when she said you have to take time away from your busyness. And we often don’t give ourselves that time. We think, we’re too busy, we’re zooming on to the next thing. Once you do take that breath, and give yourself the time to meditate, whether it’s in journaling or yoga or whatever, the benefits are so great, but our busyness kind of clouds our thought.

KD - Or, we give them ten minutes to write, but that isn’t time enough to think and really get it done.

BW? - I wouldn’t have written anything in ten minutes. Not a thing.

LC - But I don’t think you have the luxury, realistically, of sitting there for 20 minutes.

KD - No, no. I agree.

RC - I think it’s one of those things where the initial development of it, and the getting it into your curriculum and into your syllabus will be hard.

Difficult to facilitate well

RC - Where I’ve struggled with it is sometimes I think teachers aren’t always comfortable with it, or they’re not sure what they’re asking their kids to write. Like, I’ll teach a lesson where I’ll ask kids to write in their journals and they’re not really sure what they’re doing. And they’re sitting there and they’re looking at me and I’m looking at them and its...awkward. Or, I don’t know how to impart to staff, at summer camp or whatever – “we’re going to go out on this hike and then they’re going to write in their journals” and they’re like, “that’s gonna suck.” And I’m like, “no it won’t, it’ll be great” – but I don’t know to train them to do that well, or to enjoy it.

RC - And how do we facilitate this? Some kids DO need clear directions. I’m speaking from my own experience, because I’m a little out there. And kids get frustrated with me. They’re like, “I don’t know what you want.” And so I think there does need to be some expectations...to make those kids that are not like me feel more comfortable, and have the lines on the pages or what have you. But it’s tough to facilitate.

Requires variety – can’t let it get routine

KD – One thing I’ve learned about it, though, is that whatever you do with journaling, if it becomes routine with kids, they get bored with it easy so you have to come up with different things, different ways to write – you can’t just say “okay, it’s journal time - write.”

Assessment

CW - We’re obligated to grade work – which I hate – but it’s coming up with kind of this mutual, how do we assess this sort of activity. And usually that’s something we discuss prior to doing it.

Requires a quiet atmosphere – difficult in the classroom

KD - And I think sometimes the classroom atmosphere that we create for them is too busy for them to reflect or find mental solitude.

CW - Or at least the perception of it, whether it is or not.

BW? - I think there are often too many other things – if we say you can journal, but they also know there’s something else they could be finishing if they finish their journal quickly, it makes them just write something quickly to get on to something else that maybe we’re going to grade, collect.

KK? - But the other part of it, too, when I want to be meditative or whatever, I have to have solitude or people of like mind. When you’re in a classroom of 25 to 30, the idea of solitude – it’s hard, because it’s an abstract, when you’re in a group, it’s very hard to do that. Especially at the younger ages. Even as an adult, I still struggle with that.

Special Needs

RC – some other challenges...kids with special needs. People were talking about, I’m not a very good writer, how can we do this verbally, visually, tactile, so everyone can be included.

Large class sizes

LC – One thing I think we really need to address is with the numbers that are going up, in our classrooms, I know next year I’m looking at 28-30 kids in my classroom. To really do that on an ongoing basis, is very overwhelming. Especially at a 6th grade level. Because, I’m real careful anytime I’m giving those writing assignments, because I know there’s three hours of my life shot just looking at that one thing for the day – and that’s not all they do.
Compartmentalization of subject areas/academic standards
CW - And at the middle level you get compartmentalized very much. And so for me to say that it's a value to have students write in science, when that's not even a standard I have to meet individually. I can do that because of my teaming, but not everybody has that. And as you get into high school it's even harder.

Defining Journaling
Conflicts between writing and other forms—standards vs. student needs
BW - But even here in this group we're talking about how journaling should be whatever is appropriate for a child, and then we turn around and say writing. So there is the conflict of, is journaling more than writing, or are we talking about how to get kids to write about nature? I think we even struggle with that. We know that we should meet the needs of all types of learners, and that some will be more visual, some more tactile...but then there is the curricular guideline that we need some writing standards. And we don't have a lot of time in elementary school for things such as, let's let our children just sit outside and draw, for an hour. We do tend to find ourselves saying, where does this fit in to what I'm required to be doing? And writing is very appropriate, but I don't have a lot of standards I have to meet in the drawing area or the visual arts. So as much as I value that, it's harder to find time for that. It's easier to say, I can call this appropriate because it fits my written language [standards]...
JP - What I heard is Betty kind of summarizing the need to define what we mean by journaling, as opposed to writing, as opposed to hybrid sketching, all of that kind of thing. And where some kids are turned off by the word writing, some by journaling, I guess what we're finding is that we have to find a unique way to reach each child.
BW - And I think journaling has become writing to students. If you say we're going to journal, they think we're going to write. JP - So you might want to expand it, to incorporate these other learning styles.
RC - You can call it a nature log. Get it, like a log?
Not just writing - includes art
GW - I don't think journaling is just sitting down and making the kids write write write write write. Some kids draw. I have some very good artists in my class, and to make them go out and draw or sketch or take little scribble notes would be much more fulfilling to them and rewarding, and I would get more from them than to have them sit and write.
Not just a book - can involve other creative forms
CW - I think sometimes - and this might help with people who think it's too routine - we think of journals as being something with pages that we turn like a book. And one of the things I like to think about is a journal being, you know, take a piece of paper and fold it in all kinds of weird ways, or cut pieces off of it and create a totally different structure with which you're going to work, rather than just a book-type thing.
JP - I hear you saying we have stereotypes of what is a journal and what isn't a journal, and some of us have a freer vision of what's possible. Earlier, there was talk about a photographic journal - I realize my slide file case is a journal. But I also realize that maybe you're saying that for one kid maybe a journal is actually an exhibit, or a wall that has all of these things posted on it.
CW - Very three-dimensional.
Maybe define it in terms of basic concepts - what's being accomplished
JP - So to think freely about what is journaling. Maybe what Kate brought up - writing to learn, and drawing to see - maybe those are the basic concepts of what a journal is. That's something that maybe we could explore further.

Physical Structure of Journals
Kids can design their own - important to individualize
BF - I think how the journal looks and how it feels is important. Just like a good book, I can always tell because of the way the pages flip. I've worked with campers when they make their own journals, design it themselves, whether it has lines or not lines. For me to write on a full page scares me, it's overwhelming. Whereas other people would like that, that organization.
GW - When I found out about this, it was funny, because I've been looking forward to being able to try it. Being an art major, I automatically went to our art teacher and said, "Guess what we get to do next year? I want my kids to start journaling." And so in art, I'm going to let the art teacher let the kids take and make it. Because they make paper. This is what I'd like to do.
Can involve other creative forms
GW - One of the things I like to think about is that a journal being, you know, take a piece of paper and fold it in all kinds of weird ways, or cut pieces off of it and create a totally different structure with which you're going to work, rather than just a book-type thing. I love doing that, too - I mean, I like to make my own journal books, as well, out of cool paper and things like that. But there's - I wish I could think of the titles of some of these - there are books on different formats on book type things you can make to work on, to draw on, and it's not a flat book, it's all folded up in cool ways and tied together, whatever.

Conditions Necessary for Using Journaling Successfully
Have to value it and be committed
GW - It depends on how much value you place on it.
JP - What strategies can teachers take to provide solitude for writing?

Appendix O. Focus Group Meeting Transcript with Categories
Appendix O. Focus Group Meeting Transcript with Categories

BW? - Another thing I think you have to provide is a safe environment, for the kids to take the risks that you're talking about.

Requires practice
RC - Journaling takes practice. ...I don't think it can be repetitive, but if it's something that they just learn and get good at, in their own way.

Have to understand what you're asking students to do, and be aware that the difficulty/enjoyability varies according to learning styles
RC - And I think that what's interesting, for anyone that's uncomfortable with it, it would be a cool thing to try and do a journal that is most uncomfortable for you, so you can imagine what it would be like for the kid. If you write very easily, try a journal that's just drawing. ...Maybe if we step out of our own boxes.
RC - A lot of how you use it depends on the age of the student...and what you want them to do with it. If you have a 4th, 5th grader, gosh, you really want them to like it, so they can expand, maybe, as they get older.

Give students options, ways to learn and accommodate their own needs
BF - I've worked with campers when they make their own journals, design it themselves, whether it has lines or not lines. For me to write on a full page scares me, it's overwhelming. Whereas other people would like that, that organization.
RC - It helps if it's colorful, if the kid can be involved in making it. Some kids will see no lines and the first thing they'll do is put lines on it.

Provide the prompts or structure to help them succeed
RC - I've done ones where some have a quote in it to kind of get their brain thinking about what I want. If I want a chart or a graph, you know, I'll put the lines on it for them, as a starter journal.
JP - What I'm capturing from this is the freedom to experiment with format and types. And the idea of kickstarting — giving them an idea with a quote or some layout.

Introducing Journaling to Students
Set clear expectations and gradually build their comfort level
GK - You had suggested that journaling needs practice. To introduce journaling...when people throw — I'm sorry, don't think I'm slamming you, but if you take a kid out to the woods and you say, "okay, we're going to spend the day out here and we're going to do this. Sit down and write about it - journal!" You are going to get those kids who are going to go "huh?" because you haven't built the background. You haven't gotten their comfort level up to the point where it should be. They don't know what you want. And there's a lot of kids out there who want to please you, and they're going, you know [huh?]. You've got to introduce it, you've got to let them know. You know, you say to a 4th grader, they'll probably know what journaling is, but, what is it?
RC - I think it's good to start small, if you can. Like I said, with the practice, and then work up to a bigger project at the end.

Model
KD - I think you can do that through modeling for them. Give them examples. And then — and it doesn't have to be just one example, show them several different examples. And write in front of them. Do it so they see you writing.
CW - Modeling. Writing a story together as a class, right in front of everybody.
BW? - Or sharing how you would have reacted. When I saw this, this is how I felt. You just do what you would have written, if it was your journal.

Provide examples
KK - If for example I'm talking about leaf arrangement, I will pick out one that has an example. This shows alternate leafing, this shows whorled leafing. And then have them pick out something similar.
GK - With the social studies, letting them read something like Rachel Carson or the historic journals, so that they know the primary source. Letting them know that other people have done it, and how they do it. We did a wax museum, Beatrix Potter was a children's author, but she was a scientist first...she'd take dead animals and rip them apart, before she became the author of Peter Rabbit. Letting the kids see that, they love it. They're just fascinated that this woman did these things.
BW? - I think also using examples from other years. I like to try to save different formats of things so that they can see, you know, these are different ways that people have done it, you're welcome to use your own, you can use these as ideas to get started.

Assessment of Students' Progress
JP - The assessment of students' progress - you've already commented on some of the challenges of doing so, and again the need for flexibility to see growth. And even the last comment, in terms of thinking, and having students explain how they came up with ideas.

Two ways to look at it
JP - I think what she's coming up with is: what approaches look at assessment from the fact of: is the student progressing, and another one is assigned grades. Two different concepts there. So you made a strong statement about be careful about a grading process that will stifle the creativity and the joy of journaling.
KD - Don't you think it kind of depends on the purpose of the activity?
JP - So if you had something really focused and narrow — an observation — I think you could be very specific and maybe say, no, there's a more appropriate way to look at that. But something that's more freely given, you have to be more open.
Appendix O. Focus Group Meeting Transcript with Categories

Have to grade work, but need to avoid stifling creativity
CW - We’re obligated to grade work – which I hate – but it’s coming up with kind of this mutual, how do we assess this sort of activity. And usually that’s something we discuss prior to doing it.
CW - The thing ... I like about journaling with students is, in my opinion it’s kind of a freer writing form. We discuss that this is not going to be graded on grammar or any of those sorts of things – it’s more about ideas and thoughts, and you don’t get graded on opinions or any of that sort of thing.
BZ - I think with that it’s also very important to really not be critical at all – I’m really fearful of the grading process with a journal, because you know, a child may have a totally different vision of what a journal is, and just because that teacher has a different style, that’s that child’s creativity, their story, so to speak, and I would hate to, I guess the best grading I could think of is either not to grade it or to develop a really broad matrix of some sort where a lot of different styles would fit in.
KK - It’s hard to say this is free response, or this is your expression of yourself, and then say, well, that was a low grade for you expressing yourself the way that you most appropriately felt you could express it.

Most Effective Types of Journaling Activities
Importance of variety and choice – students all have different styles
BW - I find in my class that I have 21 different students that react in 21 different ways to anything, so, frequently I find that, if I have a suggested, like, here’s one option you could choose, or you could – that you provide some open-endedness for those kids who could write endlessly on their own self-selected topic, you allow for that, but for those kids who would sit there for 20 minutes with nothing to say, you provide one or two very specific – directed, but with still some student choice involved. It’s difficult to find something that everyone in the classroom responds to in the same manner.
Yeah. Choice is important.
KK - I think it would have to be a variety of things – some that just start with a prompt or a quote will hit some kids, but others need very much of a structure, because if they’re blocked, even just the activity of being able to fill in very short answers will start that flow that will let them get into something else eventually. But some need those, just those little, they call them “bitable bites”. So I think variety in a guide is very important.
JP - #13 I think you captured in that there’s a lot of individual variety, and we have to reach each of those children in different ways, and so there needs to be variety in that guide.

Group Journals/Collaboration
RC – I think that group journals can be really effective. I know it sounds strange, but some kids that are great writers, and then you have others that are better at verbalizing, or coming up with the creative idea. Like, they have the story in their head, but the other kid is better at writing it down and the other kid can draw the pictures to go with it. If you can get these kids together, it’s really amazing stuff.

Needs to be some structure – a specific experience linked to the activity
PD – And just a quick comment on Kathy’s: I think it implies that there’s a direct experience that they can journal about. It’s not, sit here and just journal about anything around you. But that there’s a creation of a direct experience linked to whatever this next journaling activity might be that I think could lend itself to much more effective exercises.
Set up novel situations/imaginary scenarios
KK - You know, the whole map thing that she was showing, that was wonderful. You know, we’ve done things where we were in a book and it was talking about what if the world was silent. Well then I made the kids be silent, and work in partners on a computer, and just make lists of how would their world be different if they were silent. But they couldn’t talk through the whole thing. And I tell you what – you get wonderful ideas out of those students, which you wouldn’t have gotten if they’d been chatting that whole time.
CW - I do journals where I set up a scenario – a totally impossible, something that couldn’t be real, but imagine if – or observational types of things dealing with scientific experiments – just real open-ended opinions about topics that we’ve talked about in class, since I have to teach things like theories of how the earth formed, the big bang, and stuff like that, I like to give students the open-endedness of responding to their impressions of those ideas.

Other ideas
BZ - It’d also be interesting to put a child in a room with all the different resources – a computer, a tape recorder, stuff like this - tactile stuff – and just tell them they have to develop their story, and just see who would go where. What type of journaling method they would use.
PD - Sort of a wide game, as in Girl Scouts – where you can go to stations and choose the method. That’d be so cool.
BZ – I think that in itself would tell you so much about the student.
BF – Or you know like those bag skits? You could do like a bag journal.
Chorus of: Cool! Awesome idea.

Interest in the Nature Journaling Guide
JP - Do you think others, beyond the 10 of us around the table here, would find a guide to nature journaling helpful, and if so how strong is that interest? Could you identify 5 others in your school building who would dig into this, or is it pretty rare?
Jackson = lots of enthusiasm
BW - I could tell you that at Jackson school, when I told people that I’d been invited to attend this, they were extremely enthusiastic and delighted that I would come back with a copy of the guidebook. So yes, but our focus is going to change, and
many of the teachers there are looking for any resources that would assist them in placing the environment as the key focus for the curriculum.

**BW -** I would just say, keep in contact with Jackson school, because you’re going to have a lot of people who are extremely enthusiastic.

**Interest in having a time-saving/easy to use tool**

**LC? -** I think as far as, the interest in the guide, and useful, if there’s something as a teacher that we can have where we can, okay, I need something, I’m going to put it on the copier, zip zip zip, rather than, oh, nice writing, but then I have to make my own black line master. If there’s something that’s quick and dirty.

**LC? -** Right, I’d rather spend the three hours responding to the kids’ work than writing up the activity.

**Provides a “seal of approval”**

**BW? -** And I think a lot of people want to incorporate it, but need someone else’s seal of approval. If it’s in someone’s guide, then oh, this must be worthwhile, because someone else who really knows the topic has included it in a guide. And from there you’re braver to branch out on your own, once you’ve experienced a few activities.

**Interest for CWES**

**BZ -** I have read about journaling that has been done out at CWES, and I hope to incorporate that more. ...I think it ties in perfectly with the whole natural resource theme that we have going out at CWES, and trying to get the kids to just remember their experiences in the outdoors, especially with our summer camps...

**JP -** So, you’re giving us positive feedback that yes, move ahead on the project and see where it goes.

### Important Considerations for Guide Development

**Need to start young**

**BZ -** I thought I had read somewhere that you were developing a guide for middle school, high school. Is that correct?

**KH -** Upper elementary, middle school is the targeted range.

**BZ -** Okay, because I feel like this guide needs to target, definitely elementary, because just like with the goals of environmental education, you want to build. And I think you have to foster that appreciation for journaling as young as you possibly can. Otherwise it’s difficult to instill it in middle school kids or high school kids.

**Need to consider standards/curriculum requirements**

**BW -** We know that we should meet the needs of all types of learners, and that some will be more visual, some more tactile...but then there is the curricular guideline that we need some writing standards. And we don’t have a lot of time in elementary school for things such as, let’s let our children just sit outside and draw, for an hour. We do tend to find ourselves saying, where does this fit in to what I’m required to be doing? And writing is very appropriate, but I don’t have a lot of standards I have to meet in the drawing area or the visual arts. So as much as I value that, it’s harder to find time for that. It’s easier to say, I can call this appropriate because it fits my written language [standards]...

**CW -** And at the middle level you get compartmentalized very much. And so for me to say that it’s a value to have students write in science, when that’s not even a standard I have to meet individually. I can do that because of my teaming, but not everybody has that. And as you get into high school it’s even harder.

**KK -** And if there are some things that can address the different kinds of writing that we could fit into our curriculum. Something that centered on more of the descriptive writing, versus more of the narrative, more of the persuasive, more of the whimsical.

**BW? -** We can address the kinds of curricular expectations that are put upon us, and that students will need in their lives.

**KK? -** Something that’s cause and effect related, that they have to determine a cause and effect. That’s very hard for them to go from that abstract, but if there’s something right in front of them, we can also bring in that.

**Testing – practice in explaining thought process**

**BK -** One other thing – Kathy’s leaving the ranks of a 4th grade teacher that has to give the state-mandated test, but the No Child Left Behind criteria, part of the testing they take, the children have to explain their thought processes, and they’re graded on that. How did you know this answer is right? How did you solve this math problem. That’s in science, math, and ss. And they need practice. And so, in journal-writing, that’s a way for them to practice explaining their thought process. That’s totally alien, to a lot of children.

**Special Needs**

**BK -** The other thing to look at is, you have to be able to look at the kids who have various special needs. You don’t always have kids who can do exactly like everybody else.

**BZ -** I was thinking about that, actually, before. Becca, previously worked at the Lions Camp, and listening to some of her stories – how would a blind child journal? How would a child who was paralyzed journal?

**PD -** A tape? A computer journal...I never thought of that before. Or a tape for someone who couldn’t write.

**BF -** I worked at another camp in Texas that was severe disabilities, and so that caretaker would know what they did throughout the week, the staff had to write the journal for all their campers. Which was an interesting challenge, because before the journal went home with the kid, we took a read through it, and it was interesting to see how other people wrote, how people journaled for other people. Like some of them would include drawings and writing and say, oh this was great with facial expressions and such.

### Structural Considerations

**“Quick and dirty” – easy to use**

**LC? -** I think as far as, the interest in the guide, and useful, if there’s something as a teacher that we can have where we can, okay, I need something, I’m going to put it on the copier, zip zip zip, rather than, oh, nice writing, but then I have to make my own black line master. If there’s something that’s quick and dirty.
Appendix O. Focus Group Meeting Transcript with Categories

LC? - We both marked down the ready-to-copy student pages. Ease of use is important.
BZ - I just want to add, too, Kate, that I think other good features of activity guides are having student pages separate, so that teachers can just pull them out and copy them.

Cross References
BZ - And then I think it’s very important to have those cross references to the various resources and standards and the different disciplines that you could use these activities in.
BW? - Having seen the WET/WILD and those workbooks, it’s really nice to be able to sometimes go through and say, at this grade level for this topic this is a good activity. Where you don’t have to page through looking for something.
KK or BW? - And some districts are requiring that teachers, whenever they write any plan, automatically reference it to a standard. Luckily ours isn’t there yet, but many places are.

Illustrations
LC? - I also think illustrations was real important.

Materials Needed
KK? - Oh, if you have the materials needed. That’s very helpful.

Conceptual Framework?
BZ - When I read the conceptual framework, where everything that I’ve been taught is yes, you need that conceptual framework, but I was like, how are you going to do a conceptual framework for this? What is your idea?

Manageable Size – Quality over Quantity
KK? - I’ll put in something. Make it small. Like, I’d rather have a few really good things than an overwhelming amount. And the reason I bring this is, when many of us took the KEEP, and we have this huge thing that we have no place to store. And they’re wonderful activities and all that sort of thing, but it’s like, am I going to put that in my backpack to take home? So concentrate on a few really good, rather than so many.
BZ - One thing - and this is something that’s very seriously being talked about in curriculum development is, instead of doing the big guides, is creating guides for the different grade levels, so you can have the workshops for the elementary teachers, for the middle school teachers, the high school teachers, and not trying to combine it, and then you’re not stuck with this huge guide, and it’s something that’s definitely more manageable.
LC? - Or the kids saying, I did this in second grade.

Content Considerations

Fun
PD - Fun!

Variety of Activities to Meet Student Needs/Academic Standards
BW - I think we talked before that you need to do all those things to meet the individual students’ needs and learning style, but also the different areas we have in the standards we have to meet. At a 5th 6th grade level, all of these besides drawing/sketching would be in our standards.
LC - And not just a poem, it needs to be an ode or a narrative or a lyric or things like that, so they’re learning different kinds.

Examples - Models
KD - I think one other thing that isn’t in there is maybe some examples. Like, if a teacher isn’t going to write in front of the kids, which would be the best thing, as a model, that maybe there would be some examples of either student writing or adult writing that a teacher could use as a model.
BZ - Or even model the guide itself after, try to make it look like a journal.
That’s a nice idea. Yeah.

Quotes/Excerpts
PD - Just a thought - I’d really love, not just to have some fictitious samples, and some adult really did this, but people who are known people. Like, what is an excerpt from a person like Muir or a person like Burroughs - and then what did they do in their lives...maybe a little bit of how this head worked into the development of people who served in different kinds of ways.
BF - I was also thinking it’d be neat if you had a famous quote that’s from somebody’s journal.
BW? - Oh yeah. I just think a whole list of quotes. I mean, these quotes are wonderful. You certainly could use these as prompts.
KD - Maybe that could even be something that you find in the margin on certain pages. Not necessarily in the main text, but something that you could even flip through. Don’t you love that in certain books?
PD - Or even if they’re from letters, you know. It isn’t always a journal, but a real piece of their life at that moment.
KH - Yeah, I think letters are a form of journaling.

GK - I don’t want to be a curmudgeon, but I know that that is going to be a little difficult because of copyrights.
PD - A lot of them are expired, though.

GK - Yeah, but be aware of that, though, so you don’t get nailed. It’s a beautiful idea and I really love it. When we were doing the forest history guide, we had to be so careful not to infringe.
PD - Or getting permission.
A Vision for the Nature Journaling Guide

A vision for the nature journaling guide was created by compiling recommendations provided by focus group participants, adding these to ideas gleaned from published sources, and incorporating the objectives identified in the framework.

Upon completion, the nature journaling guide will provide:

- A definition of nature journaling that is creative and open-ended, with a focus on modes of self-expression that encourage students to reflect on their surroundings, themselves, and the connections between them.
- Justification for including nature journaling in both formal and nonformal education programs, and support for experimenting with many different forms of journaling (drawing as well as writing; literary and historical perspectives on the environment as well as scientific, etc.).
- A complete nature journaling resource for formal and nonformal educators of upper elementary and middle school students, covering techniques for successful facilitation of nature journaling as well as step-by-step procedures for a variety of nature journaling activities.
- An inspiring collection of creative and innovative ideas for all educators, from those who are new to nature journaling to those who have been doing it for years.
- A visually appealing, manageably sized, easy-to-use resource.
- A stand-alone resource. A training workshop, though potentially valuable, would not be required.

Strengths of journaling to be emphasized in the guide

- **Journals are a tool for learning.** The types of writing and drawing exercises inherent in journaling encourage students to think critically and creatively, and help them process and remember information more effectively. Through journaling, students develop their ability to communicate their observations and ideas more effectively.
- **Journals promote self-reflection.** A journal is a place where students are free to express their thoughts and opinions in creative ways that are relevant to their own lives. The process of journaling provides an opportunity for self-reflection, and thus fosters the development of a personal writing style, clarification of personal values, and an emerging self-identity.
- **Journals are a flexible medium.** All students can benefit from journaling, particularly when they have a variety of options from which to choose in order to meet their individual needs and preferences.

Barriers to journaling to be addressed in the guide

- **Facilitation.** Facilitating journaling well can be challenging. The guide will help clarify the facilitator’s role as one of creating an atmosphere conducive to journaling, and providing students with sufficient guidance and inspiration to ensure their success while allowing them space for creative exploration and the development of a personal voice.
- **Time constraints and large class sizes.** Educators have a limited amount of time to reach many students and achieve a diversity of objectives. To be successful, nature journaling must be seen as valuable and class time dedicated to carrying it out. However, it need not displace other important educational components; it can be linked to activities in a variety of subject areas and used to meet existing curriculum requirements. Strategies such as responding to journals in stages can help teachers manage large class sizes.
- **Student resistance.** Some students will be less enthusiastic about journaling than others; the guide will suggest strategies to engage many learning styles and maintain student enthusiasm through a broad definition of nature journaling and a variety of activities.
Appendix P. A Vision for the Nature Journaling Guide

- **Special needs.** Students with special needs such as physical or learning disabilities may require different approaches to nature journaling. The guide will include information about how to adapt activities to different settings and learners.
- **Assessment.** Formal classroom teachers are required to assess their students' work. Although journals, as a very personal form of expression, can be difficult to assess, the guide will include a sampling of methods that teachers can adapt to their own needs.

### Specific Components of the Guide

**Information to aid in successful facilitation of nature journaling**
- Ideas for becoming a journal-keeper oneself before journaling with students.
- Suggestions for creating an atmosphere conducive to journaling – a safe and respectful place where students feel comfortable expressing themselves, and where they can experience the solitude necessary for effective reflection.
- Important considerations for introducing journaling to students and preparing them for success by setting clear expectations and guidelines, modeling, providing examples, options, and variety, and structuring the unit in a way that gradually builds students' comfort level with self-expression
- Information about the historical context of nature journaling and how they are used in the present, as a means of helping students value the process
- A variety of strategies for assessing students' progress
- Suggestions for using Multiple Intelligence Theory to enhance nature journaling
- Strategies for integrating nature journaling into the curriculum and making cross-disciplinary connections
- Ways for formal and nonformal settings to use nature journaling collaboratively
- Connections between nature journaling and children's literature
- A bibliography of additional nature journaling resources

**Features to be included in activities in the guide to meet the needs of educators**
- Concepts and objectives for each activity
- Time frame and a list of materials needed to complete the activity
- Background information
- Step-by-step procedure
- Ready-to-copy student pages (when applicable)
- Connections to state standards and/or curriculum requirements
- Cross-references and matrices to facilitate selection of activities based on skills, subjects, grade levels, and standards addressed
- Adaptations for different learners and settings
- Extensions for using journal entries as jumping-off points for other projects

**Activity components to promote the goals of environmental education**
- Positive, sustained contact with local natural surroundings, in order to build environmental sensitivity and awareness of the environment
- Sensory awareness and observation skills
- An attitude of curiosity and wonder
- Consideration of the natural world through a variety of disciplines
- Valuing the local landscape and local knowledge
- Solitude in nature
- Critical thinking and creative, effective self-expression
## Appendix Q. CWES Pilot Test Student Responses

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<thead>
<tr>
<th></th>
<th>Theisen</th>
<th>Our Lady</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTALS</strong></td>
<td>127</td>
<td>40</td>
<td>167</td>
</tr>
</tbody>
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1. Overall, working on my nature journal was:
   - Fun: 75, 27, 102
   - Okay: 50, 9, 59
   - Boring: 2, 3, 5

2. The activities helped me look closer at nature.
   - A lot: 72, 17, 89
   - A little: 48, 20, 68
   - Not at all: 7, 3, 10

3. The activities helped me learn more about nature.
   - A lot: 68, 23, 91
   - A little: 51, 11, 62
   - Not at all: 8, 6, 14

4. I appreciate nature more after doing these activities.
   - A lot: 60, 22, 82
   - A little: 62, 15, 77
   - Not at all: 4, 3, 7

5. The activities we did were interesting to me.
   - Very: 58, 22, 80
   - Somewhat: 64, 16, 80
   - Not at all: 5, 2, 7

6. I felt like I could be creative in my nature journal.
   - Very: 64, 32, 96
   - Somewhat: 55, 7, 62
   - Not at all: 9, 1, 10

7. I would like to keep working on my nature journal on my own after I leave CWES.
   - Yes: 38, 6, 54
   - Maybe: 63, 17, 80
   - No: 24, 7, 31
Appendix Q. CWES Pilot Test Student Responses

8. What activity did you like most? Why?

1B Partner Draw because it was fun
Brainstorm poetry. I like poetry.
All of them because it helped me with my nature
journals.
Describing/drawing an object because it’s interested
what you draw.
Brainstorm poetry – the looking at the clouds and
writing a poem.
The brainstorm poetry because you could write any
kind of poem you wanted
My favorite activity was the partner draw. Because I
like to draw
I liked the drawing
Partner draw because it was fun to find out what your
friend had
Memory test it was fun
The haiku poem because I like haiku poems
The place descriptions because you get to describe your
own place
1C My favorite activity was when I had to talk to the
squirrel
When we wrote down the things we heard
Memory test
Finding my initials in the woods
The nature journal because it was fun
I liked everything. It was really interesting!! I had loads
of fun.
I liked where we made the sound map, because you
listen to the little noises
The talking to bark
I liked all of them because they were fun!
2B The initials activity
Making the journal – you have to be creative
Where we had to describe and then the other person
draws. It was fun.
The memory thing because it was easy
I liked describing the objects and drawing them because
it was hard
Finding our names in the forest
I liked the activity where we went out and found our
names in nature. I liked it because I like nature.
The coloring part because we have been doing other
things then coloring
2C Making journals. It’s creative
I liked the memory game. I liked it because it was fun
Making the journal
Drawing the lake, because I could be creative
The journal because it was fun
Putting the journal together. It was just fun stretching
the rubber band
Drawing
3B Partner drawing because you got to draw
I really liked the alphabet the most because I really got
to look close at nature
Alphabet because I got to be creative
Alphabet
Partner because it was fun to draw
Alphabet because I never noticed all the different
shapes
The back to back because it was the most challenging
Back to back drawing because I could work with a
friend
I liked partner because it was fun and I learned stuff
Partner and alphabet because it was fun
I liked the partner thing. I liked it because we had partners
I liked the alphabet
3C I liked the abc letters in the forest because it was fun and I learned
a lot
I liked finding the letters because it was really fun
The picking letters because we were creative
When we looked for stuff
Looking for letters and just listening because I just like to look at
nature
The ABC game
Comparing objects
The quiet hike, it was quiet
I liked the letter finding. It was cool looking at all the letters
4A Writing are journals
When we went outside, because I like nature
I liked trying to draw or describe an object or thing because it was
fun trying to guess or see what they draw
The journaling because you got to write and draw
I liked writing a story because we could use our imaginations
The guessing because you had to use your head
Guessing what thing they were describing because it was
challenging
When we had to describe an object to someone
When we had to describe the plant because it was cool
Journaling
Going outside because it inspired me
The remembrance game
4B Listening to sounds. It was just fun.
Listening to nature because it’s peaceful
Writing in our journal/drawing
The journal
When we went down to the lake because I loved the lake
4C The one in the forest because we could use our imagination
I liked going by the lake it was very pretty
Hearing for noises
When we found our names cause it made me look closer at nature
Listening to the world around us
The describing because it was challenging
Looking for our names in the forest because it was weird
Making journal
I liked the searches
Look in the woods for the first letter in our name
I liked doing the sound map. It was really fun, listening to
everything around me.
5A My journal because you can let your feeling out
Nature journaling because we had a good time
I liked trying to draw the tree because you had to be creative
I liked drawing them with dirt because it took a lot of finding
things, and I like finding things.
The tree pals because I got to work with my friend Molly
Laying down you can hear everything
The laying down because it was relaxing
Coloring with the stuff we found, I don’t know why
Blindfold – it was fun
When you listened to the sounds
The journaling I like to write what I felt
Journal, expression
5B The letters because it was fun learning how to find letters in nature
The names
Drawing my name because it was fun to find the letters in nature
The one that we got to be something in nature because it was fun
I liked both of them because they were fun
Behind your back figure out what the object was. It was fun.
Finding the letters in my name because it made me use my imagination

The name activity because I like looking for the letters

The names because it was fun looking for them

I liked writing my name from things I found in nature

The names because it was cool

I like both of them

Made the journal and tried to find our names. You had to use your imagination

Going outside

9. What activity did you like least? Why?

1B
Picture Descriptions because it was hard

None

None

Memory test because it was boring

The memory test because it was boring

The place descriptions because it was too hard to describe

The memory because I had not enough time to write down everything

The description part

Memory test because it was hard

Brainstorm poetry because I don’t like it

None

Brainstorm poetry because I never like poetry

1C
None of them

When we had to find the letters of our name in sticks or trees

Wrote stories in another view

Talking to the tree

None

I liked it all

I least liked the part where we had to write voices for objects because you don’t know what they would really see

Nothing

The sound one because I thought it was cold and boring

I do not have a least

None

2B
I can’t think of one that I liked the least because I had fun all the way

Finding your name – it was hard but I liked the walk

Memory test, because it wasn’t much fun

The journal because I don’t like journals

I didn’t like the test because there were too many objects to remember

I did not like the memory quiz

None

I liked least the activity where we wrote down a journal because I don’t like writing

None

2C
The memory match. It just didn’t interest me

Collecting the sticks

None because it was fun

Filling out the journal

Collecting the sticks

I enjoyed it all

I loved it all

Nothing

I liked it all, because it was fun

Finding the stick because it was wet

The magnifying glass because mine was foggy

The magnifying glass it wasn’t very fun

Putting together

5C
When you turn back to back because it was fun

When we went the wood alone

We described to a partner. You have to think about nature.

I liked all of them

Decorating the journals

Looking at nature

All of them they are fun

I liked decorating my journal

3B
The quotes because you had to write a lot

I liked them all

None

Partner writing

Alphabet because it was hard to find the letters

Poems they were hard

The haiku I didn’t like because I don’t like poetry

Writing poems because I’m not a good writer

Quote

I didn’t like the pome writing a lot

3C
nothing because I liked all of it

none

being quiet because I like to talk

I liked it all

None

Where you had to guess what they picked

Nothing because it was nothing

Finding the object

Doing the first thing

Remembering what’s under the blanket. It was fun but the least fun

Memorizing the 17 things because it is too boring for my brain

None. I thought it was all fun

The one I didn’t like was guessing

Learning about people who journaled because it was hard to understand

I liked them all

The story, because that was the other thing we did

How many objects were under the scarf?

The memory test because it wasn’t as easy as I thought it would be

None

Sitting

None

Writing

4B
hiking I don’t like it

I liked all of them

None of them were my least favorite

4C
None it was all FUN!

None

Making it boring

None

Describing the sticks and stuff, because it was hard

The noise because it was boring

None

Writing I don’t like writing

Describing stuff – there wasn’t much choice

I liked them all but I liked the hearing least

I don’t know

Nothing! All fun!

None of them because they were fun not boring and your supost to have fun the #1 rule

5A

Nothing

I liked all

Making it boring

None

Describing the sticks and stuff, because it was hard

The noise because it was boring

None

Writing I don’t like writing

Describing stuff – there wasn’t much choice

I liked them all but I liked the hearing least

I don’t know

Nothing! All fun!

None of them because they were fun not boring and your supost to have fun the #1 rule
Appendix Q. CWES Pilot Test Student Responses

I did not like the part where we layed down and listened because I couldn’t hear anything
I didn’t like being blindfolded because I hit a stump and almost fell
The talking part because it was boring
All the walking cause I don’t like walking I like running
The first one it was boring
Drawing because I don’t like drawing in limited amounts of time
Talking about those people at the beginning it was boring
Journaling I don’t like to write
Drawing because I just don’t like drawing
The first one I did because it was boring
The trust thing my partner wasn’t nice
SB
I like them all
None
I liked them all
Name finding because you don’t know where to go

10. If you were in charge, what would you change about the activities to make them better?

[Did not include the “nothing” answers]

1B
I would make the picture description in the city you live in
I would have some more inside but the rest is good
Give the kids more time
I would give more time to do the memory test
I wouldn’t change the activities because they were all fun
Have more [time?] to do the activities
I would give people time to write whatever they’d want
IC
Nothing, they were all awesome
More fun
Change everything to be inside in the winter
In the winter inside all the time
I wouldn’t change anything at all
I would have us take a walk or go to different locations while doing the activities
More funner!
I would make the weather warmer (if I could)
More fun
I wouldn’t change anything because everything was a blast
Ask kids what they would like to do in nature
No – they were fun as they were
I don’t know
The journaling for something else
I would make the test a game
I would give us time to write in our notebook thing we made
2C
Make them really really fun
The lessons should be shorter
Be funny
Nothing because they were all fun
Let the kids decide what they want about nature
More games
Not go outside, because I don’t like being outside
Rules
3B
I would not change anything
I wouldn’t make the kids write a lot
Let everyone work with a friend it makes it more fun
I wouldn’t make them write
The poem writing

None
I didn’t dislike any of the activities they were all fun
When we first came it sounded like it would all be boring, but some of it was fun
I liked them all
None I liked them all
Guess what it was because I couldn’t hear my partner
None
None of them because they were all fun
None
I liked them all
5C
none
the story
going by ourselves and drawing. I’m not a good drawer
I liked all of them
Talking about the overhead stuff too boring
None
None
Talking about the stuff on the overhead

3C
I would make a little more time for the nature walk
The quietness [*"being quiet" was answer to #2*
I would make us walk in nature more
4A
I would maybe stay outside the whole time
I would let them play around
Not done the learning about people that have journaled
Let us do more stuff
I’d get more time. Time you’ll need for more or longer activities
I would give more activities
Make them more funner
I wouldn’t change a thing!
Have all the activities outside
Give them more time
4B
I would let people draw more
Play a fun game
Stay at the lake longer
4C
Make a game
Play games all day maybe
Have funner ones
Play games
I would always have down time
Stay outside all the time and play games
I would try and make them all fun
Not so much blah blah more moving around jumping talking screaming
I would make the journal longer
I would spend more time outside learning and more time on our journal covers too
5A
To explore it more
I wouldn’t talk and I’d have them tape something from their tree in
Less talking more other stuff
Make it more fun
No more body movements
More fun learning
I would want them to name their trees
To make it more fun and don’t walk as much
5B
I would do more activities that are fun
I wouldn’t change them at all
I would give treats because we get hungry
Nothing it was awesome
Go to the lake
Appendix Q. CWES Pilot Test Student Responses

11. What advice would you give to someone your age who was about to start a nature journal?

1B
Don’t be hard on yourself
That it’s funner than you think and you learn a lot about nature.
Be yourself, write what you want to write
Listen good, have fun and work hard
To go to a forest
Try to be descriptive
To put whatever they would want to put into it because it’s theirs
I would say you’ll have to be creative if you really want to make a journal
Be creative
It’s not that fun
It’s fun
I would tell them to close their eyes and think about a good time they had now or back then
To keep on trying
It’s your own, you don’t have to write what somebody says
1C
I would encourage them to do it and I would tell them you can be open minded and do whatever you want that it is fun.
Take time and you will hear a lot of things
They should do it in summer or spring
Don’t start a journal
Make it cool not boring
It is really fun
It’s your journal so be creative with it
I would say to open your mind and listen
You can identify trees by the leaves
None they don’t need it because it’s not mine
It is so much fun. Also listen very good.
Don’t start a nature journal
2B
I would tell them to have no worries and just have fun
Go outside and try to find your name in nature
Try to be creative and do your best
I would say just to think about nature and write what you think
It’s sort of cool
Have lots of fun doing it
I would say that it was ok
That it was pretty cool
Try to be very observative, and have lots of detail
Make it update and neat!
Look carefully for letters
2C
I’d tell them it’s fun and they’d enjoy it
Write about what you feel
I don’t know!
Have fun, make it good.
That it is really cool at CWES
I would show them my journal
You have to try it is the best time ever
Find a good stick
It is fun and you learn a lot
Have fun
Be specific with what you write
3B
To write a lot
To have fun with it and be creative
Draw a lot
Don’t do it. It’s boring.
Be creative
I would make it longer
I would give snacks out
Write good
To draw pictures after you write things
Well I would just say have fun
I wouldn’t make them write
Tell them to write a lot
Have fun
It is fun and injoying
3C
Just write what you think
Notice everything about everything
Think hard but not too hard and have fun
To bring it with you at keep it organized
Have fun
Good idea
Try to have fun
4A
I would tell that it is pretty cool
To be creative and just have fun
I would tell them that it’s fun and to not brake the rubber bands
Write a story about a thing in the forest
That it is fun to make
In the beginning it’s boring but it gets a lot better
That it is fun
I’d tell them to draw, print (press), and write about thoughts and sites.
Be creative and think
Write stuff about nature and animals
I would tell them to try to start in a mixed forest because there is a great variety
I would tell them that you can draw and describe things that you see
It’s okay
Do it outside
Good luck ☺
4B
Be sure and try to write in it every day
That you should find some leafs and do leaf rubbings
To really pay close attention and have a good memory
To really listen closely
Write what you think
4C
I don’t know
I would ask what was their best part
Pretty much be creative
It’s fun ☺
I don’t know
They could look back when they are older and then you can remember what happened
It’s hard
It’s a little hard
It was fun
None
You have to like to write
Do it at CWES
Use it later
Write lots of things to describe things
It’s really fun, but you have to be creative. You learn a lot without having to take a test. And best of all it’s fun.
5A
To go outside and listen to what you hear and close your eyes and listen to what you hear
I would say take some time to learn about the journal
To be respectful to nature it will be respectful to you
I would tell them they have got to have an open mind
I’d tell them that it’s fun and that if they try to have fun they might like it

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Appendix Q. CWES Pilot Test Student Responses

Be free and do what you want. It can be fun
Think hard and have fun
Something you will remember
Just relax and have an open mind about it
It’s ok
Be creative
To put something that you will remember
It’s not the best. TV is way better
Get ready for boredom sometimes
5B
Have fun
I don’t know
I would give them ideas
Have fun
Imagine
Have fun do whatever you want in it
Be creative
I don’t know

12. Is there anything else you’d like to tell us about nature journaling at CWES?

1B
It is all the best!!
I want to come back again
No everything is perfect and everything is awesome
It was fun
1C
The nature journaling was so fun
Well all I just learned is all I know
It was fun, kinda boring but mostly fun
2B
I liked the hike and thinking out of the box to find
letters in our name
2C
It’s fun you should do it again. Thank you CWES.
You could go farther out it would be more fun
3B
It was fun!!!
It’s fun!
3C
It’s okay
4A
It was fun that you could be creative
It’s fun
Nature journaling helps make us aware of nature
All I want to say is that I love this

Use your imagination
It was fun
It is ok
Have fun
It’s fun and tells you about nature
Keep working it’s very fun
Stick to it
Good luck
5C
It’s fun
Make sure you like nature
Think about your feelings
Be creative
Be creative
Look at nature
I don’t know
Be creative
Be creative

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Appendix R. CWES Pilot Test Instructor Responses

Questions Answered Before Teaching the Lesson

Half of the ten instructors had used journals of some type with students in the past. Of these, four of the five considered themselves to have experience using nature journals with students. Several others mentioned keeping nature journals themselves.

1. How would you describe your feelings about teaching nature journaling?
On a scale of 1 (not enthusiastic) to 5 (very enthusiastic), responses varied all the way from 1 to 5, with the average response at 4.2. On a scale of 1 (not experienced) to 5 (very experienced), the average response was 3.3. On a scale of 1 (not confident) to 5 (very confident), the average response was 4.0.

2. Please comment on the following qualities of the lesson plan:
On a scale of 1 to 5, instructors' impressions of the lesson plan averaged 4.6 for clarity and 4.8 for completeness.
Appendix R. CWES Pilot Test Instructor Responses

3. How well do you feel the nature journaling lesson plan prepared you to teach the lesson?
Regarding how well prepared by the lesson plan they felt to teach the nature journaling lesson, instructors' average response was 4.5 on a scale of 1 (not well) to 5 (very well).

Please explain:
Some felt that the lesson plan was sufficient to prepare them to teach confidently.
- I thought the lesson was laid out well and very easy to read
- I feel the lesson plan is very good. I won't know for sure until the lesson is taught.
- Plenty of options to choose from
- It had a lot of good info as well as history. I like the breadth of activities
- All activities and objectives were laid out so I really didn't have any questions

Others felt that their previous experience and/or ability to adapt to the situation at hand, in addition to the lesson plan, was important to their confidence.
- My own abilities, while I felt confident, combined with the students' enthusiasm directed the path of the lesson...the students were very cold - so I had to adapt the lesson the best I thought could be done.
- The plan was easy to understand, but it helped that I've done these activities prior
- I had prior experience with journaling, so I added my own twist of programs that worked well in the past and included a more nature aspect from the lesson plan

One expressed a desire to see some aspects of the lesson modeled before teaching herself.
- I would have felt better if we had actually seen the intro with the memory test and overheads

4. What do you hope the students will gain by participating in this lesson?
In regard to what the instructors hoped students would gain from the lesson, answers fell into the following categories.

Observation and reflection skills
- How to observe nature more closely and quietly
- I hope students will gain an understanding of the importance of observing/reflecting in nature
- An understanding that being out in nature doesn’t always have to be a boisterous time, but if you observe closely and quietly that more can be seen and heard to learn from
- Better observation skills

Understanding of and a good experience with journaling
- I hope they gain understanding of nature journaling, as well as knowledge of different historical figures who have kept nature journals
- A good experience that doesn’t sour them to journaling
- I hope they will realize all journaling isn’t boring
- Maybe feel a spark to journal more

New perspectives and a deeper appreciation for nature
- Broader ideas of how to interpret their surroundings and to create a greater appreciation of the nature that is around them
- An open understanding of the environment surrounding them – and better ways to enjoy and absorb the natural world
- A new way of looking at their surroundings and experience looking and listening
- A newfound love for nature and realizing it is more than just trees and leaves and animals.

Questions Answered After Teaching The Lesson

5. What did you feel went well?
Some commented on the students' enthusiasm as a positive aspect:
- I thought all the [activities] I did went great. The students liked finding their names in nature the best.
- I thought the students enjoyed being outside journaling. They thought this was weird because they had that freedom to go out and find a spot to sit and write. They also liked taking on a new perspective.
- The lesson as a whole went quite well. The children seemed active and interested in the material
Appendix R. CWES Pilot Test Instructor Responses

- They liked it all.
- They seemed excited to journal after the intro.

Others noted progress or success demonstrated by students:
- I did place descriptions at the end and all the students were really getting good at describing things
- I felt the students understood the role nature journals have played in the past after talking about Muir, Thoreau, Darwin, etc.

Others mentioned adaptations they made that worked well:
- The entire program, the layout was to let them know they had to make it fun because “journaling” does not sound “cool”
- I brought in Walden, Sand County Almanac, and Mtns of California for them so see

6. What did not go well? What changes would you make if you taught the lesson again?

Time
- Time didn’t. I wish I could have gotten to more activities.
- Shorter intro – too short of time frame – hour and a half would be perfect

Weather
- Well, I planned a lot of outdoor sitting activities and they were too cold and we couldn’t stay outside. I would have brought carpet squares out for them to sit on and stay warmer. Also -- I would have had them partner draw inside.
- Nature Alphabets -- was mostly because they disliked being outside with the weather

7. Which activities did you find most effective? Why?

- They liked Natural Alphabet and were really excited when they found the letters of their name in nature. Some tried to do the whole alphabet. Also really liked the butterfly wing poster.
- Nature Alphabet – they love it! It’s neat to see them start finding letters and looking at nature so closely to do it.
- They loved the Natural Alphabets and Memory Test
- Partner drawings…and natural alphabet were all good because they enjoyed them and seemed to get something out of these activities
- Partner Drawing because it makes them realize how important describing things in great detail is!
- Partner drawing. Interaction with others, creativity, and identification all used.
- Memory Test and Partner Draw – They seemed to do really well with these two. And even if they didn’t remember all the objects or draw exactly what their partner described – they were enjoying what they were doing.
- Partner drawing and free writing – creativity, and their memories of CWES
- Memory Test – good warmup activity
- Place descriptions was great because it help realize many perspectives
- Graffiti – brought the day together well.
- Sound maps: were actually quiet and listening. Worked really well.
- Tree friends, silent 5 minute write in middle of pines, nature colors
- The 3 activities I did with the 6th graders they had fun with. I think they knew they were creative and would show parents/friends new activity.

8. Which activities did you find least effective? Why?
The historical naturalists in the introduction was mentioned several times as challenging or ineffective.
- Reviewing the famous/influential journalers didn’t go well. I didn’t spend enough time thinking about how I could relate it to the kids. They really never heard of these people and probably didn’t care.
- I don’t think it makes sense to talk about the historical journalers because the students won’t hear about them again for several years if not until college
- People on the overhead. The kids didn’t seem very interested in who they were.

Place Descriptions was mentioned twice, and Quote Responses once, as being two advanced for this age group.
- The Place Descriptions seemed a little “over their head”. They participated, and did alright – but I think the “point” was too accelerated for these students.
- Place Descriptions – students didn’t really seem into it yet – I should’ve done it outside and gave another example
- Quote responses – I didn’t think this activity was good for this age group. Hardly any of the students understood the quotes and I had to interpret the quotes so they could write about it. ...the quotes were way too advanced for them

Natural Alphabets and Partner Drawing were also each mentioned twice. The effectiveness of Natural Alphabets and Close-Up Drawing seems to be weather-dependent.
- Partner drawing – some lack of interest but went o.k.
- Partner Drawing because they like to cheat!
- FR – Nature’s Alphabet worked, but students weren’t looking hard enough for letters. We didn’t have enough time to do their whole name, but just their initials. I think they weren’t used to looking that close to the forest floor,
Appendix R. CWES Pilot Test Instructor Responses

maybe they were too young to focus on this exercise.
• Of what I did N. Alphabets. It was raining and they didn’t want to be outside.
• The rain also hindered the magnifying glass activity [Close Up Drawing] because the rain made the students lose
  drive and focus.
Several did not feel any activities were ineffective, and one mentioned that the results of Brainstorm Poetry were
different than expected, but not necessarily negative.
• I thought the 3 I did were all very effective and helpful.
• All my activities went well
• All activities today were effective
• Brainstorm Poetry turned into something different than I had expected. They described what they were seeing in the
  clouds – bunnies, horses, etc – they were observant – but the poems came out a little different 😊

9. How would you describe the students’ responses to the nature journaling lesson?
The average response for the instructors’ impression of students’ interest level (on a scale of 1 to 5) was 4.1. For
students’ motivation, instructor responses averaged 3.8 out of 5. For how challenged students were by the activities,
instructor responses averaged 3.6 out of 5.

Instructor’s Impressions of Student Responses to the Lesson

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Please explain:
Most instructors commented positively on the students’ responses as a whole.
• They all said they really liked it! They were all very excited to write different perspective stories and sharing
  their journals with each other.
• I think there were some students who still felt like they would never nature journal - but the majority had really
  positive things to say.
• I think they enjoyed it because the didn’t see the educational side of the program as well as it can be an
  outlet for them
• Kids loved it, so did teacher

A few expressed more ambivalence.
• They had fun, but at times this group lost attention span with activities that required mouths shut.
• They all showed interest towards end. In beginning not so much.
• They seemed to enjoy the activities but were not extremely interested either good or bad
• Very quiet group – hard to engage

Two provided suggestions for improving student responses.
• If they were doing this from day one as an ongoing activity while they were here it might have more meaning. A
  record of their visit.
• Students seemed to struggle a little bit. Smaller groups would have been better.
Appendix R. CWES Pilot Test Instructor Responses

10. Did you find it necessary to modify the lesson to address different learning styles or special needs in your group? Do you have any advice about this for others who teach the lesson?
Most did not feel they needed to modify the lesson.
- No. Lesson can be done by all.
- No
- Not really – just taking some extra time and attention (possibly from adults)
- No!
- Nope. Yah have fun and explore. Get the kids outside.
One stressed the importance of explaining each activity in detail, and also of emphasizing to students that their journals are their own and won’t be judged.
- I didn’t need to modify, but really important to explain everything in great detail. Like, what to do in partner drawing. Also stress that it’s their journal, spelling doesn’t matter, write whatever comes to your mind.
Two mentioned needing more information or a different approach to make the historical journalists relevant to students, and one suggested that Place Descriptions would be more appropriate for an older group.
- Perhaps more than an overhead for famous nature journalers
- I readjusted the intro to their knowledge level of who the people were
- Maybe just the Place Description Activity to be done with an older group

11. How many of the students seemed to benefit in some way from nature journaling?
All the instructors felt that either most and all students benefited in some way from nature journaling. The average response was 4.4 on a scale of 1 to 5.

Please explain:
They explained their answers with the following comments:
- A few have already been keeping nature journals, but those who hadn’t were really excited and eager to do it again.
- They now have a new nature journal to take home and show off. Most were excited about this. Many wanted to tell others about these neat outside activities.
- All learned how to nature journal
- About ½ of those who didn’t like journaling at the beginning would consider one form or another at the end
- They all got something from it and seemed excited about making a journal of their own
- All but one, he was interested during but all about ending as soon as possible
- They all had interesting stories, pics, and comments
- Their descriptions became more of an individual style rather than just what their neighbor said.
- They do journals at school, perhaps they will incorporate new perspectives into them
- Enjoyed drawing and listening had a hard time to get them to come back to lunch

Your Experience

12. How do you feel about teaching nature journaling after teaching this lesson?
After teaching the lesson, instructors again ranked their level of enthusiasm about teaching nature journaling on the same scale as before the lesson. This time all the responses fell between “somewhat” and “very” enthusiastic. The average response was 4.3, up one tenth from 4.2 at the beginning. The average response for instructors’ level of confidence after teaching the lesson was 4.4, up 4 tenths of a point from 4.0 before teaching the lesson.
Appendix R. CWES Pilot Test Instructor Responses

Please explain:
Some expressed enjoyment of the experience and a desire to teach it more. Several commented that their initial skepticism was replaced by a more positive attitude about the topic.
- I felt it went well and the kids were really excited to do their own things instead of a worksheet!
- I enjoyed teaching the lesson very much - but I don’t ever want to be too confident - that I can’t make adjustments if needed.
- I was skeptical, but at the end I wanted to teach it all the time
- Still wouldn’t do it myself but feel good about teaching it
- I enjoy this topic and really want to try to do more
- Liked it a lot
- I would like to try more of the different ones and see how they go
Others expressed some frustration, and one a need for additional experience.
- I’d probably get more out of it if I taught it to an older audience. Maybe 8th/9th graders. I think they would see the value in it more.
- It was hard to convey my understanding of the natural world to them - they don’t understand all the complex connections yet
- First time doing so. After time I will become more confident

13. Would additional information on any topics have helped you feel more comfortable or effective in the teaching role?
Some did not feel that any more information was necessary, and one felt it was almost too detailed.
- No, the background was great – almost too much, it was hard to make myself read it all.
- No
- Plenty of info
- Not really – there was a great amount of different activities
- No, good amt. of info given
- No, everything was written well
Others suggested more background information on the historical journalists and reasons for journaling, as well as additional examples in the kit.
- Maybe more ideas in the plan on why people keep journals.
- I would have liked to see an intro done with the memory test and overhead of people
- more examples in the kit of journals – maybe small clipboards to use

14. Did you encounter any challenges while teaching the lesson? How could these be better addressed by the lesson plan?
Instructors mentioned several challenges, and a few suggestions for addressing them in the lesson plan.
Weather
- The students were all very cold – so they wanted to stay inside. Maybe a few more tips on how to deal with weather. But I think the adjustments went fine.
- The weather was the only real hold up
Engaging students
- Some students (6th grade boys) were pre-occupied by playing in the woodchips. Had to stop class for some who weren’t interested.
- Getting them excited about doing this in the first place was hard but they developed as the lesson went on.
Appendix R. CWES Pilot Test Instructor Responses

- Quiet group - didn’t respond to any questions – maybe another POW and memory test activity at the beginning to get them involved more – also students didn’t feel comfortable sharing at end (peer pressure, embarrassment, etc…)

Explaining and conducting activities smoothly
- Explaining all the processes to the students so they understand was challenging.
- Just partner drawing – tough to fix?

Time
- Running out of time – I could better schedule

15. Do you have any suggestions for revising the lesson? (Was there additional information you needed, steps that were unclear, modifications you made that worked well?)

Those who made suggestions for revising the lesson included the following suggestions:
- You might want to include Hand Lens in the materials section
- Overall, it was written clearly and user friendly. Did you incorporate nature haikus?
- The memory quiz – I gave them a second look for 15 seconds and then 30 seconds to make changes
- No revising, leave activity selection to the programmers
- I think I would leave out reading the book and do a group entry from one place looking at one thing so they could see different styles and ways of describing things.
- It was hard to tie in with group initiatives – perhaps a la carte lessons work better with journaling – or combine with a lesson (ie Laws of Nature) or have students carry journals thru the day so they can make more observations and entries
- What if they had a few preprinted activities in their journal like the first 3 pages could be draw the veins in a leaf, describe how you think they look related to something you see every day, etc. just so they have a sample of how to do each in their own words.

16. What is your overall impression of the lesson?

On a scale of 1 (poor) to 5 (excellent), all instructors ranked the lesson either good or excellent, with an average response of 4.6.

Please explain:
Explanations for their responses included the following:
- Lots of activities to try – good background into – accomplishable objectives
- Lots of options/flexibility
- I think it is wonderful for students to have guided reflection
- I would love to have had this lesson when I was a kid. It provided a new outlet for reflection.
- I really like it because it is a different perspective of how to enjoy and remember adventure they have in nature
- Overall – it went well.
- Great end of field trip program to wrap up the experience @ CWES
- I had fun and the kids had fun.
- Kids loved it, it was fun to teach
Appendix R. CWES Pilot Test Instructor Responses

17. If you were responsible for scheduling at an EE center, would you want students to participate in this lesson as part of their visit?

When asked to comment on whether they would choose to schedule this lesson for students at an EE center, instructors responded with maybe, probably, or definitely, with an average response of 4.5.

Please explain:
Those who expressed some reservations gave the following reasons:
• Depends on why they are there, and how much time they have
• I would probably try to pick another lesson that would be less like/hate
• Depends on amount of time at the center

The others gave the following explanations for their “definitely” responses:
• It at least gives students an opportunity to sit in nature – and what harm can possibly come from such an experience.
• I think this is very important lesson to help kids respect and appreciate nature.

• This lesson isn’t like most EE lessons. It gives students [a chance] to relax out in nature and use their creativity rather than researching, experimenting, and collecting data.
• I liked it because the kids were very involved and expressed themselves
• It helps them link this experience to the rest of their lives as something they will always remember
• It is a good way to tie in language arts and art to the curriculum
• It will function in a classroom, EE center or camp all the same

18. Do you have any other comments about this lesson?
• There was a chaperone in my group who said it was the best lesson in the past 3 days. She thought it was great that we also have lessons on experiencing and observing nature without measuring it.
• It’s great and applicable – it is educational yet the students don’t notice that aspect
• Kids loved it. Got lost on naturalists idea of journaling, otherwise – good!
• They got a new outlook on journaling!
Appendix S. CWES Pilot Test Visiting Teacher Responses

1. Have you used journaling (of any type) with students in the past?
   Of the twelve teachers who completed the questionnaire, all of them had used journals of some type with students in the past. Their previous experiences with journals ranged from language arts to social studies to science to personal entries.
   Please explain:
   - DS - I have used journaling with literature
   - DB - Science class – making observations, recording what we saw on a small square yard of soil; pictures – working on recall, notetaking skills. I have also selected words that apply to a lesson and incorporated these words into creative writing.
   - HI - Reading – response to novels and events of books, brainstorming, etc
   - CD - I have used written journals w/ trade books, for social studies projects, daily journals, etc.
   - JB - Scientific observation, reading, reflective journals
   - KW - Pond Life Unit/Aerospace Unit Science, daily journals
   - NB - We do reading journals, personal journals, social studies/science journals
   - SC - Students have read a journal sample prior to today’s lesson (Aldo Leopold – Sand County Almanac). We also made a 20 page leaf journal.
   - PM - We used journaling to record our impressions of characters in the books we are reading.
   - RJ - English – writing; Social Studies – ancient times
   - LA - Topic journaling
   - SPI - Community Journals – creating memories as a class; Personal Journals – express feelings/ record events

2. What did you hope students would gain from participating in this lesson?
   The teachers had a variety of aspirations for their students, from observation and recall skills, to a broader understanding of journaling and a greater appreciation for its benefits, to a reflective experience and a deeper appreciation of nature. In comparison to the CWES instructors, their goals were more focused on specific academic skills and less on appreciation of their natural surroundings (only two of the twelve mentioned nature or the surroundings, compared with seven of the ten CWES instructors).
   Observation and recall skills
   - DB - To improve observation skills – noting details – to improve memory – tested listening skills
   - KW - Improved observation, writing, and cooperative skills
   - NB - Remembering objects they saw this week, recall skills, writing skills, creativity, enjoyment of doing effective descriptive journaling
   - PM - I hoped they would learn to observe and to record their impressions and then be able to use their journaling to write poetry.
   - LA - Develop observational skills, reflection and connection, appreciation for nature, drawing skills, develop memory
   Writing skills
   - KW - Improved observation, writing, and cooperative skills
   - NB - Remembering objects they saw this week, recall skills, writing skills, creativity, enjoyment of doing effective descriptive journaling
   - PM - I hoped they would learn to observe and to record their impressions and then be able to use their journaling to write poetry.
   Broader understanding of journaling
   - HI - A knowledge of different types of journaling and the benefits of journaling
   - CD - A better appreciation for the variety of journaling that is available
   Good Experience with journaling
   - JB - The pleasure and effectiveness of writing down their thoughts and images
   - SPI - To find journals a positive experience so they feel comfortable using them
   - NB - Remembering objects they saw this week, recall skills, writing skills, creativity, enjoyment of doing effective descriptive journaling
   Time for and appreciation of reflection
   - NB - Remembering objects they saw this week, recall skills, writing skills, creativity, enjoyment of doing effective descriptive journaling
   - SC - Reflective time following their experience. The lesson fits best at the end.
   - RJ - Conclusion to the past two days.
   - LA - Develop observational skills, reflection and connection, appreciation for nature, drawing skills, develop memory
   Deeper appreciation for nature
   - DS - A sense of their surroundings
   - LA - Develop observational skills, reflection and connection, appreciation for nature, drawing skills, develop memory

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Appendix S. CWES Pilot Test Visiting Teacher Responses

3. Do you feel the lesson effectively promoted these outcomes? Please explain.
All but two teachers gave an affirmative answer to this question, though answers ranged from a simple “yes” to a “great start.”
- HI - Yes
- RJ - Yes
- JB - Yes
- DS - I think so. It extended their thinking processes.
- CD - Yes. Students left with a variety of ideas for journaling.
- KW - Yes. Any journal activities can help
- NB - Yes - it really promoted all of the expected outcomes. Great activity - introducing some of the important scientists as part of the journaling activity was effective.
- SC - Yes - students were very quiet and quite serious for most of the activity.
- SPI - It was a great start - something I would like to continue in my Lang. Arts classroom
Of the other two teachers, one noted certain deficiencies and one noted the weather as hindering the outcomes.
- DB - Focus - on sound and observation. Weather was too cold for kids to keep interest on journaling.

Evaluating the Lesson

4. Which activities did you find most effective? Why?
Half of the teachers mentioned Memory Test as particularly effective. A number of them also mentioned Partner Drawing. Natural Alphabets and Sound maps also got several votes. Three also mentioned the making of the journals as a fun, hands-on element.
- DS - The introduction [Memory Test]. I think students need to concentrate and pay attention to what they see more today. They need to slow down and appreciate things.
- HI - The memorization activity [Memory Test]was neat - gets them thinking and writing
- CD - The memorization activity was fun. It worked on visual skills/memorization.
- JB - Memorizing contents from forest, this activity helped students to use different strategies to remember all 12 items.
- LA - Memory game
- NB - the memory test was motivating - kids were excited
- HI - the description (back to back) [Partner Drawing]was also a good thinking activity
- CD - Back to back description activity [Partner Drawing]...students experienced the difficulty in describing an object to someone.
- JB - Visual partner drawing helped promote listening and communication skills
- NB - working on their descriptive journals [Partner Drawing] was fun for all of them, it became a challenge to see who could find the most “unusual” things
- PM - Alphabet Activity. It made the students aware of details. They had to use creative thinking.
- LA - Memory game, journal making, alphabet names. This lesson will be great stretched out over a week back in the classroom.
- KW - All tied in to build the whole lesson
- DB - Great idea making journal out of mother[?] natures - (leaves, sticks)
- NB - making journals was fun for kids
- SP1 - making the journal - hands on ©
- SC - The listening - writing experience [Sound Maps?] - precursor to poetry writing.
- RJ - Reflective time - think about what they learned

5. Which activities did you find least effective? Why?
Five teachers left this question blank. Three others said all were important:
- KW - All were important
- SC - All were great.
- SP1 - all were necessary even though the students may not have responded well to all
Of the remaining four who mentioned specific activities, three focused on the historical naturalists. Two believed it would have been more effective if given more time, while one said it was simply over their heads. The fourth felt that activities that require imaging [Place Descriptions] presented a new and perhaps too advanced experience for this age.
- DB - Spend a little more time on Leopold - Carson (maybe read some descriptive paragraphs of their work)
- LA - I would find the naturalist portion most effective if more time had been spent on them - needed to emphasize that many naturalist (John Muir) were developing observational skills at student age
- RJ - People who used journals - a little over 6 graders heads
- DS - Imaging. I think sixth grade students have not had this type of experience in their previous learning. They struggle with writing down these images and sharing.

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Appendix S. CWES Pilot Test Visiting Teacher Responses

6. How effective was the sequence of the activities?

Please explain:
The average response for the effectiveness of the sequence of the activities was 4.5 on a scale from 1 to 5. Specific comments were generally positive, with the exception of one, and included the following:
- SP1 - I liked the memory game to help students realize the importance of observing and recording because its easy to forget
- SC - Kids grew quieter and more serious as the activity in its current sequence evolved
- JB - Making journals was a good activity for the middle of the lesson
- KW - Very good job
- NB - Your activities were timed very well

- PM - One activity led to the next
- DB - Started with simple sounds and ended with something more difficult - gradually increased in difficulty level
- LA - Due to low temperature and comfort of students it felt rushed and sequence wasn’t chained effectively

7. How effective was the introduction in preparing the students for the activities?

Please explain:
The average response regarding the effectiveness of the introduction was 4.4 out of 5, with comments generally positive but including several suggestions for improvement:
- DS - I think the purpose of the activity was presented clearly and the focus of the activity was clearly set.
- JB - Caught students’ interest
- PM - It piqued their interest and made them think.
- CD - Students were aware of what the lesson was going to entail
- NB - Everything was clearly explained. Kids knew what to expect. Time was given for everyone to complete activity - excellent introduction!!
- SPl - Why do you take pictures? Great relationship
- SC - The instructor used language the students understood
- HI - The memorization activity was great – you may want to have each student go around and tell how they journal
- DB - Give some examples of good descriptive phrases – if you put these sounds into paragraph form
- LA - Needed more time – multi-learning styles. Explain why journaling is important to them personally

8. How effective was the conclusion in bringing closure to the students’ experience?

Please explain:
The average response for the effectiveness of the conclusion was 4.1 out of 5. Often when time is short the conclusion gets shortchanged, which probably explains the lower ranking for this aspect and the fact that some teachers were unsure of what the conclusion was. A reflective experience at the end was seen favorably by several.
- KW - Nice work
- NB - Great idea – asking kids to evaluate – Super lesson
- HI - Reflecting is a great way to summarize students’ thoughts and experiences – the option of drawing was good also
- DS - A poem is a good way to wrap up an experience. It broadens the students senses and forces them to think differently.
Appendix S. CWES Pilot Test Visiting Teacher Responses

- CD – Reflection is good
- DB – Selected a short story about listening and observing skills through an author's real point of view – needs to know the story better – needs to develop a better flow (smooth)
- RJ – Just kind of ended
- SP1 – What was the conclusion?

9. What do you see as the biggest strengths of journaling as a teaching method? How well do you think this lesson made use of those strengths?

Teachers mentioned a variety of strengths of journaling that fell into the following major categories (although most did not connect these strengths to the lesson):

**Self-expression and reflection**
- DS – It allows individual expression and perception. I felt this lesson allowed students to write about and record what they perceive in nature. This helps the teacher understand what the students’ perceptions are.
- SC – Thoughtful, reflective time
- RJ – Thinking, reflecting

**Observation and perception skills**
- DB – Journals teach kids to become keen observers of their surroundings
- DS – It allows individual expression and perception. I felt this lesson allowed students to write about and record what they perceive in nature. This helps the teacher understand what the students’ perceptions are.
- KW – Makes students think, observe, analyze, and record thoughts
- SP1 – Recording info that is observed – opens students’ eyes to the world around them

**Preserving information and memories**
- HI – Ideas are recorded and can be kept for future use and compare/contrast lessons, lots of different methods besides written sentences, good for kids who may like to draw or learn in an alternative method
- CD – Journaling allows students to recall past experiences
- SP1 – Recording info that is observed – opens students’ eyes to the world around them

**Addresses different learning styles**
- HI – Ideas are recorded and can be kept for future use and compare/contrast lessons, lots of different methods besides written sentences, good for kids who may like to draw or learn in an alternative method
- JB – Great examples so students get a feel for how they might do this activity
- NB – All of our curriculums stress writing as a very strong component. Also stressing that kids don’t have to write in order to journal, was very important.

**Thinking and Writing skills**
- NB – All of our curriculums stress writing as a very strong component. Also stressing that kids don’t have to write in order to journal, was very important.
- PM – It encourages thinking on a different level than other types of writing. Journaling has a long term effect on students beyond the initial experience.
- RJ – Thinking, reflecting

10. What do you see as some of the challenges of journaling? How could these be better addressed in this lesson?

Resistance to writing is a common challenge; some teachers seemed to feel that the lesson addressed this challenge well, while others provided additional suggestions:
- KW – Reaching all levels. Reaching non-writers.
- NB – Many kids do not like to write, but the idea of journaling without writing was motivating to kids.
- HI – Keeping students motivated to journal – this lesson is a different type of journaling – it is a good motivator
- DB – Many students don’t enjoy writing – they can’t think of anything to write. By giving them some topics and possible word lists they can be more successful
- SC – Writing blocks – more time spent on bubble activity; stream of consciousness activities

Another common challenge is helping students get started:
- DS – The students are not always sure how to go about. I liked that examples of previous journals were shown to the students.
- PM – Getting started. Once they get underway they get excited about doing it.
- SP1 – Many students do not like observing and reflecting – but it is a great experience that they will take with them.

**The Students’ Experience**

11. How would you describe your students’ responses to the nature journaling lesson?

Regarding their impressions of students’ response to the lesson, the average response to how interested students were was 3.8 out of 5, how motivated was 4.0, and how challenged was 3.9.
Appendix S. CWES Pilot Test Visiting Teacher Responses

Please explain:
- DB – At this level kids need more structure and ideas rather than open ended
- CD – This activity was age appropriate. It was not very challenging.
- KW – Difficult to successfully challenge all 2nd grade skills to post high school writing skills with this group.
- NB – I think at first students thought they were going to end up writing – when they really understood the lesson they became more excited. This was a great way to wrap up our days at CWES!
- RJ – Tired after yesterday
- SP1 – This is typical of 7th graders. Some students were interested – some were not.

12. How well did this lesson address:

Please explain:
The average response to how well the lesson addressed students' grade level was 4.6 out of 5. Generally teachers seemed to find it age appropriate.
- KW – Had all skill levels
- NB – This lesson was appropriate for 6th graders.
- DB – appropriate topics for grade level, and there was a variety of things to do to get all kids to participate

Regarding individual learning styles, the average response was 4.1, and comments included the following:
- CD – I have many learning styles in my class. All of my students were able to participate in this activity.
- JB – not focused on just one style of learning
- NB – This activity did not just stress a “writing” journal, but also a “drawing” journal. The lesson kept kids moving – it was effective to work w/ partners
- RJ – They can do it their way.
- LA – It addressed learning styles in that they drew, described verbally, and wrote descriptions but ignored large view, sounds, and smells.
Appendix S. CWES Pilot Test Visiting Teacher Responses

Regarding special needs, the average response was 4.0, with the following comments:
- DB – Special needs kids need more help and suggestions
- HI – [arrow from special needs] may need to make arrangements for ED or disabled students
- SP1 – we didn’t have very many students with special needs

13. How many of the students seemed to benefit in some way from nature journaling?
All the teachers felt that either most or all of the students benefited from participating in the nature journaling lesson. The average response was 4.3 out of 5.

Please explain:
- DB – Everyone participated but degree of success is unknown – need to examine journals for evaluation
- HI – This is a great way to get all kids involved in a lesson – It also allows them to work in cooperative small groups
- KW – Every student experiences some benefit
- NB – You did an excellent job of getting everyone involved
- PM – Nature journaling is subjective. No one is in competition with anyone but themselves.
- SP1 – Understanding there are different types of journals – one to fit each student’s style

Your Experience

14. Do you have any suggestions for revising the lesson to make it more effective?
Only half the teachers provided suggestions for revisions; the others left the question blank or expressed satisfaction with what was done. Suggestions included more examples, some ideas for giving directions smoothly, and a shorter introduction, more writing, and follow-up activities.
- DB – Some more samples of professional writer and good student samples so kids know what good writing looks and sounds like
- HI – One thing you may want to do, because the lesson has a lot of directions throughout, is have a sign or signal as an attention getter first and once the direction is given have a student repeat it. This will minimize confusion.
- CD – When giving directives have the student repeat what the task is
- JB – Maybe more writing
- PM – Provide some follow-up activities for students after leaving CWES.
- DS – I think it was handled very well!
- KW – Not really. Adding some activities journaling in first person: you are the stick, leaf, animal, etc – oops, they did this right after ©
- NB – Great!
- SC – No
- SP I – Now that I know what you are doing – I can prepare the students ahead of time in Lang. Arts.

15. What is your overall impression of the lesson?
All of the teachers ranked the overall lesson between 4 (good) and 5 (excellent) on the 5-point scale. The average response was 4.6.
Appendix S. CWES Pilot Test Visiting Teacher Responses

Please explain:
CD - I enjoyed this lesson! It gave me several ideas that I am going to incorporate into my lessons!
JB - Overall goal and process was effective
KW - Excellent addition to CWES experience
NB - Met everyone's needs - kept kids motivated and involved. Kids were excited.
SPI - It kept 7th graders interested - and that is impressive.

16. Would you choose to have your students participate again in your next visit to CWES?
All of the teachers indicated that they would either "probably" or "definitely" choose to have their students participate in this lesson during their next visit to CWES. The average response fell at 4.7 out of 5.

Please explain:
- DB - Writing is an important part of learning and it helps kids focus on observation skills
- HI - Great lesson that involves all students and makes the best of individual strengths, great emphasis on creativity and imagination
- JB - I believe this is an effective technique to get students' thoughts down about what they have learned through their lessons and the importance of observations in science
- NB - An excellent wrap-up activity!
- SC - Forest is not just science
- PM - Nature journaling expands and enhances the students experience of journaling
- SPI - It is a connection between nature, the field trip to CWES, and schools.

17. Do you have any other comments about this lesson?
- DS - This is the first time I have seen this lesson used in the three years I have been coming up here. I feel it adds variety to the program and provides the students with an excellent closure activity.
- NB - This was a very good lesson - it really did get everyone involved - the kids were having fun looking for things that matched the alphabet and then journaling them. I think they realized that science journaling could be fun. Stressing that journaling is an ongoing activity which can go on for years.
- KW - Thank you. We enjoyed the experience. If I can be of any more assistance, please let me know. Journaling is an ongoing process. Any experience is helpful. Great idea!
- DB - It gave me ideas what I can do to further my writing techniques in my classroom
- SP1 - I liked the homemade journals - using nature to create it
- PM - Journaling was the last activity the kids did at CWES. They were tired and restless. If journaling was done on the first day they would probably have responded more positively. As an activity in a regular school day they would respond to it as the highlight of their day. At CWES it did not produce the interest level that some of the other activities did.
- LA - I think the students would benefit from having more examples of journals. Some students had to wait to see examples and some didn't get to see them at all.
- JB - The quotes were pretty complicated for 6th graders. Most students were confused with some of them
Appendix T. CWES Pilot Test Final Meeting Transcript

CWES Pilot Test Final Meeting
December 16, 2003

After the CWES pilot test, the instructors were invited to attend a meeting to debrief and discuss the experience. Three instructors attended, as well as the CWES director.

1. How would you describe the students' responses to the nature journaling lesson?
   If you experienced resistance at the beginning, how did you draw students in by the end? What techniques worked to engage them?

   BH - Part of it was that the beginning was more of the background and history, and I think the second time I did it was switching and doing stuff in a different order, but maybe just mixing that stuff so that...
   KH - So making sure that it's not all talking and background at the beginning, getting them involved right away?
   FR - A lot of it's all the history and past nature journalers - kind of a lot of information for kids.
   JC - Maybe that could be worked in, like while you're doing an activity just be like, "Did you know about this person?" - instead of having to take five minutes of your intro to go through all of that. Just sort of have it intermingled with the rest of it...the teacher would probably need more experience though. Like that would be something I could do now, but the first time teaching it would be kind of hard...
   KH - It definitely did seem that there was a consensus by all of you who taught it, and, to some extent, by the visiting teachers as well, that some of that material was over the kids' heads - that none of those names were familiar to them, and they didn't have any experience to draw on...not something that they were getting a lot out of, so I think you're right, if we could tie that in throughout the lesson, sort of engage them with the stories of those peoples' lives and how it relates to the activities, it might be more effective.

   Do you have ideas/or involving reluctant journalers or groups who don't want to share their entries?
   FR - I think just being really enthusiastic, and showing your own examples, but also reminding them that it's not for everybody. Giving them an option to do something else that involves writing, being out in nature, reflecting about your CWES experience, instead of the activity you had planned. That's what I have done a couple of times.
   BH - Yeah, with a large group it's often hard for some of the kids to say in front of everyone or share their stuff in front of everyone, because they're not going to want to stand up and show what they think is bad artwork to the whole class.
   JP - Interested in FR's comment - you're suggesting that if they didn't want to do part of the activities, that they be allowed or encouraged to do some other things?
   FR - In a way, but they're still involving reflecting about their experience at an environmental station - that was the option that I gave them.
   JP - So maybe do some writing or something like that.
   FR - It's hard for kids to be quiet, when they're doing stuff like Sound Maps or things like that. They always want to interject and be goofy.
   JC - One thing I did with ones who didn't want to do something, who're like "I hate writing" - be like, "Well, do you like drawing? Then just draw." Or the other way around. Or if they hated both, then however you want to do it.
   KH - So giving them options? Different ways of expressing themselves?

2. Did you hear any feedback from teachers/chaperones and how they perceived the students responses?
   Anythings you heard from them that is telling of their impressions?

   JC - Most of them were really excited. I think they liked it, and they thought the kids liked it. Once you got the kids out there doing it, they wouldn't want to stop.
   BH - Once you got them pried away from the buildings, and looking at the plants and stuff like that, some of them actually...got interested in it. The teachers would see them actually being creative instead of just being their normal classroom selves.
   BZ - I agree. The little bit that I talked beforehand when you first were offering it to the teachers - the ones who took it up were very interested in doing something like this, as another choice out there, and something that really does get the kids reflecting on their experience at CWES and in the outdoors, and the teachers that I talked to were all very pleased with the activity, they thought the kids had a really nice time. But with this question in particular, I would definitely recommend that you talk to Becca about it, because I know she's gotten a lot of feedback.

3. How do you feel about teaching nature journaling after teaching this lesson?
   If you were initially enthusiastic, did this reinforce your enthusiasm?
Appendix T. CWES Pilot Test Final Meeting Transcript

BH – I guess I started enthusiastic about it, and I still am, but it’s hard sometimes when the kids aren’t – you can try to be as enthusiastic as you want, and try to get them to understand, and some of them just will not like it. I mean, I don’t like journaling at all, but this is one way that I like to. I don’t keep one up on my own, but doing the activities and stuff, I enjoy. I think it’s nice, because some of the kids actually get excited about it because they can do the same way that I do where it’s like, you can have fun doing it and you don’t necessarily have to keep it up, it’s just a different avenue to go down.

KH – So the kinds of activities included were things that you thought were interesting and fun?

BH – Yup.

If you were initially skeptical, what (if anything) helped you change your mind?

JC – I guess for me I was initially very skeptical, because this wasn’t really quite my thing. Then I really started liking it. And I guess what I would do was, the kids that were skeptical, I could relate really well with them. And usually by the end of the lesson I’d have them pretty involved with it. And the ones who were already interested, they were fine too – they were still interested at the end. So it was just relating to the ones who didn’t, who were just kind of like “eh”... it was really easy for me.

KH – How did you do that?

JC – Just like telling them, “I know, I don’t like drawing either, so why don’t you just write something?” Or just saying that you can do it however you want to – that was my big thing, saying “I don’t care how you do it – like I can’t do that either, whatever is easy for you, it’s your own thing.” Encouraging them to do what they want and have fun.

JP – I’m curious, Jessica, because I was able to observe your session, and I thought it was pretty intriguing that you got into it quite well – I started thinking maybe that was atypical, because I think the teacher was also very supportive. Was that a fairly typical group reaction, or was that one unusual?

JC – Yeah, it was pretty typical. That group I think started a little better, like they were more excited right away, they knew a lot right away, like the people. Most groups don’t know the people right away, and they’re just kind of like...I get them into it later. That group knew it all right off the bat. That was a really great group.

JP – As the activities unfolded, I could see through your gentle encouragement that most of the students did really well on that session and came back very enthusiastic. You could tell a little bit by the way they put the covers on, how proud they were of their journals.

FR – Maybe if you provided students’ examples of journals, because the examples in the folder are so well done and might be discouraging for some kids. If there’s journals that are comparable to their level. I think that might help.

KH – Yeah, I think that would be great. There were a few student ones in there, but I just didn’t have a lot of access to student ones. I think if CWES continues to do this, it might be a good idea to, every now and then, if there’s a student who’s really into it and would be willing to just make some copies of some of the entries they do, to add those to the kit as time goes on.

BZ – That’s a good idea. Or even for the summer program.

KH – Yeah, there’d be more time then to get into it.

Was anything particularly frustrating or enlightening?

JP – I’m curious about your word frustrating. Did anybody think it was frustrating?

FR – I did one day.

JC – You had a doozy of a day!

FR – Yeah! Well, we were out doing our Sound Maps and it was just a really rowdy group of 6th graders. I was telling other students to be quiet while another boy and a girl got in a fight. There was hair pulling and punching and crying.

JP – And so you just sat them down and said, “Just write about it!” right?

BZ – Yeah, right!

FR – And that was my first major behavior, discipline problem I’d ever had. It was horrible. I don’t know if the boy maybe had a learning disability and couldn’t focus his attention on that activity, because you have to be quiet and think about what you’re doing for 5 to 7 minutes.

4. How well do you feel the nature journaling lesson plan prepared you to teach the lesson?

Can you think of other materials or information that would have been helpful?

KH – Farah mentioned already that having the other student examples might have been helpful. Can you think of anything else that could be added to the kit or the lesson plan that would make things more effective?

BH – I think one of the things that I suggested was adding a section to the lesson of using nature to do the journaling. You know, we did that in 282 or something, where we used the plants and stuff to draw. It’s giving them that one more connection to the plants.

KH – Yeah, that could certainly be added. It seems like that would work especially well in the summer, when there’s lots of plants and more time to gather materials.
JP - This reminds me, BJ, you took the initiative to make the posters of the naturalists/journalists that you could take in the field, so maybe you already have that, but that would be a good complement to the kit.

KH - Yeah, I think that’s an excellent addition that can definitely remain in the CWES kit.

BH - And I guess maybe making a little bit more of a wet day section to it too, because that was one of the problems we had, as the stuff got wet, it became fairly useless, because it was hard to use the wet paper. And I don’t think it was actually raining that day, just misty and humid.

JP - So, wax paper!

KH - I think there’s always the alternative of going out there and having the experience looking for things, and then coming back in and recording what you see. But maybe there are some other activities that could be done outside on a wet day more effectively.

Do you think you would feel comfortable teaching nature journaling without any training/modeling/prior experience?

KH - With this pilot test I was able to do some training with all of you ahead of time and do some modeling of some of the activities, more so with some groups than with others, just because of the way it worked out logistically, but I’m curious whether, if someone just handed you the lesson plan and said, “Okay, this is what you’re teaching next week,” the way that most of your CWES lessons are done, would you feel comfortable with that? Or is it something that you need a little extra preparation or prior experience before you feel comfortable doing it?

BH - I guess I already have a little bit, but I still think it was written well.

BZ - So you’d feel comfortable if it was an a la carte that the teachers picked?

All - Mm-hmm.

JP - I’ve always been curious about that, even when I was there. We seemed to end up modeling some of the big ones that get used a lot, but every semester we seemed to use a little bit different rationale deciding which ones to model, because the modeling of those lessons, I’ve always been curious almost as a research study whether it’s important to model lessons or just let the students...

BH - The water model was important. Had I not ever seen the model before I taught that lesson, it would have been a lot more difficult. I’d have had to go out and use it myself.

JC - I have mixed feelings. When you see it modeled before, it kind of limits what you can do with it, you’re kind of stuck to it... whereas with the lesson you just read, you can use your own creativity, you’re not thinking of how the other person did it.

BH - And with the water model that’s kind of how it was demoed to us – it was just, this is how to use the model, it wasn’t really a model of the lesson.

BZ - I agree with that. We see so many of the students doing exactly what was done, modeled to them.

JP - Applying that concept to nature journaling, did seeing Kate demonstrate it limit your ideas or stimulate other ways?

JC - I noticed I did it just the same order that she did it. Obviously I put my own spin on it, but everything was the same order. And I wish I would have switched it up, not spent as much time in the beginning on history. But I never did, I always kept it the same.

BZ - Did you want some kind of consistency though?

KH - To a certain extent. And that was why I gave everyone the lesson plan and said here are a number of activities you could choose from. But there were more activities there than they would have time for, on purpose, too, so they would have a chance to give it their own twist.

JP - We talked about that earlier...for some of these evaluations and things, we wanted a fair amount of consistency.

BH - It’s easy enough with people our age to say, here’s a lesson plan, go with it. But if you’re working with a younger group of instructors, like in the summer I work with 15 and 16-year-old instructors, I can’t just say go with it, because they will just do the bare minimum or barely get through it. A lot of it depends on the age group.

5. What do you think students gain by participating in this lesson?

KH - The next question looks really long and that’s because I took the responses to the question of what you hoped students would gain by participating in the lesson, and compiled some of your responses and then also some of the teachers’ responses, because I thought it might be interesting to you to compare some of those. It was interesting to see if some of those matched. In some ways they did, and in some ways the teachers had some other goals. But I’m curious how well you felt the lesson did or did not achieve those objectives? I’ll give you a chance to read through them.

FR - I don’t know if all of the students gained “a newfound love for nature”. It’s kind of a one-time thing.

KH - And in some ways it’s so hard to know where they’re starting from too. Some of these questions ask them “Did this help you to appreciate nature more?” and some of them that said no might have felt that they already had a lot of appreciation for nature and that this didn’t add to that.
BH — I think a lot of what they gain will depend on the schools they come from. Some of the schools don’t have any connection with nature at all, and some of them have a prairie in their front yard. The hopes, the objectives kind of almost have to float with the group that it’s going to.

BZ — My question would be, in the lesson, what is the rationale to the kids for why they’re going to go journal? FR — I can’t remember if there’s a section, or something in bold print, to get across to the kids why is this important, or why are we doing this?

BZ — Instead of just forcing them to do something that they may or may not be interested in. You know, why is it important? And even if they don’t end up journaling, a lot of the activities are just good activities to go out and just do on your own, whether or not you put them down in a journal.

JC — There is a “why is this important” section.

KH — There is. I’m curious what your take on it is, because I could tell you what’s in the lesson plan again, but I want to know what you got out of that, how you presented it to the kids.

JC — I’d always ask them why. “Why do you think this is important?” Usually it was after I talked about history, and I’d ask, “Why did it matter that all these people kept nature journals?”

BH — I guess for me it was always important for them to gain a different way of tracking their trips, just a different way of recording experiences. As well as just an appreciation for nature, as minute as it would be from a one-hour experience. Any little bit of time that you can get them to be out there.

KH — I took a curriculum design class this semester, and one of the things that was emphasized to us a lot was making sure that students understand why you’re asking them to do things. And so I think that’s a key question, and is that being communicated to the students? I want to go back again to the lesson plan and see, is that really clear? One of the ways that I suggested to explain it to students was to ask them how many of them brought cameras to CWES, and why? You want to capture some of those memories, maybe to share them with your family, they’re not here to see it, and you also maybe want to be able to look at them in a few years and remember what happened. Making the connection between those kinds of snapshots and the kinds of snapshots that you’re taking and capturing on the pages of your journal. That’s, I think, one way to help them connect with what the purpose is.

BZ — Do you have it written like that?

KH — Mm-hmm.

JC — That was normally the question I’d ask first. Why do you take pictures?

6. If you were responsible for scheduling at an EE center, would you want students to participate in this lesson as part of their visit?

BZ — Well, this is a quick question, though. I think we should try to get this one in [reads it aloud as instructors are putting on shoes and gathering coats...]

JC — Absolutely.

FR — Yes.

BH — Yes, I think so. For a lot of the reasons that we were just talking about, the outcomes and such.

[Three instructors leave, JP and BZ stay]

KH — Well, actually this works well that you two are the ones who are left, because the last questions are the ones that are more from the administrator’s perspective.

JP — Can I add a note up here with what you hope to gain? It reminds me that we were going to look at standards and how they match up. The standards for EE I’m very familiar with, but I’ve never gone systematically through language arts, or science. Just a quick note — let’s look at that more closely.

KH — I actually have those on the lesson plan now.

JP — Not only the standards for language arts, but also the standards for teaching competencies. The teachers have to gain certain competencies in terms of knowing about the content that you are teaching, effective methods of teaching it...

KH — I have not looked at those.

JP — If we try to write the guide in a way that will affirm that these things will help you achieve your teaching goals.

KH — It’s really important, but it’s also really complicated because each state has a different set of standards. So if you want to create something that’s more broadly useful, there are certain commonalities but they are all different in different states.

JP — Good point.

BZ — I guess I would look at one of the states that has better standards, and WI would be.

KH — I’m still sort of wrestling with the idea of whether to look at those and kind of use them to help guide what goes into the guide or to actually write into the guide this activity addresses these WI standards, which is useful, definitely, to the WI teachers but also makes the guide less universally applicable.

BZ — Joe, were you also meaning that the guide should be written to help the teachers ...teach nature journaling to a certain competency level?
Appendix T. CWES Pilot Test Final Meeting Transcript

JP – Yeah, we could look at the competencies for teaching – rules by which the College of Professional Studies has organized their curriculum.

KH – I haven’t looked at those at all. Didn’t know they existed.

[loud noises of stuck car on street out front, with appropriate commentary]

KH - So basically what comes out of that question is that there seems to be interest on the part of the teachers, and these students seemed to feel that the students got something valuable out of it.

BZ – And I think for teachers it’s a good way when you’re teaching the more science-based courses, to integrate another subject area.

KH – And that leads right into the next question, which is what is the role of nature journaling at a nonformal center like CWES. Where it’s different from the formal classroom where you do have these language arts standards that you have to meet or a scheduled time for lang. arts – what is it, what kinds of skills or experiences are they getting in this lesson that are important components of their visit to a place like CWES that we want them to go away with? I have some ideas of my own about that, but I’m curious what you think.

7. What do you see as the role(s) of nature journaling at a nonformal EE center like CWES (as opposed to in the formal classroom)?

What do you think students got out of it that is an important component of a visit to a place like CWES?

BZ – I think, just from the experience that we’ve had at CWES, I really like the nature journaling activity, I see it as being maybe a little bit more beneficial for a residential camp or our summer camp rather than for a day program. Just because the day programs just seem, they’re no more than off the bus than they’re getting on the bus again. And to really sit down and have that time for reflection, and to think about what they’ve learned today – you know, they only have three lessons. And it’s kind of awkward with the day programs, because you know how things are at CWES, nature journaling may end up being their first lesson. Not that they can’t just go out and reflect on nature, but it’s nice to get them outside and building up that appreciation a little bit more. But I like it, not only for the component that it helps to tie in a couple different subject areas – the language arts, science, environmental education – I like it because it gives the kids something really tangible that they can take home with them for memories. Not only can it be a nature journal but it can be a personal journal, all wrapped into one. A journal that can really awaken all their senses. One of our camps this summer is going to be an outdoor skills camp for two weeks…[a group of 15 visually impaired students will be coming, and the leaders want them to have something tangible to take from the camp – they are excited about the idea of nature journals]. It’s just a matter of us taking that activity – and maybe you can help us – and making that activity even better for someone who is visually impaired. That’s why they wanted it, so that the students would have something tangible for memories. It’s going to have to be more tactile…

KH – Can they do any dictating to someone else who can then write it down?

BZ – Yes, we could do that.

KH – And then when they go home they can say, “Here, Mom and Dad, read what I did, and then I’ll tell you more about it,” because it will spark more memories.

BZ – But I thought that was really neat, that they wanted to that. And especially with the summer camps, because you’re meeting new kids, it can not only be the nature journal, but also phone numbers and autographs. It really could be a neat memory for a child.

JP – I think you’re right, that the longer the program [the more effective it would be]. One of the good things I realize is that you could maybe put in a page – as a closing activity, at the end they could reflect on what they liked the most about their five hours at CWES. So even on a day basis maybe there’s a way to use the journal for something more tangible, a memory that goes back with them.

KH – And one of the things that I think is really valuable is that when kids come to a place like CWES it’s so much go-go-go, scheduled down to the minute, and mostly all group activities, and certainly a lot of that is really valuable, but it also may be valuable for them to have a chance to experience those surroundings in more of a solitude setting that they might not get without something like journaling. And when you think about the kids who are coming on a day program, and may not ever get to go on a residential trip or to summer camp for a week, what do we want them to take away from their one day in at natural setting like CWES? And maybe the group activities are the best use of their time, but maybe there is a place for this more reflective component too, I’m not sure.

BZ – I guess I do agree with that too, just slowing them down to really think about where they are and what’s happening around them. Maybe for something like a day program what would be useful would be to really pick out activities that are more appropriate for the day program versus overnight. And maybe just separating those for a nonformal center...just to make the most efficient use of the time. What I liked about your idea, Joe, is could we maybe send a sheet of paper home with each kid and when they send it back, we would have our own permanent nature journal that the kids created that we would just add to. Or kids could do a page before they leave. People could come and look at it.

JP – I realize that some schools probably do this as a routine, but I realize that parents especially like it when kids come home with something. I’m discovering it more with my kids now that they’re getting older, that you
say, "Well, what happened?" "Oh, nothing," and you know that a hell of a lot has happened. And maybe the journal would give them that. For an EE center like CWES to have a page that would go home and explain what they did and that would prompt and encourage a discussion between parents and kids. If on that was nature journaling – something they wrote or drew – a product that could go on the refrigerator and provide that continuity of a meaningful day. Maybe it's more of a structuring of a closing activity.

BZ – I guess I can also see nature journaling at a place like CWES especially with the students who are more new to EE, they might be EE minors, some of them that are a little bit more reflective and might have a more difficult time filling up the hour. I’m almost thinking it might be a good idea to require the kids to bring a small notepad, and in our training we would train the students about nature journaling and that way, when they had that 5-10 extra minutes at the end of their lesson, they could quick do a nature journaling activity.

JP – It also could fit into the closer of Beaver Ecology or whatever.

KH – When I was at Wolf Ridge, some of the groups would bring their own journals, and that was one of the assignments that the kids had for their week at Wolf Ridge was to write a few lines about what they learned with each lesson, and those kids were really excited about it, they would ask, "Can we have five minutes at the end to write, can you write that word on the board cause I don't know how to spell it and I want to put it in my journal..." So I think it does build in some investment on their part. Although on the other side, there are a lot of lessons where you need every minute you have, so if you get the kids excited about journaling and then you’re like, "Sorry, there’s no way we’re going to fit it in there..."

BZ – One thing that I don’t like about CWES is that I just feel like we pack too much into a day. I feel like what have the kids gone away with, because it’s just like trying to cram these lessons in between 10 and 2. Instead of 3 lessons, let’s have 2 lessons for an hour and a half and take that time to really go into depth and have the reflection. Sometimes it gets frustrating trying to stay on schedule.

JP – Maybe there’s a school you have a good rapport with and you can say, would you like to do 2 lessons instead of 3? Instead of having nature journaling as a separate activity, incorporate the journaling as a part of each activity and maybe as a closer.

BZ – I like that better, because I feel like that would make more sense even to the kids.

KH – Yeah, maybe there’s an introduction where you talk about the purpose of keeping a journal and do some introductory activities, and then build it in.

How might formal and nonformal settings be able to collaborate using nature journaling?

KH – On a related note, and I’m envisioning this as a section in the guide, what are the connections between formal settings – classrooms – and nonformal settings like CWES? How can there be more collaboration with nature journaling? I think there might be some good ways of tying an experience into the formal curriculum with journaling, or preparing students for the field trip experience in the classroom before they come and reflecting on it afterward.

BZ – And I think one thing is definitely coming up with those post and pre activities, so the teachers have something tangible to look at and say, oh I can do this in the classroom. Maybe in our questionnaire that we send out to teachers, we can ask them, do you do journaling with your kids, and if they do, we can encourage them to have the kids bring their journals. You know, one thing that I always thought would be useful out at CWES is to have an hour where you’d actually have a teacher session – what is EE, how can you continue this process in your classroom, and nature journaling could be a part of that. Some of them are just so, really, oblivious. It’s just a trip they take their kids on. I think it’d be important for the parents and chaperones, too.

KH – That’s an interesting idea. I think it could give them a lot of ideas that could extend the experience into the classroom.

JP – I think you’re pulling strings that will unravel a great thing. Some of those basic questions about what is the role of the EE center, is it just to provide all these great and productive things, or are there these 4 or 5 other things that are in some ways more important to plant the seeds for teachers to do better back in the classroom. It’s something that’s been debated a lot, and I don’t think many EE centers are able to address it fully.

BZ – Well, you know, we have that time where we pull everyone away with the mentors. Even if we gave them a sheet with, this is what environmental education is and how you can take it back.

JP – I think the way to achieve it is to have a cocktail party with the teachers during lunch!

BZ – Yeah, overall, I think the nature journaling has really been a success. Everybody seemed to really enjoy it.

KH – Good, I’m glad I didn’t introduce a total flop!

BZ – The teachers that wanted it, they just seemed so excited when you offered it to them.

JP – So where do you think it’s going? Will it become one of the menu choices in the future?

BZ – We already put it on. For next semester.

JP – The best way to package it is to package it, in a sense. But I’m equally interested in journaling for integration, bringing it into some of the other activities.

BZ – Maybe, I know this is more work for you, but maybe to think about how to write the lesson up that way as well, so there’s kind of two different lessons.

KH – And I think there could certainly be a page added that’s some ideas about how to do that.

BZ – Yeah, even if there was an opener or closer, some ideas for integration throughout the lessons.
Appendix U. Classroom Pilot Test Student Responses to Open-Ended Questions

Are you looking forward to starting a nature journal? Why or why not?

J32
A lot – I am excited to start one because I love nature.
A lot – I love nature. I want to learn about the environment.
Sort of – Maybe because it might be fun
Not at all – Because it is not fun
Sort of – I don’t like to write about things
A lot – Because I am interested in wild life
Sort of – I’m looking kind of forward for a nature journal because I want to learn just a little about nature.
A lot – I’m excited because I really like nature. I like to see and learn about animals that live in my part of school and my home.
A lot – So I can learn about the nature.
Not sure – Because I never did a whole one.
Sort of – Because they are kinda fun
A lot – Because you can write all the animals you see, and you can learn a lot
Sort of – I am sort of excited because I might like learning about nature more. I think I might like it.
A lot – [To look at?] animals, because I like to be outside.
A lot – Because I can learn more nature stuff
A lot – Because it is a lot of fun
Not sure – I didn’t ever have one
Not at all – I’m not interested
A lot – Because it’s fun to write! A lot!
A lot – I look forward to starting a nature journal because I like keeping journals and I like nature.
Sort of – I already have one
Not at all – I am not excited because I would rather hunt
A lot – Because I would like to learn about the forest and other stuff
Not at all – I have had them so long I got bored of them

J341
A lot – I think it would be fun
Sort of – Because I think it will be fun
Sort of – Because to learn more about wildlife
Not sure – Because I don’t know how it is going to work
Not sure – I don’t really know what you do in a nature journal
Not at all – I don’t like writing
A lot – I think it will be fun
Not sure – It’s more fun when you don’t have to do it every day
Sort of – Because if I go outside and study nature, I might enjoy it more
Sort of – I would like to take notes about nature
Sort of – I am because I like recording information
Not sure – Journals are okay but I like to do other things
Sort of – I don’t like writing a lot especially in a journal but I guess it might be fun
Not sure – Because I’m not quite sure how
Not sure – Depends on what sort of things we do
Not sure – I don’t know if I’m gonna do the things I want to do
Sort of – I think it would be fun because you get to learn more about nature
Not at all – BORING

J51
A lot – Because I love nature
Sort of – It sort of depends on what we’re putting in it
A lot – I think yes because it sounds real fun
A lot – I say a lot because I said that it might be interesting
A lot – Because I can learn a lot
Not at all – I hate writing
Sort of – Yes because I want to keep track of what I’m learning and doing for our charter school
Not at all – I don’t like journals
A lot – Because it is fun
Not sure – Well it doesn’t matter to me
Not sure – I’m ?? to start one
Appendix U. Classroom Pilot Test Student Responses to Open-Ended Questions

Not sure – I don’t know because I don’t really like learning about nature
Sort of – Because it is interesting and fun
A lot – I like to because it is fun
A lot – Yes because I want to learn more animals
Not sure – I don’t know
A lot – Because it sounds fun and I could really use one again
Sort of – I don’t know I am not used to learning about nature
Sort of – I don’t know
A lot – Because nature is great to learn about
Sort of – Because I don’t like to write I like to read

J561
A lot – I want to because I never had one
A lot – Because it is fun
Not at all – Because I live on a farm and I would go into the [woods?] once in a while so I am not too excited
Sort of – Because it sounds like fun but I’m not sure
Not sure – It doesn’t really sound fun at all
Sort of – I sort of want to because I want to keep track of stuff I learn or see
Not sure – I am not good at writing
Sort of – Why because having a journal I don’t really write stuff every single day
Not at all – I am not interested in writing
Not sure – I can’t understand it that well (nature)
Sort of – I like writing in my own little booklet. It is very fun for me, I think.
Sort of – Sort of because we are probably going to learn about plants
A lot – Because I think that it will be fun
Sort of – I think it’s sort of fun because I’m not a nature journaler

M61
Sort of – because I don’t like writing a lot
Not sure – I think some of it is gonna be kinda boring and I think we are gonna do some cool activities
Sort of – because I do not like to write a lot
Sort of – some not because I’ll have to write a lot but mostly want to learn more and you get to have some adventure in your day
Sort of – because keeping a journal can sometimes be fun. Sometimes boring.
Sort of – I feel this way because I have never kept a nature journal so I don’t know what it is going to be like
Sort of – I don’t know what it is going to be like to learn about nature
Sort of – I don’t really like keeping reading journals so I’m not sure what it will be like
A lot – I like writing in journals
Sort of – Because I don’t know much about them, but I like nature so that’s why I want to do it
Sort of – because I do not like having limits I like to go freely and go for as long or as little into the woods and being able to go as far or as short into the woods as I wish
Sort of – because I like keeping my thoughts down in a journal. I don’t want to because I forget to write down my thoughts
Sort of – I sort of want to because I’ve never done one before and I don’t know what it’s like
Sort of – because I don’t know what we are learning about in this unit
Sort of – because maybe I have to write every day
A lot – because I like nature, trees, animals a lot. I can’t wait!
Not at all – because it’s boring
Sort of – because I’m not interested in nature and I would rather go to the mall or for a bike ride
Sort of – I’m into going outside and looking at stuff and drawing but not into writing about it
Sort of – I don’t like to write but I do think it would be fun
Sort of – because I don’t really like making a journal
A lot – doing it today was cool
Not sure – don’t know
Sort of – maybe because I don’t really know how to do it the nature journal

What advice would you give to someone your age who was about to start a nature journal?

J341
Don’t go into an activity thinking, “I know I will hate this.” Give it a chance and you might like it.
Never give up in trying to reach your goals
Have a good imagination, like writing and be ready to observe
Appendix U. Classroom Pilot Test Student Responses to Open-Ended Questions

Journaling is boring
Pick a nice spot to sit and observe nature
Go outside every once and a while and write about things you see
Be really descriptive
Never make loud noises or else you will never be able to study nature outside because you will scare all the animals away
Be ready to go outside a lot
Write the dates in so when you look back you remember when you did it. Also label your pictures so you know what it is when you look back at it.
Have a pencil because you’re going to be writing (a lot).
Don’t walk at Jackson outside around the prairie or your feet will get tired.
Be very quiet so you can hear and see animals.
don’t know
You should be very organized
I would say that it’s fun, especially if you like observing nature
Be prepared for nothing exciting

J51
I would tell them to look at everything carefully
Try your best to be observant
It is fun if you like nature
Try to be quiet so that they don’t scare the animals away
Tell him what I did with mine and tell him some stuff we did in our nature journal
Well I would tell the person to be prepared for a lot of fun!
It will be fun to learn about nature and make a nature journal
Don’t write it down and I do not like it
It is boring I hated it
I would say that its fun. You get to learn a lot, and look at nature in a different way.
Well, tell them about what you’ll see or tell them what we know about nature things and animal tracks.
I would tell them hope you find animals and go into the forest so you could find more animals.
You have to go outside a lot so make sure you want to make one.
Not have anything to do about things inside and paste [?] your things outside
I would say about any age
The snail trails because you would find a lot in the snow
Listen more
Be quiet so you can see nature and its pretty fun. Also interesting.
Make sure you look hard if you are going to look for animals and also be quiet
A nature walk is very fun. You always go outside and have fun.
I think I would give them the Sound Maps because you have to use your ears. It was very fun.
The first couple are boring but it gets better.
I would say if you do it you will learn more about nature and learn more about animals.

J561
I would say that sometimes doing a nature journal is fun and sometimes are not.
Don’t worry it is fun
Nature journal is fun when you get to do it with your classmate and do it out on the trail
It is very fun and you learn a lot about nature if you like it
It is fun and it is cool
I would say to do more activities and do it longer
Put it somewhere when you write
It is ok
This activity is ok and fun sometimes
Do a lot of fun projects
Show my nature journal as an example to him/her
This is a fun thing to do and when winter bring boots
It’s kinda fun
To write a lot about it
You have to be open minded about it. It may be boring with just yourself so stay with your BF (best friend)

M61
It is fun drawing and being outside
That it was fun and I would recommend it
Appendix U. Classroom Pilot Test Student Responses to Open-Ended Questions

Watch for adventure
You should do the nature journal because it will make you pay more attention to nature
To look in nature and pay close attention
It is a lot of fun and you will enjoy it a lot
You get to go outside. It's not as fun as you think.
Work your hardest and listen. Watch. Enjoy your time outside.
It's fun if you like to learn and like nature.
Nature is good to talk about
It is fun because you think of nature in a different way
Really give it a chance and don’t just say oh ya we get to go outside really listen it will teach you something
It is very easy. If you think it is going to be boring or hard, it's not
Most of the activities are fun but some of them aren’t You will like nature if you pay attention to it
It is so much fun and I wish I could do this again if I could and make sure you dress for the weather
If you started a nature journal you can go outside
Be silent on silent walks. It is really fun to go outside. Do projects.
You have to really like to be outside to like it
The activities are fun
It's really fun, be ready.
It was fun. It has lots of activities.
Don’t think it stinks because it rocks
Keep your eyes open, there’s never nothing going on
When you are outside looking at nature you have to be quiet

B71
It’s kinda fun
Don’t lose sight of your goal in the end you learn a lot and have tons of fun
Tell it was okay
Keep at it, it’s really fun
If you enjoy being outside you will have lots of fun but if you don’t you won’t really mind
Have fun
It's not fun
Wear warm stuff it it’s cold
That it is fun
I would tell them to just relax when they do it
Just be creative
Look at nature
Don’t do it
Be as creative as you can so you remember everything you did
Open yourself up. Listen carefully. Don’t rush yourself.
Have fun!
Be prepared
It’s really fun. If I were you I would try it because I loved it.
To do as many activities as you can.

Is there anything else you’d like to tell us about the nature journaling activities you did? Which ones were your favorites? What did you like best about them?

J341 I liked the ones that involved story writing. I also liked exploring outside with your projects!
J561 Not exciting
J561 I liked to explore nature a little.
J561 They were all ok except when it was cold or hot
J561 1. A lot of them were fun. Being outside
M61 They were all fun. I liked the nature walk the most
M61 We should do more silent walks and teach more about different types of walks
M61 My favorite was the nature walks because you got to see, hear, taste, feel, and do all kinds of things
M61 I liked spending time outside
M61 My favorite thing was the walks finding things in nature
M61 My favorite thing was the thing about your favorite place
J51 I only have three favorites. They are the memory test, sound maps, and silent walk.
J51 I like all of them. I like best about them are having a nature walk.
J51 I thought it was fun and that nature is very interesting. My favorites were: silent walk, sound maps, and memory test. What I like best is that we get to go outside and look at nature and all its wonder.
Appendix U. Classroom Pilot Test Student Responses to Open-Ended Questions

J51 I hated them all
J51 I did not like anything about it
J51 I liked everything and every activity
J51 None of them. Going outside.

Circle Poems
J341 My favorite are the Rock Pass, Partner Drawing, and Circle Poems. The Circle Poems were fun because we got to see how we were related to nature.
J341 Circle Poems you got to illustrate

Memory Test
J51 I also liked the Memory Test because you get to memorize things.
J51 I thought it was fun and that nature is very interesting. My favorites were: silent walk, sound maps, and memory test. What I like best is that we get to go outside and look at nature and all its wonder.

Mystery Bags
J561 [Mystery bags] was my favorite because we got to partner up then we had to guess what was in the bag
J561 Mystery bags was my favorite
J561 I like the one with stuff in the bag. It was kinda fun to try figuring out the thing in the bag

Natural Alphabets
M61 I liked the sound maps and natural alphabets the best. I liked just looking around.
J51 My favorite was the alphabet one because we got to look for letters in nature.

New Perspectives
J341 Writing about something else and how it lives
J341 New Perspectives Making a story
M61 I liked the New Perspectives project because I liked trying to be another animal
J51 The sound maps and new perspectives. Sitting outside and being an animal.
J51 The new perspectives because you get to be an animal for a day

Partner Drawing
J341 My favorite are the Rock Pass, Partner Drawing, and Circle Poems. The Partner Drawing was fun because we had to try and draw an object that was being described to us.
J341 Partner ones: you got to be with a friend
J341 My favorites were the sound maps, rock pass, and partner drawing. Partner drawing; I liked describing my object to my partner.
J561 My favorite one was the partner drawing because we can work with our friends
M61 The partner drawings were my favorite. Where you could guess what the thing your partner was describing
M61 What I liked the most was the Partner Drawing because I liked drawing and describing the object

Place Descriptions
J51 I liked Place Descriptions because you go outside and you sit and it is nice and quiet.
J51 Place description because it reminded me of my favorite place in the world.

Rock Pass
J341 My favorite activity was the Rock Pass. I liked trying to find our rock. I also liked the fact that we got to keep the rock.
J341 My favorite are the Rock Pass, Partner Drawing, and Circle Poems. Rock Pass was fun because we had to see if we could find our rock when they were being passed around.
J341 My favorites were the sound maps, rock pass, and partner drawing. Rock pass, it was fun trying to get your rock.
J341 Rock Pass because I liked my rock a lot.
J341 Rock Pass because my rock was a recognizable shape
J341 My favorite was the rock pass because it was exciting trying to find your rock
J341 My favorite was the rock pass. I liked it because you couldn't use sight so you had to observe carefully.
J561 I liked rock pass. We had to touch rocks.

Silent Walk
J561 Silent walk was my favorite I like it a lot
J561 My favorite activities were snail trails and the silent walks they you get to walk around not just sit there
M61 Sound map cause it was fun Silent Walk cause it was fun to taste the different plants and things outside
M61 Because you got to taste everything and there was a tree that tasted like sugar
Appendix U. Classroom Pilot Test Student Responses to Open-Ended Questions

J51 I thought it was fun and that nature is very interesting. My favorites were: silent walk, sound maps, and memory test. What I like best is that we get to go outside and look at nature and all its wonder.

J51 I like the silent walk because I can hear what's happening in nature. I like that because I'm interested in it.

**Sound Maps**
J341 My favorites were the sound maps, rock pass, and partner drawing. For sound maps it was fun to listen to nature.
J561 Sound Map was the funnest to me
J561 Sound maps it is fun to sit and hear
J561 I liked the sound maps because we got to choose where we sat
J561 Sound map sitting down and listening to nature
J561 My favorite one was sound maps because you explore nature

M61 My favorite thing was the sound map
M61 Sound map cause it was fun Silent Walk cause it was fun to taste the different plants and things outside
M61 My favorite was the sound map because when I was drawing something I dropped my packet. It was hilarious.
M61 I liked the sound maps and natural alphabets the best. I liked just looking around.
J51 The sound maps and new perspectives. Sitting outside and being an animal.
J51 I like the sound maps because I like to hear all things that I like to hear.
J51 I thought it was fun and that nature is very interesting. My favorites were: silent walk, sound maps, and memory test. What I like best is that we get to go outside and look at nature and all its wonder.

**Snail Trail**
J561 Snail trail was my favorite because you get to look for clues out on the JEDC trail.
J561 My favorite activities were snail trails and the silent walks they you get to walk around not just sit there
J51 Mine was snail trail because I like to fin a lot of footprints and find different kinds of animals
J51 I liked the snail trails because we got to go outside
J51 Snail trails because we had a good time. Sound maps because I like to hear stuff. Memory test because it was a fun challenge. Silent walk because no one was talking.

**Symbolic Objects**
J341 I would take out “Symbolic Objects.” There was nothing exciting to do.
Appendix V. Classroom Pilot Test Teacher Questionnaire Responses

Questionnaire 1. Completed Before the Pilot Test Experience

Background

1. Number of years teaching Grade Level(s) Subject(s)
JH – 29 years, 3-4 (K-4), all subjects
LC – 12 years, 6th (1,2,6), all
KK – 21 years, 5/6, all
KS – 3 years, 5 (5-6), all
CS – 5, 7/8, science
MB – 5, 3-4 (self contained LD)
DS – 18, 3, all

Have you used journals (of any type) with students in the past?
☐ Yes JH LC KK KS CS MB DS
☐ No

Have you used nature journals in particular?
☐ Yes KK KS
☐ No JH LC CS MB DS

Have you used nature journals with this group of students?
☐ Yes
☐ No JH LC KK KS CS MB DS

2. Please describe how you have used journals – subjects, types of assignments, etc.
JH – These have been used to develop fluency in writing using a variety of topics. The topics could relate to a unit theme, a personal situation, or a self-selected topic.
LC – I have used response journals, literature booklets with response journaling
KK – Writing observations as a “scientist” noting features then observing changes through various seasons
KS – Daily journaling with starters sometimes, otherwise students pick topic; journaling of plant growth of plants students planted in the prairie
CS – Daily journal writings in notebook covering aspects of the Lewis and Clark expeditions
MB – We used journals for a pioneer unit in S.S. Currently I have students write in their journals about 3 times a week. I give a statement or question and they respond.
DS – daily journals, open or topic oriented

Preparation and Expectations for the Nature Journaling Unit

3. How would you describe your feelings about teaching nature journaling?

1- Not Enthusiastic
2
3- Somewhat Enthusiastic CS MB
4 LC KK KS
5- Very Enthusiastic JH DS

1- Not Experienced JH MB
2
3 - Somewhat Experienced LC CS
4 KK KS
5 - Very Experienced DS

1- Not Confident MB
2 CS DS
3 - Somewhat Confident JH LC KK
4 KS
5 - Very Confident

4. If you have used nature journals with your students already during this school year, how would you characterize their responses on average as a class?

No responses

5. What do you hope your students will gain by participating in this nature journaling unit?
JH – I hope the students develop more acute observational skills of the world around them and better communication skills using writing and drawing as the methods to share their observations.
LC – I hope students will gain a respect for nature, more of an awareness of their environment and what their place is within the realm of the world
KK – clearer sense observation skills, “purpose” for writing skills, aesthetic appreciation
Appendix V. Classroom Pilot Test Teacher Questionnaire Responses

KS – I hope they’ll be more confident in putting their observation down on paper and use their total senses, not just sight

CS – greater connection to the natural world

MB – I hope that my students will gain a skill and/or experience that will reach or inspire them

DS – to use new eyes/senses to observe

Intentions for the Future

6. After this pilot test is complete, do you anticipate continuing to use nature journaling during the current school year with your students?

1 Definitely not
2 Rarely if at all
3 Sometimes
4 Often
5 Very Often

Please explain:

JH – I would like to use this on a weekly basis, depending on our unit of study.

LC – When I can incorporate it into my curriculum

KK – Crazy scheduling and expectations from too many others involved with my class prevents my participating more

KS – We will continue the use of a nature journal on a weekly basis – at least

MB – I am just not sure – it depends on the success of this experience
Appendix V. Classroom Pilot Test Teacher Questionnaire Responses

Questionnaire 3. Completed after the Pilot Test Experience

The Nature Journaling Materials

1. You received a first draft of the nature journaling guide, consisting of 4 introductory chapters about nature journaling plus activity descriptions. Overall, did you find these materials:

   4 LC
   5 Very Clear JH KS

   4
   5 Very Complete JH LC KS

   3 Somewhat Useful
   4 KS
   5 Very Useful JH LC

Please explain:
JH - I summarized this BRIEFLY but I think there should be a student lesson on nature journalists.
LC - I thought the background info was great and I liked using the quotes. I was also able to be more clear with the students as to the purpose of this writing.

2. What was your impression of each of the following introductory chapters? Please note any additional information or modifications you recommend to improve them.

   Ch 1: What is Nature Journaling?
   4 Good
   5 Excellent
   Improvements:
   JH - Add a specific student lesson plan
   LC - great list of ideas as to possibilities

   Ch 2: A Framework for Nature Journaling
   4 Good
   5 Excellent JHLCKS
   Improvements:
   JH - Add a specific student lesson plan
   LC - I really liked how one section led into the next. It made wonderful sense!

   Ch 3: Facilitating Nature Journaling
   4 Good
   5 Excellent KS
   Improvements:
   JH - Add a specific student lesson plan
   LC - Tips etc. were very helpful!

   Ch 4: Beginnings and Endings
   4 Good
   5 Excellent
   Improvements:
   JH - Add a specific student lesson plan
   LC - I liked using and discussing the quotes (some pictures or instructions as to how to make the journals would be helpful).

3. How well did the activity descriptions prepare you to teach the activities?

   4 JH
   5 - Very Well LC KS

Please explain:
JH - I did "rush" to get into this program with the students, so I didn't take the time to set the stage as thoroughly as I would do in the future. I'd spend more time sharing info from ch. 1-4 in future years and do the 4 intro and 10 activities over a semester's time, not one month.
KS - Very well - the descriptions were more than adequate

The Nature Journaling Activities

4. Which activities did you find most effective? Why?
JH - The students seemed to enjoy best the activities which allowed them to keep a natural object. I used rocks in the rock pass I had collected from northern WI and let them keep their rocks.
LC - Sound maps, natural alphabet, partner drawing. Students were responsible for a product and seemed to take these activities very seriously.

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Appendix V. Classroom Pilot Test Teacher Questionnaire Responses

5. Which activities did you find least effective? Why?
JH - I'm not sure there were least effective activities but some certainly built upon others very effectively and were better done in a certain order.
LC - Nature walks (28 students). Hard for them to concentrate on nature instead of each other.
KS - Memory test, Partner drawing.

6. How well did the selection of activities meet your needs and those of your students?
JH - There was a nice variety for this year. We'll need to add more for future years if we're going to use these for grades 1-6.
KS - Fairly well, needed to make some adaptations.

The Students' Experience

7. Overall, how would you describe your students' responses to the nature journaling unit?

<table>
<thead>
<tr>
<th>Level</th>
<th>Students' Enthusiasm</th>
<th>Students' Motivation</th>
<th>Students' Challenge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>KS</td>
<td>JH</td>
<td>KS</td>
</tr>
<tr>
<td>2</td>
<td>KS</td>
<td>JH</td>
<td>KS</td>
</tr>
<tr>
<td>3</td>
<td>KS</td>
<td>JH</td>
<td>KS</td>
</tr>
<tr>
<td>4</td>
<td>KS</td>
<td>JH</td>
<td>KS</td>
</tr>
<tr>
<td>5</td>
<td>KS</td>
<td>JH</td>
<td>KS</td>
</tr>
</tbody>
</table>

Please explain:
JH - I think most of them will be more enthusiastic as they do more writing activities.

8. Overall, how well did this lesson address:

- Students' grade level?
<table>
<thead>
<tr>
<th>Level</th>
<th>Somewhat Well</th>
<th>Very Well</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>KS (5)</td>
<td>JH (3/4)</td>
</tr>
</tbody>
</table>

- Individual learning styles?
<table>
<thead>
<tr>
<th>Level</th>
<th>Somewhat Well</th>
<th>Very Well</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>KS</td>
<td>JH</td>
</tr>
<tr>
<td>2</td>
<td>KS</td>
<td>JH</td>
</tr>
<tr>
<td>3</td>
<td>KS</td>
<td>JH</td>
</tr>
</tbody>
</table>

- Special needs?
<table>
<thead>
<tr>
<th>Level</th>
<th>Somewhat Well</th>
<th>Very Well</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>KS</td>
<td>JH</td>
</tr>
<tr>
<td>2</td>
<td>KS</td>
<td>JH</td>
</tr>
</tbody>
</table>

Please explain:
JH - This unit fits right into our school's environmental curriculum and integrates environmental education into language arts beautifully.

9. How many of your students seemed to benefit in some way from nature journaling?
<table>
<thead>
<tr>
<th>Number</th>
<th>None</th>
<th>A few</th>
<th>About half</th>
<th>Most</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>KS</td>
<td>JH</td>
<td>KS</td>
<td>JH</td>
<td></td>
</tr>
</tbody>
</table>

Please Explain:
JH - There are some students who don't care to write yet.
KS - Some have some pretty stubborn attitudes and tend to "like" things their friends like just because they're friends.

Facilitating Nature Journaling

10. How do you feel about teaching nature journaling after facilitating this unit?
<table>
<thead>
<tr>
<th>Level</th>
<th>Somewhat Enthusiastic</th>
<th>Very Enthusiastic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>LC KS</td>
<td>JH</td>
</tr>
<tr>
<td>2</td>
<td>LC KS</td>
<td>JH</td>
</tr>
<tr>
<td>3</td>
<td>LC KS</td>
<td>JH</td>
</tr>
</tbody>
</table>

Please explain:
JH - I definitely want to continue journaling especially with our special trees.
LC - I still feel I could improve in technique, and also adjust some activities to meet our standards.
Appendix V. Classroom Pilot Test Teacher Questionnaire Responses

KS – At least now I have some experience and framework to go from

11. Would additional information on any topics have helped you feel more comfortable or effective in the teaching role?
JH – I’d like lesson plans on nature journalists.
LC – I thought the explanations were great.

12. How did you prepare your students to use journals successfully? What advice would you give to other teachers about how to accomplish this?
JH – I told them why we were doing this and gave some info on nature journalists from the introductory chapters.
LC – I think it important to establish a purpose, and for the teacher to be enthusiastic.
KS – Showing examples, discussing different uses

13. How did you assess students’ progress? Do you have advice for other teachers on this topic?
JH – Rubrics would help but I basically assessed several activities (New Perspectives) for writing.
LC – I am grading the journal – not for content so much as to completing assignments and effort.
KS – Observation of journals, listening to discussions

Nature Journaling and the Curriculum

14. How well did the nature journaling unit fit into and enhance your curriculum?
3 - Somewhat Well LC KS
4
5 - Very Well JH

Please explain:
JH – We’re using more environmentally based themes to teach the WI standards and writing is very important.
LC – I used it with a lit unit “All About Me” and students were to get a sense of themselves within the environment they live. Perspective and descriptive writing also fit into our curriculum.
KS – We used this in between composting and human body units

15. At this time, do you anticipate continuing to use nature journaling during the current school year with your students?
1 Definitely not
2 Rarely if at all LC
3 Sometimes KS
4 Often JH
5 Very Often

Please explain:
JH – I’d like to do an activity weekly.
LC – I will incorporate it next year into a different unit during a time where there is more “nature” available (spring or fall).
KS – Not as often, but throughout the rest of the year

Overall Impressions

16. What is your overall impression of this nature journaling unit?
1 Poor
2 Fair
3 Average LC
4 Good KS
5 Excellent JH

17. What do you see as the biggest strengths of journaling as a teaching method? How could the guide materials make better use of these?
JH – This ties into our school’s curricular focus.
LC – Students enjoy being outside and it facilitates ideas for writing.
KS - Individualized

18. What kinds of challenges did you encounter with journaling? How did you surmount them? How could these be better addressed by the guide materials?
JH – I still find some students aren’t ready to write.
LC – The time of year, trying to fit it all in within our framework of time (we ended up being outside while it was raining).
KS – Didn’t have any challenges

19. Please elaborate on any other comments, concerns, or suggestions for improving the guide.
JH – I really enjoyed the program but I’d prepare myself better for future use.
LC – It really was a fun and learning experience for the students and myself! Thanks for all your efforts!
Appendix W. Classroom Pilot Test Final Meeting Transcript

Classroom Pilot Test Final Meeting
January 8, 2004

Present:
BW (Grade 5/6)
JH (Grade 3/4)
DS (Grade 3)
LC (Grade 6)
MB (Grade 3)
KK (Grade 5/6)

Transcript:

KH: I wanted to start by thanking you, again, for being part of the pilot test. Besides having this be a chance to collect your evaluations and bring things to an official close, this is also a chance to just discuss the experience a little bit more. I know you’ve filled out lots of questionnaires, but another great way to provide feedback is to discuss as a group some of the things you did and how you felt it went. There may be some other things that emerge out of that process. I have passed around some discussion questions to help guide our discussion, but if there are other things that you want to say that don’t fit into any of these categories, feel free to jump in and add those things too. Also I left some space between questions — if, as we’re talking, there are things you think of and you don’t get a chance to throw them out into the conversation and you want to jot them down and tell me or just give me your notes, that would be another great way to let me know some of your thoughts. The whole project is to create this guide and to make it as effective as possible for you as teachers, and so anything that you can think of that will help others maybe start out on the level that you’re starting on after trialing these all these things. If there are things that you did that worked really well, and I can incorporate them into the guide, it will make it that much better for others or for you the next time you use it as well. So that’s our agenda.

The first thing I want to ask, that’s not even on the sheet, is what are your overall impressions? Is there anything you need to get off your chest and say, or just some overall impressions of the experience that you’ve had?

LC- My 6ths grader loved it. They really looked forward to it. They asked if we were going to be doing our nature journals that day. I really liked the activities that didn’t necessarily use their sight, but some of the listening and some of that, because I noticed that it generated a lot more discussion when they came back as far as things that they really heard that they don’t notice routinely.

JH- I think it really meshes into the curriculum here. It’s certainly not anything that should be over and above, it should be just a part of the curriculum at all levels.

DS - The only concern I would have is if I do it in third grade — do we have to kind of signal what grades do what, or by sixth grade they’re going to go, ew, we’ve done this.

BW - And I think that’s really important for some activities and yet there’s some activities that you can easily imagine doing at different seasons of the year so that kids can even notice the differences that they’ve observed...

MB - That’s very true.

LC? - And see how much they’ve grown in different areas.

BW - But I agree, if we could focus on certain ones at certain levels, and then know that those would be the primary ones so we can expect...no one’s here from K-2, but

KH - The guide is really designed for upper elementary, but there may certainly be some things that those younger grades could do that would prepare them for some of these activities.

KK - And I think that was one of the problems that I had. I know that they’ve gone out before, but the expectation that when you go out, it’s not just a social time. That I think is something that’s hopefully going to grow, as the kids are more used to that...and having a 5th and a 6th grade split, and one of the things that I noticed was that the 5th graders were more willing to engage in the science or language arts or whatever area, whereas the 6th graders thought this was a time to talk about what happened at so-and-so’s house last night. Their tendency to want to socialize rather than focus was very very different. Very markedly so.

BW - Well that’s something that as we do it year after year, if you’re introducing it in 3rd and 4th, by the time we get them in 5th and 6th even if we change activities they’ll have a real strong base in what is journaling and what are the expectations, even in we’re in a different environment. Which I think our school is going to get just from taking them out for as many different activities as we’re doing for science, for social studies...

KK - Or simply the expectation of being prepared to go outside. No matter how many times I would say, “You have to be ready for outside at the drop of a hat. You have to have boots...” “Oh, it’s too cold...” “Get over it, you’re a kid!” But that sort of thing, the buildup of expectations of outside, that’s the recess or social time versus a classroom.

KH - And you think that over time here at Jackson when the students are doing this year after year, that will come?

BW - I think so.

KK - And that can be any grade. Not necessarily at this school, but just the expectations of when children expand the horizons of what is a classroom.
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JP – I had a quick follow up to the sequencing idea. Within the school – it seems like there are a couple approaches. One is just to let the school work that out, if they’re using this as part of a curriculum. The other approach might be to ask Kate as we revise the guide to address the sequencing idea in a more definite way. Or maybe it’s just a note that if you’re doing it in a school you may want to organize with your other teachers to get the sequencing worked out, or is there a particular order of what activities work best in first grade, second grade, on up the line?

JH – Somewhat I think it was the warming up versus the digging in ideas. So the warming up would be more of the 3-4 and the digging in for 5-6. That would be a way to start. And I’m assuming that you wouldn’t necessarily say everyone has to do these three activities every year. That was for your own information. I just felt that it would be great to start earlier in the year, and we could certainly work on that sequence.

BW – I think that style of communication is something that we’ve had to develop anyway, because there are certain books that we’d all love to read to our students, but by the time you get to 6th they don’t want me to read it. So we’ve had to sit down and say, this is a third grade book, this is a third grade topic...for us, I don’t think that would be that unusual to sit down and look at the activities.

JH – And use a different book. We could use different intros, at a higher level.

BW – I think a lot of activities feed off nicely where you’ve taken a book and you say read this book and then do this - I think it opens our eyes to, oh, you could take this book and branch off just a little bit differently. So you’ve kind of laid the groundwork for, have you ever thought about this. You could take a book and follow through with it.

KK – I found that the books worked out so nicely when we’re teaching the 6 Traits of Writing which is the system that our school uses as well. Blending in for “Voice”. One of my favorite authors always has been Byrd Baylor. And the kids, when I was trying to explain Celebrations, once we read that book, it just opened up whole new worlds of discussion for them. So using that literature jump off allows you as a teacher to blend, it’s not always just science, that you put the two together, and I think the more the kids can get those components - that this isn’t just a 45 minute thing, that helps.

LC – I liked the fact that it’s open-ended enough – we used it with an “All About Me” unit with the 6th grade, and we incorporated it in terms of what is their place within the environment and in the world? So I guess I do like that it’s real open ended, because you can really truly use a lot of these activities and slant them however you want to do it.

KH – Let’s move into the questions on the sheet...

1. How well do you feel the materials prepared you to teach the nature journaling unit?
   - Was the information in the introductory chapters useful? Complete yet concise? Would any additional information have been helpful?
   - Were the activity descriptions clear and complete? Was there other information you needed to teach them successfully?

MB – Well I thought the activities were extremely clear and extremely easy to follow. It’s just like a very clear lesson plan that we didn’t have to write, which is wonderful to have. I think if you would have a substitute teacher, it’d be very easy for someone from the outside to follow.

LC – And actually I did like your introductory material. I used a lot of the quotes and information to introduce the whole idea of what is the nature journal, why are we doing it, how are we going to use it. The other part, and I don’t know if it’s in there because I didn’t read the beginning that well, but on the different kinds of journals to have, I thought it was so helpful when you came in and just said, you can make these with the sticks, you can make these with whatever. It made it a lot easier to have that. Is that in there?

?? – Mm-hm.

LC – You know we’ve got types of nature journals, but if you even had pictures, some kind of graphic...

KH – Yeah, that’s my ultimate goal for that page is to make drawings for each type.

MB – And that idea to set aside nature journaling from the journaling that they might have been doing in the past. Just the design of the journals itself – that’s how I did it...

KH – This is an aside, it’s not on the sheet, but how did you find that students responded? Did they feel that nature journaling was something different from other kinds of journals that they’d kept in the past...

LC – Well they liked all the drawing, and it was more activity-oriented than just responding-writing.

DS – Some of the kids on their own automatically started picking up little trinkets along the way and asked if they could tape them in. It was usually a kid that might not have the linguistic, written ability that someone else might, but they had something else that they could tap into. They wanted that touching – there’s a lot of the sensory appreciation that we sometimes just don’t take time for, was built in.

JH – Something else is a lesson on nature journalists...

KH – Yeah, you mentioned that in your questionnaire and I think that’s a good idea as a way to introduce to the kids.

JH – There was the one sheet you had in there – everything from Darwin to Carson, and I used that as just a take-off, and then brought in some books that I had, like Walden, and Sand County Almanac, one of the newer ones with all the pictures.

KH – And how did the students respond to learning about the journalists?

JH – They’re interested!
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KH – Did any others do some introductions that included talking about the past nature journalists? Would it be helpful do you think to have more of a lesson on that information?

BW – Mm-hm. I had prior to this been reading some excerpts from other people’s journals anyway, so I think that students do enjoy hearing what other people would put in a nature journal, or any type of journal.

JH – An actual – I guess you would have reprint permission – to reprint a page from one of the past journalists to show them. I know they were interested in the inside of the Sand County Almanac where they have Leopold’s actual writing.

KK – You guys definitely have different students than I do!

LC – I was thinking that too!

KK – I mean, you do, and so it’s nice that you have that outlet to tap into with your kids. I will encourage that, and again as kids are exposed to these things they open up, but it takes that – it’s sometimes an innate thing but sometimes it takes an exposure and just knowing about it. You have to start somewhere.

LC – It depends on the class, too. What kind of class you have.

KK – Exactly. And I know one thing I used last year with my students in the 4th grade, in our Scholastic series there are sets of Listening to Nature with Rachel Carson’s biography. I noticed that once the kids were opened up to that, certain ones kind of took it on their own – there are an abundance of those materials coming out. But just the networking to know, where do we begin, who do we start with. You’ve got those people in there that gives us at least a start. And if we can have people that aren’t old and dead, that’s the other thing.

BW – Or to get them to come in and talk to the class.

DS – Actually that’s something Carl brought up. To have the Freckmans – they’ve been doing nature journaling for years and would like to be incorporated into our school, and if we’d like them to come in and talk to us about how they use nature journaling and then how it would apply to any of our classrooms. I’m thinking it might be above my 3rd graders but for the 5th and 6th graders...

KK – But to have some sort of a start. And if the kids could have even a kernel of the phenology involved with it, seasonally looking at certain things. One of the things that was just, oh it’s cold, it’s winter, there’s nothing out here, but – new perspectives.

JH – The excitement of the tracks in the snow.

KK – That it doesn’t have to be just one day out at the school forest.

LC – Well, I was even nervous about the time of the year, thinking this is going to be a real fun walk. But it was amazing what they did notice out there, the ice freezing on the trees, to me it was surprising how much they did find. Even though I did say I think in the fall or spring there would certainly be an abundance. Kind of interesting.

KH – Is there anything else that you want to say about the materials themselves? How they prepared you and anything else that could be added to help you teach more effectively?

JH – I just want to emphasize again that you have the lessons nice and concisely organized. A substitute could come in and take off with what she needs, so that is nice.

LC – Very well done.

KH – Were there any other sections that could have been added to the lessons that would have been useful to you? It was broken down into a nutshell summary, the steps you needed, the materials. Anything else that you’d like to see added to those templates?

JH – Not the ones I used. They were very thorough.

LC - The only thing I would say is on the ones where you take a walk… I know on the silent walk it would have been really helpful if I’d had a couple other people leading some groups, so I wasn’t leading a group of 28 trying to make them be silent.

DS – The sound map was really hard for my 3rd graders. That was the only one – they just couldn’t see the whole picture. It was really too challenging for them. It was just like, okay, we will quit on this one. It didn’t go well at all. We modeled it in the classroom, had them close their eyes and put different sounds. I think the orienteering part of it, knowing where their place was in space was difficult for them.

KK – And the numbers involved in your class.

DS – Thirty, yeah! I did have help. With the student help we put them into three groups to do it.

JP – Do you think it’s just the temporal, the place, not having that concept in their heads yet?

DS – I think so. That’s what it seemed to me. A few of the really higher level thinking kids were a little bit better at it, but the other kids were just like, huh? What? They couldn’t figure out where, it kind of went over their head.

KH – Do you think that maybe for those younger students maybe not trying to make the map, but just listing or maybe drawing what they heard… not trying to orient them in space… would work better? That could certainly be a suggestion, an alternative for that activity.

DS – Yes. Mapping, finding their place on a map is an introductory skill in 3rd grade, that’s why that was hard for them.

KH – That makes sense. And originally when we started working on the guide we were thinking that it would start at 4th grade, so it may just be that some of these are more appropriate for a little bit older students. But yes, that’s good to know.

2. How well did the selection of activities meet your needs?

Did the variety of activities included help you engage multiple learning styles in your class? Were any needs not addressed?
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- Were you able to find ways to connect the activities to your curriculum and academic standards? How could the guide better assist you with this (without compromising its usefulness to teachers in other grades/states/educational settings)?
- Would more activities in the final version of the guide be useful or overwhelming?

KH – This will build off what we’ve just been talking about, but I’m curious whether the types of activities – was there enough of a variety to engage a lot of different learning styles? Did you find that students had needs that weren’t addressed by the activities, or ways that they could be more effectively tailored to meet different learning styles?

JH – One of the first things the kids always said when we evaluated the activities was, “We liked being outside.” They liked the movement. I think that was positive for all of them.

LC – And I liked the activities that didn’t necessarily just rely on sight. Where if you’re using some of the other senses, I think those are very valuable.

JP – I might be jumping around, but did we ask them to go on this initial walk, and then do it a month later...I realized that I wanted to discuss that a little bit. Part of it was a hypothesis in a sense, were they more alert and more aware as they went through some of these exercises? Do you think that they changed from the first time you walked compared to what they ended up doing during the final walk.

LC – I thought they were. I thought a lot of them heard a lot from the other kids, because after they had filled out their evaluation and everything we were talking about what had they seen, and when other people were saying, “Oh I saw this,” you would hear, “Oh, yeah!” and you could tell that they forgot to put it down. They actually had seen it but they just didn’t notice it. And I think that was one of the positives that I saw. They had to do like a finale to the All About Me, and a lot of them commented that now when they’re outside they really hear more things and pay attention to more things that they see out in nature. Which I thought was pretty insightful!

JP, KH – Yeah!

DS – The favorite one for my 3rd graders was the Natural Alphabets. They were looking so differently at things. They just really enjoyed it. Then they went back and drew pictures of where they saw things, and we took digital pictures too. That was one of my most enjoyable. Although New Perspectives was interesting. We took it a step further and they wrote a story. We worked on the word choice that they had used previously, with sense of sight and sense of smell, and then they typed them up. Those were marvelous. That was wonderful, when they thought like animals. I have a whole wall full of them and they’re just awesome.

KH – Also in terms of the selection of activities, I was curious whether they were able to fit into what you’re already doing with your curriculum. Were they things that you’re working on already with the students, or things that would help you meet some of the standards that you’re required to think about? Can you think of ways that the guide could better help you integrate it into your curriculum?

JH – I’m interested – when you said you put it into the “All About Me”...

LC – It was the unit we were going into, and you have to incorporate it somehow.

JH – That’s very creative, and it shows that it’s a component of most people that you don’t always recognize, giving them a chance to express that.

LC – It seemed to work out fine. Like I said, the kids really enjoyed it. And I actually was very unsure. I know that they liked the activities, and I kept thinking that if I’m doing a plant unit, some kind of science unit, there’s other places where I probably could fit it a little better. I’m thinking in the fall we do a survival unit, we certainly could incorporate some of the nature things with survival.

KK – But a lot of these things could hit – you’re saying the multiple intelligences: the introspective person. But yet the sharing time at the end gave those who were more of the extroverts a time to do that as well. But it also addressed that quiet soul that sometimes doesn’t get the time to do that.

LC – I would love to see if you could incorporate specific lessons into the 6 Traits writing, because I know that is something that we in Stevens Point are all geared toward right now. I know that we’re all looking for ways to incorporate very specific lessons for word choice or fluency...anything you could do in that direction would be very appreciated.

KH – I don’t know about that program. Is there an overview I could take a look at?

BW – Yeah, I have a couple things. [goes to get materials]

JH – Another way to really sell this program would be in the appendix to have the state standards to go with your lessons.

KH – This is a dilemma that I’m faced with: how do I make the guide useful to you here in Wisconsin but not compromise its usefulness if I want to have it be something people can use in other states or other settings?

KK – The 6 Traits is a national program, and then as far as standards go, I mean luckily we’re not to that point where everything we write down on lesson plans has to have that little hook on it, but some of those places, isn’t it whenever they write their lesson plans they also have to quote from standards? I mean, forget it! I retire. But that’s an expectation. If you have just a general listing in the back, with the national standards.

LC – If you have an appendix and list the standards – generally you can get at least 4 or 5 standards with one lesson.

JP – One approach might be just to build in the Wisconsin ones, and then indicate that other states have standards, and if you’re not interested don’t read that section but if you’re interested look at it as a model of what’s used here.
LC - Wisconsin tends to be the most stringent as far as the most standards... You'd be hitting science, language arts, for sure, social studies, and environmental education.

KH - I've definitely looked at some of those standards and kept them in mind in designing the activities, and I guess the question is how much to spell those out in the guide?

KK - And if it's just going to make it thicker, rather than...

BW - That's why I'm saying, is you don't have to put it right on the lesson, if you have an appendix, then people go, oh yes, this is already done...

KK - But when you're doing the LEAF lessons, that was nice to have that.

JH - It was.

MB - It's nice to have to just in case you have a parent that's questioning the new approach. It's always nice to have some verification that you can just show, look, these standards are being met.

KH - Maybe this is a good transition, as far as the guide getting thicker and thicker, would adding more activities to the final version - would that be something that would be useful or would that be overwhelming? And I know here at Jackson where you may want to be doing these throughout the grade levels, that probably is something that would be valuable to you, but if you think kind of on a general level too, do you think that would be overwhelming to someone who picked this up for the first time?

LC - No. I think more would be - because then you have options to pick from.

MB - You could take a look at something that you may be teaching, and - for us it's a little bit easier but for someone from a different school - kind of page through the activities and see where it could fit, if you had more to choose from.

KH - Good, that's kind of what I had in mind!

KK - You don't want it thick like our KEEP book!

3. What did you hope students would gain by participating in this unit? Do you feel these outcomes were promoted/achieved through the activities you did?

KH - I compiled some of the responses from the questionnaires that I've received already, and as you look over this list, does it pretty much cover what your goals are for the students, or can you think of other things that maybe should be included? I know what my goals were in writing the activities, but I want to know if your goals are similar to mine and if you think the outcomes were promoted by the activities and achieved.

MB - One thing that I wanted to see is students to have the opportunity to see different strengths that they might not always be able to see in math, the more set-up classes. This is a little bit of a different approach. They can identify different strengths that they didn't know that they had or that they enjoy and would like to use more often.

KH - And did you think that these activities did indeed bring out some of those strengths?

MB - Oh, yeah, I did.

KK - Especially when they could discuss afterwards. Some of the activities I did with different parts of my homeroom, and with the number in my classroom, I took in self-contained LD, I could incorporate in the discussion - yesterday I had just a really nice time with that Celebrations book, talking about the natural things that kids that maybe couldn't have written down what was going on, could enter into the discussion. They certainly participated in the walks or whatever. Even if they couldn't traditionally write down sentence structure, I would look at the fact that they could participate in sharing a piece of themselves. And the idea of journaling including not just written sentences.

JP - That reminds me a little bit of the art teacher that stopped in earlier [Janeen Kwarciany] - you're kind of saying that journaling goes beyond the written word, it's also the spoken word, and the artistic word - do you think that those other elements are emphasized adequately in this? Or are these different dimensions that we should strengthen within the whole introductory chapters and so on?

LC - I thought there was a wonderful variety.

[Chorus of agreement.]

LC - There were times when they were just listening, times when they were drawing, writing...

JP - So you thought it touched all those dimensions?

Several voices - Yes.

KH - Any other outcomes that you were hoping to address in doing these activities that aren't on this list?

BW - Kind of a global outcome we have in our building is just seeing the outdoors as another learning center - that they realize when they're outside it's another place to learn, that behaviors stay school-oriented, stay focused. Because we're an environmental education school, when we take them outside, we don't want them to think this is recess, I can visit. That, no, it's just like going from the classroom to the library, to the computer center, to the outdoor learning center - it's just another part of our learning environment at Jackson school - still a place we go to learn.

JP - Earlier in the discussion you indicated that these exercises helped them develop that sense. Is there anything in the makeup or vision of the material that we should do in revising to highlight that any further?

BW - I think the fact that the first walk we took, we hadn't focused them at all, that alone for a lot of kids made them realize when they went out without a specific purpose, without a focus, how much they missed, and that going outside and having a purpose makes them more directed in their learning. I feel that the more we get, the more they realize, we're going to go out and do something, there's a purpose behind this, we're going to accomplish something.
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KK – Or the fact that if I’m quiet, I might hear or I might see or I might not frighten something away – in my class, this is the first year that many of them could go hunting, some of them had those skills – knowing that they had to be quiet to have the chance of observing. But it is something that they had to practice, or realize that if they’re talking they’re not going to hear or see...

KH – It’s interesting that you pointed out the first activity as something that actually helped them realize the value of focusing, because that isn’t something that’s in the guide, that was just an assessment that we built into the pilot test. But do you think that that might actually be something that would be worth suggesting to people to do?

Chorus – Oh definitely.

BW – Because even when the students came back and shared, I felt like some of the kids almost felt left out that they hadn’t noticed things. They walked the same path, they saw the same things, they heard the same things, but they didn’t tuned it in. So I think it really helped them realize that I have these senses but I’m not using them.

JH – It could be a pretest for the whole program, just as it was information for you, but it would be part of an assessment for the program too.

LC – Now when you were looking at that, did you notice a lot of differences between the initial and the final?

KH – I only had the final from you and Jeanette, so I haven’t gotten the full spectrum yet, so I haven’t really analyzed it in a lot of detail yet...

JP – What about from your side? Could you look at your students and see a difference between the pre and the post?

LC – I thought that they had. When they went out that second time, they were set to look for things on their walk. They knew when they got back there was going to be something that they had to do. Oh yeah, they were much more aware. Because the first time, as you said, some of them felt left out – as people were talking about what they thought, it was like, “oh, yeah, that was there!”

KH – Those of you that have done both the pre and the post, did you find the same outcome as Lynn just expressed?

KK – I didn’t have the second drawing, but from the first walk to when we did the silent walk, where I just signaled to them – I told them ahead of time, you’re going to look at me, and I’m going to signal what it is you’re supposed to do with very minimal talking on my part, just their ability to focus on different things, the nonverbal communication, was quite different. That was one of the most fun things for me as well.

LC – And that silent walk turned out to be a disaster for me! I had a block student who was going to take half one way and I’d go the other. He got sick that day and went home, and to me it was just totally disappointing, because if I was in the beginning of the line the beginning of the line was quiet but that back, oh forget it! They were just out to lunch, having themselves a good old time! You can stop and blast them a few times, but you defeat the whole purpose.

KK – And then the mood is gone. I’m just thinking about that – part of my class was gone, so maybe the idea that I had 16 instead of 27, that they could take turns, just that quiet tap on the shoulder changing leaders, you wait and let the line go through you – little things like that were effective, were good because they bought into it.

KH – Do you think there is anything else besides a smaller group size that would help that activity go more smoothly?

LC – I liked the nonverbal cues – I thought that was a good idea.

KK – Using it as one of the later ones, when the expectations of the kids...

DS – In third grade you really had to model that before. We did a lot of modeling before we went out. The intern was doing it, and I think it could have probably been modeled a little more before, especially with younger students.

4. How would you describe student responses to the nature journaling unit?

- If you experienced resistance or reluctance in the beginning, what techniques did you use to engage students?
- If students were initially enthusiastic, did the activities reinforce their enthusiasm or diminish it?
- Were students willing to share their entries with one another or the class as a whole? Do you feel this was a valuable component?
- How well did the activities work with your grade level? Were some activities more appropriate for younger or older students?

KH – This builds on what we’ve talked about already, but I’m wondering whether students started out reluctant or resistant, whether they started out enthusiastic, and whether those responses changed over time in your perception?

DS – Third graders are excited about almost anything. They thought we were going outside and write and do it differently – they were excited no matter what I did!

JP – I wish I could say that about my university students!

DS – It’s very rare that you say you’re going out to do something that third graders aren’t already getting their coats on!

MB – I kind of created enthusiasm by making some really neat journals. I think that set the tone for it, and they had some ownership for their special journals, that that had them going that this could be different from the journaling we’ve done in the past. That started things up and they were excited about that.

KK – Now, did you ever take a larger group out than your 12?

DS – It might be cool if Mary and I would take them out sometime, to see how they mixed up, just for the comparison value. Because you have some amazing drawers and observers and thinkers.
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MB – I teach in a self-contained learning disabilities class, so the writing and reading component is difficult, but I have some amazing artists in my class and some very good thinkers and some children who are very much into nature. So this was nice, what I was saying about the strengths is that those things are so hard for them that we push every day.

KH – Were there other things that anyone did that helped to engage the students and bring them into the journaling?

KK – Sometimes working with 6th graders if the cool kid thought it was cool it would be okay. Who was in control. If you could get that kid to show the leadership, the others would follow. When I was looking at the voting, whether it was fun, okay, or not fun, when they would do their individual work or when I was seeing their interaction out there, versus when they got in the room and they would see, okay, how is so-and-so voting. It wasn’t a true picture, in my opinion.

DS – I think having their clipboards when we went out to write, and having their supplies in there, those cool clipboards that we have from Rubbermaid, made it awesome because that was motivating. They felt a lot of ownership with it.

LC – I laughed when you said how excited they were about doing the alphabet outside. My 6th graders absolutely loved that. We went out on the playground one day, and they were running up to me going, “Mrs. Crosby, she was finding the letters in the cracks in the pavement!”

DS – The pictures of it didn’t show, but a lot of them did their names. They really enjoyed doing their names.

5. Would you like to continue using nature journaling in your classroom?
   o If yes, why?
   o If no, what are the impediments?

KH – I suspect that I know the answer to number 6, but I would like to hear your comments on it. Do you plan to or would you like to continue using journaling in your classroom?

Chorus – Yes. Mmm-hmm.

KH – Wanting to and being able to are sometimes two different things. Are there impediments that you can see to bringing this into the curriculum throughout the year?

BW – I think as Deb pointed out, it’s very possible to take what you’ve started with as a nature journaling activity, and say, but I still need to cover this in 6 Traits, how can I combine the two. So I think this is great for what it does, but I think a lot of us will then expand to make sure we’re still meeting our needs.

MB – And that’s just a process of getting more familiar. Already the ideas are popping in, and the more you do it the more ideas pop in.

DS – I’m excited – I’m hoping I’ll teach third grade again next year, because I can see where you would expand and change things.

BW – This really addresses 7 more than 6, but last spring when we met at Boston School Forest and you introduced us to what you hoped to do, I know one of the concerns that I had was that when someone deals with people at a nature center or a camp, they can take any form of nature journaling and it’s a wonderful experience, but there were no standards, and we as educators may wish that this is all we had to do, but we’re held accountable for the writing part, so I believe that for students who are artistic, and struggle with the writing, that this is a wonderful thing. But it doesn’t remove us from the responsibility of still having to address the written component and I think that your finished product here – or your this phase product – allows us to do both. It allows us to celebrate the child who has the artistic ability, who sees things, hears things, observes things differently, and still say, and now that you’ve done that, let’s just branch off and do some writing. And maybe that child will write more enthusiastically because they were able to do this other part too. But that was my concern last spring, is that yes, I wish we could just go out and draw, or take pictures, whatever, but unfortunately we’re held accountable for standards.

KK – And that’s where I was getting nervous.

DS – Yeah, me too. And I was thinking about that, because I feel too that I have certain goals, and I feel sometimes like, oh, we’re not doing as much writing as I would like. But now, I can see where I can tie it in. This is just the beginning and it can embrace the writing later. And I thought because it was nature journaling, it could go during my journaling time, or language arts, but now that I’m familiar with it can go in other areas. But I didn’t know that before.

LC – And I think that every time those children enjoy the activity and they’ve really thrown themselves into the activity, it makes it easier for them to write.

Chorus – Mmm-hmm.

DS – And they build their vocabulary too. I think that’s what I noticed, especially being able to describe – their word choices.

JP – One of the challenges that I’ve heard you say, is the bounds by which standards force you down some of these avenues – I have to do these language arts things, and then I have to jump to science. The open-endedness is not just open-endedness, it’s clearly an interdisciplinary approach to learning, a thematic learning that combines all those skills of writing and observation and science. Is one of the impediments indeed just the way that education methodology sometimes forces you to cut this apart, and that you have to have the strength to see the bigger picture, that in the end you will cover all those things simultaneously in perhaps a more full and creative way? Am I right or way off?

BW – I think at the elementary level we’re fortunate because even though we have all of the different curricular areas, we can combine them thematically or however we choose to do it. Whereas at the junior high and high school, it is more specifically that this is language, this is science, this is math. But still we do need to look at designing our lessons...
so that, if we go out and do the nature walk, we don’t have a lot of extra time in a day or a week to say, that didn’t fit any of the areas we need to address. Unfortunately most of us feel like we have too many areas that we have to fit in, without any extra time. You get very protective of your time, and you either have to know that it’s going to be the springboard that leads to something very important, or that you really are addressing some of those areas while you’re doing the activity.

KK – Or one of my things is that I’ve got kids pulled in and out so often that there are days when I don’t even have my core base of students for even 10 minutes. Or to have them for 30 minutes two days in a row.

BW – So then you have to say, okay, this is my 30 minutes with the whole group. What am I going to do with it? But as you pointed out, you found that you were taking smaller groups and saying not everyone will do this nature walk, but this group will. And we have to sometimes be selective about that.

6. **Do you see opportunities to use nature journaling to enhance collaboration between nonformal environmental education centers and formal classrooms?**

   - How do the role(s) of nature journaling differ between these two settings?
   - Do you think the guide can effectively address both audiences?

KH – I think we’ve hit on already some of the differences in the roles between journaling in a formal classroom and a nonformal environmental education center, and the guide is designed to be useful to educators in both of those settings. Do you think that it can effectively address both of those audiences and fill those roles?

LC – Oh, yeah, I think it’s open ended enough.

KK - I would suspect that at a nature center or camp they wouldn’t come back and do a paragraph. There would be a lot of oral language but probably not a lot of written language.
Appendix X. Reviewer Questionnaire Responses

The Introductory Chapters

1. Overall, did you find the four introductory chapters:

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Please explain:
DK – Your language exudes passion. It’s welcoming and reassuring. If this book doesn’t encourage people to journal, I don’t know what will. It’s a wonderful invitation.
BK – I think these chapters are very helpful.

2. What is your impression of each of the following introductory chapters? Please note any additional information or modifications you recommend to improve them.

Chapter 1: What is Nature Journaling?

DK – 5 – This chapter is a thorough description of the many ways we can enter and move in the “journal journey” – walking, dancing, crawling, cartwheeling, rolling...
KD – 5 – Complete without being too lengthy.
PD – 5
DY – 5

Chapter 2: Nature Journaling Framework

DK – 5 – This is a creative yet serious way for those in formal educational settings to justify the importance of nature journals. Nice work!
KD – 4 – The only thing I can think of to add is some exploration of how nature journaling supports classroom curriculum.
PD – 5
DY – 5

Chapter 3: Facilitating Nature Journaling

DK – 5 – You provide firm and gentle suggestions that should keep “red correction pens” away. A good overview for fostering safety, respecting privacy, building comfort levels, cultivating enjoyment, and encouraging goal-setting to ensure success.
KD – You may want to point out that journaling shouldn’t become a chore or overly routine. The activities encourage variety as well as options to write and draw.
PD – 5
DY – 5

Chapter 4: Beginnings and Endings

DK – 5 – This chapter in particular shows you have a genuine understanding of and respect for the writing (or any creative) process. Your emphasis that “process” is different for everyone is important.
KD – You might include a thermometer and rain gauge on the supply list. Maybe a compass to determine direction for sun, wind, sounds, etc.
PD – 5
DY – 5

3. How well do you feel this introductory information would prepare an educator to effectively facilitate nature journaling?

DK – 5 – You set EVERYTHING out – in a clear, concise way.
KD – 5 – I think some more student samples as well as some of your own samples would be helpful as models for the teacher so they can “picture” the product.
PD – 5
DY – 5

The Nature Journaling Activities

4. How effective did you find the organization of the activities into the six section themes?

DK – 5 – A fine way that leads us deeper and deeper until we discover our places within the natural world. Beautifully done.
KD – 5 – Very logical and easy to refer back to.
PD – 5 – Need to reference activity sources? Refer to silent walk worksheet and treasure map cards in the activity.
DY – 5
BK – 4 – Some overlapped all.

5. How effective did you find the layout and information included in each activity description?

DK – 5 – A clear layout pattern that is sensitive to an educator’s prep time.
KD – 5 – In a nutshell cases you into the type of activity. All are concise – one page – here we go...
PD – 5
DY – 5 – include the appropriate academic standards with each activity

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Appendix X. Reviewer Questionnaire Responses

6. Which activities do you feel are most effective? Why?
   BK - 4 - Emphasize doing activities in the outdoors
   DK - A nice variety – the more that can be used (within the set time frame) the better.
   KD - I didn't actually teach these & I think you will get good feedback on 6 & 7 from your pilot group
   PD - Place Descriptions, Field Guides -> more depth in them
   BK - Biophilia and Reflection sections – the big picture activities that get kids thinking about the connections. Also liked the partner
drawing – good way to really learn?observation? etc. I Wonder – good to weave throughout.

7. Which activities do you feel are least effective? Why?
   BK - Some that were really focused on a few objects and could be done solely indoors. Hard for kids to “connect”
   PD - Place Descriptions, Field Guides -> more depth in them
   BK - Biophilia and Reflection sections – the big picture activities that get kids thinking about the connections. Also liked the partner
drawing – good way to really learn?observation? etc. I Wonder – good to weave throughout.

8. The final guide will contain several more activities in each of the six sections. Do you have suggestions for
   additional activities to include (either specific activities or areas to address)?
   DK - Great! Keep going – you’re doing fine!
   KD - There is always so much more. Are you planning Volume 2?
   PD - Share a legend and then involve students in writing them; web-based journals (EEK website or others where you can type in
   your seasonal sightings or journal entries?; history-related ties to special places; could they write lyrics to a song?; spirit trail idea (ask
   me); change over time.
   BK - hmm...again, focus on big pictures, connections

9. How well do you feel the activity descriptions would prepare an educator to lead the activities?
   BK - 5 - I like how they are concise
   DK - 5 - This entire book takes the educator by the hand – leads her, shows her step by step. Clear, logical, easy to use.
   KD - 5 - A lot of these are activities I’m familiar with – so it seems straightforward – I don’t see any directions you’ve omitted.
   PD - 5
   DY - 5
   BK - 5 - I like how they are concise

10. How well do you feel the selection of activities accommodates a full range of different learning
   styles/multiple intelligences?
   BK - 4
   KD - 5
   PD - 4
   DY - 5 - Would it be possible to include the MI addressed with each activity?

11. How well do you feel the selection of activities addresses a variety of subject areas?
   BK - 4
   KD - 3 - It really is focused on language arts, and EE. Some science skills apply. One can argue that these journaling skills will help
   students' growth in other subject areas.
   PD - 4
   DY - 5

12. What do you see as the biggest strengths of nature journaling as a teaching method? How could the guide
    make better use of these?
    BK - The guide gets kids interested and educators interested - variety of activities should intrigue most kids
    KD - Developing writing skills, skills of observation, sensitivity to nature. Better use – encourage journaling on lifestyle issues and
    other environmental concerns. Integrate other subject areas.
    PD - Individually appropriate – maybe option for open journaling or creative journaling where student makes it what
    s/he wants during the activity
    DY - Integration of various subject areas – addressing academic standards – gets students outdoors!

13. What kinds of challenges do you think nature journaling poses? How could the guide better equip
    educators to surmount them?
    BK - Need to mention grade levels
    KD - See #16
    PD - Teacher assessment/control over situations when kids lack individual motivation
    DY - Teachers feeling comfortable doing journaling
Appendix X. Reviewer Questionnaire Responses

Overall Impressions

14. What is your overall impression of this draft of the nature journaling guide?
DK – 5 – Refer to comment #1
KD – 5 – I would enjoy teaching from the guide as much as children would enjoy doing the activities.
PD – 5 – Most activities seem to be written more for 4th grade. Any 8th grade extensions? Distinguish between 4th and 8th?
DY – 5
BK – 4.5 – very impressed!

15. Additional comments or suggestions.
DK – Kate, It’s been a privilege to witness the birthing process of this important work. I admire and appreciate all the time, effort, and knowledge you put into this. From gathering quotes, listing resources, giving pilot tests, to combining it all together and using wonderful language and drawings to share the whole. Thank you.
KD – I think the hard part for formal educators will be feeling comfortable with the idea of teaching journaling. We need to get the message out that nature journaling can be a more motivating way to introduce and keep children in the habit of writing. Teachers know why journaling is important but it gets pushed aside often because of schedules and “The Curriculum”
KD – The activities in your guide are great – but be sure that they are not the only journaling options. You may want to suggest “freewriting” journaling time once they have completed some of these and students have models to follow and know the expectations (rules) for outdoor journaling time.
KD – Wishing you much success. You have a wonderful product!
PD – Will you number the activities? More on assessment section? Rubric?
PD – Your intro page 2 was exceptional! (love how celebrations come into the picture)
PD – p.5 About John Muir – I thought that he didn’t really like to write and though there are some famous quotes/ written works by him, it was not something that came natural to him!? (would kids benefit from knowing this?) John Burroughs, on the other hand, kept a journal for decades and wrote with an outpouring of his heart/emotions. His journals are in the American Museum of Natural History. (some kids might find this cool to know that journals may be seen as “this” important) He is perhaps one of the most famous natural writer/journal keepers in modern history.
PD – the quadrant show in pictorial is SO nature-y rather than inclusive of explorers and artists (Lewis and Clark)
PD – p.5-6 – Writing the future – As you share “native” perspectives, can you represent more diversity? Even cave drawings were journals of sorts – other people had verbal “journals” in talking circles before written words. It seems slanted toward only Native American spiritual connections as “the answer” to our envl crisis
PD – p.8 – nonformal – are you trying to say that kids should be prepped/familiar with journaling before trying to incorporate it into the nonformal setting? (lines 10+)
PD – p.9, 12 – Naturalist skills vs outlook (I like this!) – consistency?
PD – p.23 – what a great idea to start with a class journal!
PD – p.25 – I have a recipe for an oriental journal we made in Girl Scouts
PD – p.26 class publication – on school website?
PD – Drawing on front cover – will any kids misunderstand safety issue of eating wild edibles?
PD – You’ve done a superb job writing, designing an experience. I’m SO excited about your project!
BK – Overall guide is fantastic! See comments throughout.

16. The following six characteristics are drawn from the North American Association for Environmental Education’s “Guidelines for Excellence” in environmental education materials. Now that you have reviewed the guide in some depth and formed an impression of it as a whole, please rank it according to each of the characteristics below (there is no need to review the materials further to answer these questions).

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PD - Can we build more connections in applying skills to environmental issues?
PD - consequences, more "empowerment" activities?
Appendix Y. The Nature Journaling Guide
Nature Journaling

A Creative Path To Environmental Literacy

A Guide for Grades 4 - 8

Kate Hofmann
Nature Journaling
A Creative Path To Environmental Literacy

A Guide for Sinking Roots in Place and Branching Out Toward Environmental Literacy in Grades 4 - 8

Kate Hofmann
Nature Journaling: A Creative Path to Environmental Literacy

2004

Text and illustrations by Kate Hofmann
Photos on pages vi, 3, 5, 8, 16, 19, 21, 44, 75 by Dennis H. Yockers
Additional drawings by Stevens Point area students

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Finally, I would like to thank all those who have inspired and encouraged me on my own journal-keeping journey, a lifelong process that neither begins nor ends with this project. With your guidance I have opened my eyes to the wonder of this world, sunk roots in my chosen places, and found my own voice. The best way I know to express my gratitude is to share the gift with others.
Introduction

Nature journaling is a path that leads from active exploration of the natural environment into reflection and creative self-expression. There are many ways you and your students can travel this path. A nature journal might include anything from writing and drawing to a photo gallery, an audio or video recording, or even a sculpture, a collage, or a sentence written in the sand. First and foremost, a nature journal is an opportunity for exploration, discovery, and a positive experience in local nature. A journal helps students open their eyes to the world around them and sink roots in their places. It invites them to contemplate the interconnections between themselves, their place, and the other inhabitants of that place: animals and plants; rocks, rivers, and lakes; earth and sky.

This guide will show you how to use nature journaling to spark students’ curiosity, foster awareness and sensitivity to their surroundings, and develop an empathetic relationship with a place and the other species that inhabit it. The activities in the guide are designed for accessible, everyday settings – the schoolyard, a neighborhood park, the trails of a local nature center. They are intended to engage students with a wide variety of interests and ability levels. Though ultimately a nature journal should be an individualized and creative endeavor, many students will need some guidance to get started. These activities serve as bridges that begin with active but structured exploration of the outdoor environment and gradually cross over into more open-ended reflection and self-expression.

You need not be an “expert” journal-keeper or naturalist to facilitate nature journaling. You will draw students in with your enthusiasm for the process and inspire them with a range of possibilities. By keeping a journal yourself and making discoveries alongside your students, you will demonstrate the value of the process and at the same time reap the benefits yourself.
Nature journaling fosters a naturalist’s outlook on the world: an intellectual understanding of the environment and an emotional connection with a particular place. We live in a world where intimate knowledge of our places is rapidly disappearing, a phenomenon that may be both cause and effect of the overwhelmingly vast environmental problems that surround us. Beginning a nature journal is one way to counteract this trend. A nature journal is an act of hope. Every page is a joyful and creative celebration of what makes our places unique and worth protecting.

Nature journaling is more than just a means to achieve environmental awareness and knowledge. It has a valuable place in education as a whole, where it can help you achieve basic educational goals and address academic standards. Naturalists are curious observers. They ask questions. They seek out answers. They are generalists who consider the world from scientific, literary, artistic, historical, social, and cultural perspectives. Each of these skills is important for lifelong learning and informed decision-making.

Keeping a nature journal is an endeavor that helps students process and remember information more effectively, communicate effectively, build their capacity for critical and creative thinking, and reflect on the learning process. It provides opportunities to express themselves in ways they enjoy, and at the same time encourages them to stretch their skills as they experiment with new techniques. As you begin a nature journaling project, you and your students will consider the world around you from different perspectives, clarify your values, and develop a stronger personal voice – all essential stepping stones on the path toward becoming environmentally literate, effective, and enthusiastic citizens in your community.
How To Use This Guide

This guide is designed primarily for formal classroom teachers and nonformal educators who teach school groups in settings such as nature centers. It could be used equally successfully by others who work with youth: parents, scout masters, youth group leaders, camp directors. The activities have been field-tested with students in grades four through eight and are written with this age range in mind, although many could easily be modified for other audiences.

Whether you are an avid journal-keeper or an accomplished journal-avoider, whether you’ve been using nature journaling with students for years or had never heard of it before picking up this guide, you will find something here for you. You may want to read the guide straight through, or you may prefer to delve into the particular sections that seem most relevant to you. To help you navigate, here is an overview of the major sections:

1. A Niche for Nature Journaling. Provides you with a definition of nature journaling, historical and contemporary contexts for nature journals, and a description of the niche of nature journaling in a variety of educational settings.

2. The Outcomes of Nature Journaling. Places nature journaling into a context of educational aims and goals. Using the framework, you can prioritize activities and determine which elements to emphasize in order to meet your needs.

3. Facilitating Nature Journaling. Discusses the practical aspects of facilitating nature journaling, such as creating a positive atmosphere, setting students up to succeed, assessing their progress, and integrating journaling into the curriculum.

4. Beginnings and Endings. Addresses techniques for two important aspects of a successful nature journaling project: introducing journaling to students and concluding the experience.

5. Nature Journaling Activities. The activities are arranged into six themes, each of which offers a different lens through which students explore their world and develop a naturalist outlook:
   - Sensory Awareness ~ Opening Your Eyes
   - Curiosity and Wonder ~ Looking With New Eyes
   - Observation Skills ~ Zooming In
   - A Place in Space and Time ~ Zooming Out
   - Biophilia ~ Looking Through Other Eyes
   - Reflections ~ Looking Within

6. Bibliography. More useful nature journaling resources to provide you with additional information, ideas, and examples.

7. Appendices. Information on a variety of practical considerations: correlations with subject areas, multiple intelligences, and academic standards, ideas for assessment.
1. A Niche for Nature Journaling

Nature journals are a way to open your eyes and view the world in new ways. This chapter describes nature journaling’s niche in education, and its role in the past, present, and future.

What is a Nature Journal?

A nature journal is a record of natural observations and experiences. Like other journals, it is a net to sift through the many events of your life and capture the ones that are most significant to you. What makes a nature journal unique is that the place where you experience those events plays a central role. There is a deeper awareness of the setting, seasons, and other species. The subject is not just you, the observer, but also the world you observe. A nature journal is:

- An explorer’s log of adventures and discoveries.
- A field guide to the natural history of your place.
- A calendar where you keep track of phenology – the events that mark the changing seasons.
- A map of your reflections about the interconnections between you and your place.

A Set of Lenses to View the World

A nature journal is a tool. Think of it as a set of lenses through which you explore your place. One lens helps you open your eyes to the world around you, showing you familiar things in new ways. Others are for zooming in and looking closer...for zooming out to see how things are connected in the bigger picture...for imagining what the world looks like from the unique perspective of the other things that share your place...and for looking within to reflect on what your observations mean in the context of your own life. Keeping a nature journal is a process of discovery. As you look through each lens in turn and your perceptions expand, so does your curiosity, your awareness, your knowledge, and your appreciation of your surroundings.

I don't want to miss spring this year. I want to be there on the spot the moment the grass turns green. I always miss this radical revolution; I see it the next day from a window...This year I want to stick a net into time and say 'now' as men plant flags on the ice and snow and say, 'here'.

- Annie Dillard -

Pilgrim at Tinker Creek

A Snapshot in Time

No matter which lens you use, a journal entry is a snapshot of one particular moment in time. When you distill an experience down to its essence and capture it between the pages of a journal, it remains fresh and vivid even years later. You have claimed that moment. You have planted a flag. You can return and relive it anytime you wish.

A Flexible Medium

The more broadly you define nature journaling, the more options it offers and the greater its potential to engage many different types of learners. A nature journal can include everything from personal narrative to detailed scientific observations to poetry, sprinkled with sketches, pressed plants, leaf rubbings, photographs, and maps.
A nature journal need not even be a book at all. It could be an audio or video recording, a collage or sculpture, or a sentence written in the sand that communicates the importance of a place. In essence, a nature journal can be anything that helps you observe the world around you, reflect on your relationship with it, and express your thoughts creatively. Regardless of the form you choose, a nature journal is an excellent strategy for developing a naturalist's outlook on the world. Being a naturalist is not a profession so much as a perspective; it includes both an intellectual understanding of the environment and an emotional connection with it.

Nature Journals and Environmental Awareness

The ultimate goal of environmental education is to help children (and adults) grow into responsible citizens who are knowledgeable and skilled and motivated to work toward a quality environment. Although action is the desired outcome, environmental literacy begins with awareness. A nature journal is an excellent tool to open students' eyes and help them discover what is worth celebrating in their local environment.

Awareness Before Action

In 1962, Rachel Carson awakened the nation's environmental consciousness with the publication of *Silent Spring*. An accomplished biologist, facts were the foundation of her field and the tool she used to convince readers of the dangers of toxic chemicals in our environment. Yet she was also an eloquent writer and a strong advocate for the importance of an emotional connection with nature. In *The Sense of Wonder*, she wrote: "I sincerely believe that for the child...it is not half so important to know as to feel. If facts are the seeds that later produce knowledge and wisdom, then the emotions and the impressions of the senses are the fertile soil in which the seeds must grow." Rachel Carson's words resonate even more profoundly today. As educators seeking to develop students' sensitivity to the environment, perhaps the most important thing we can do is to help them form a positive, emotional connection with their surroundings. If we begin instead with a survey of the world's many environmental problems, those seeds of knowledge and wisdom may never germinate. Instead, we may be sowing other seeds. Educator David Sobel coined the term *ecophobia* to describe the fear and dissociation from nature that results from too much emphasis on bad news. He suggests a beautifully simple alternative in *Beyond Ecophobia*: "If we want children to flourish, to become truly empowered, then let us allow them to love the earth before we ask them to save it."

Environmental Sensitivity

Researchers call awareness and empathy with the natural world *environmental sensitivity*, and they link it to spending time outdoors regularly in childhood, both with positive role models and in solitude. They have found it to be an essential stepping stone on the path to environmental literacy, a universal characteristic of those who are committed to taking action for a quality environment. Because it depends on unstructured outdoor experiences and time alone in nature, environmental sensitivity can be difficult to address in formal educational settings. However, a growing number today's children lack opportunities for these experiences outside of school. If we are to reach them, it is essential to find ways to make environmental sensitivity a priority in the school setting. This is where nature journaling is truly exciting. Not only does it meet the criteria for developing environmental sensitivity, it is also eminently
The development of an ecologically literate citizenry may be linked to regular, unstructured experiences in wild places (both urban and rural), much as the development of reading skills depends upon contact with books and adults who read them.

- Gregory Smith -
"Coming Home"

Nature Journals and Educational Outcomes

Nature journaling can further many educational goals. The processes of observing, reflecting, writing, and drawing help students develop basic literacy skills, critical and creative thinking abilities, and the capacity for effective communication and creative self-expression. Because nature journaling is a flexible medium, it can be used at all levels, from emergent writers to accomplished authors, from students with learning disabilities to those with exceptional talents. Furthermore, it can highlight each student’s unique gifts, fostering both self-confidence and appreciation for the accomplishments of classmates.

The Value of Writing and Drawing

Writing is a powerful tool for learning, according to many researchers and educators. The writing process is more than simply a way to express what we already know; it actually helps us discover or create new meaning out of ideas and experiences. When we put words on paper, we capture and clarify our thoughts. Karen Bromley, author of Journaling: Engagements in Reading, Thinking, and Writing, explains, “Journals provide students with records of their own thoughts, ideas, and observations, and so invite them to reread, revisit, and perhaps revise past thoughts.” Journals encourage expressive, speculative, and unstructured writing – the kind of writing closest to thinking. The process of making a journal entry is often more important than the product, and the audience is primarily the writer him- or herself. In contrast, much of the writing done in school is directed toward a teacher or a generic reader, and students do not experience the many benefits of writing as an opportunity to explore and clarify personal meaning. Nature journaling is an excellent opportunity to incorporate more expressive writing in school, and thus help students engage more fully in writing as a process for learning.

Drawing, too, is a powerful tool for learning. Translating an observed object into an image on paper requires close observation and great attention to detail. Clare Walker Leslie and Charles Roth explain in Keeping a Nature Journal, “Drawing helps you observe. It demands that you, the observer, focus intently on the relationships.” Here, too, the process is more important than the product. We teach writing not to turn every student into a poet or an author, but to encourage deeper thinking. Likewise, drawing encourages deeper seeing; it enriches our experience of the wonder and beauty of the natural world whether or not we are gifted artists.
Active, Place-Based Learning

Regular entries in a journal encourage students to ask their own questions and be fully engaged in finding the answers. Students are often passive participants in their education. Information is delivered to them through lectures, textbooks, videos, and computers. Journaling provides both the time and the structure for reflection, and requires students to take an active role in constructing their own meaning from experiences. The outdoor environment is an authentic and relevant setting for learning, and through their interaction with that setting, students strengthen their observation skills, gain hands-on experience with the world around them, and clarify their own values and beliefs.

Furthermore, nature journaling is a strategy to restore the value of local and personal forms of knowledge. Intimate awareness of our places is dwindling, and schools tend to reinforce this trend by placing authority with general and impersonal sources of information, separating students from the knowledge that is particular to their place. In a book titled *Place-Based Education*, David Sobel accuses the American educational landscape of paralleling the landscape of urban sprawl. Textbooks, he says, are generic and identical from one coast to the other, providing “the same homogenized, un-nutritious diet as all those fast-food places on the strip.” Most schools could be anywhere or nowhere. Activities that focus on the local landscape and the local community counteract this pattern, helping students rediscover the value of the land around them and their own knowledge and experiences. Place-based education is gaining momentum across the country, and nature journaling is an excellent way to join its many proponents.

Almost everyone who cares deeply about the outdoors can identify a particular place where contact occurred... Often the place that makes a difference is unspectacular: a vacant lot, a scruffy patch of woods, a weedy field, a stream, a green ravine, or a ditch.

- Robert Michael Pyle -
*The Thunder Tree*

A sense of place is central to the naturalist’s outlook on the world. Cultivating a sense of place is a conscious decision to rediscover and rehabit a home ground. Nature journals can help students develop a commitment to their place that can only be acquired through direct contact with it. As they become familiar with their place, they become a part of it, a participant in the community rather than just a passive observer of it.

Interdisciplinary Connections

Education is often fragmented into discrete disciplines that de-emphasize connections between subject areas. In contrast, an interdisciplinary approach creates real, relevant learning experiences that help students understand the complexity of the world we inhabit. Nature journaling fits well in an integrated learning environment, by encouraging students to consider their world from a variety of perspectives. It breaks down dichotomies between science and art, knowledge and emotion. It helps environmental education make the leap from science to other areas of the curriculum such as language arts, visual arts, and social studies. These other disciplines offer valuable perspectives that science alone cannot provide. “Science can’t give us a reason to appreciate the sunset, or any purely objective reason to value life – these values must come from another source,” declares David Orr in *Earth in Mind*.

There are many inherent connections to explore among the disciplines. Both scientists and artists make use of curiosity, inquiry, and the patterns of nature. Furthermore, the arts teach
divergent thinking, encouraging students to come up with creative new ideas rather than converge on a single “right” answer. Innovation is essential for solving complex environmental problems, and it requires scientific knowledge combined with an active imagination. This generalist perspective is another key characteristic of the naturalist, and nature journals can help students begin to see and appreciate the valuable contributions of diverse perspectives on the environment. Nature journaling reinforces intellectual understanding of the environment by helping students learn to identify different species and see ecological processes at work. This is vital if we as a species are to recognize changes and problems in our environment. At the same time, nature journaling also encourages students to form an emotional attachment to places and other species, an attitude that kindles a desire to act on their understanding.

Nature Journaling in Educational Settings

The valuable outcomes that nature journaling promotes clearly justify its use in education. But how do you incorporate it into an already busy schedule? With a bit of tailoring, nature journaling can successfully fit a variety of educational settings.

Nature Journaling in the Formal Classroom

Nature journaling has a distinct niche in the formal classroom. It can be done right on your school grounds; it does not require a spectacular landscape to be effective. With guidance, students can find plenty of inspiration in the schoolyard. The weeds in the sidewalk cracks, the clouds in the sky, and the view out the window all offer inspiration. If you are lucky enough to have a nearby park, field, pond, or wooded area, by all means use it. But if you do not, it need not stop you! Over time, the observations you make with your journals may even help your class discover opportunities to enhance the beauty, quality, and learning potential of your immediate neighborhood. You could create wildlife habitat with birdfeeders, birdhouses, and butterfly gardens; reduce runoff and erosion by planting trees or restoring a wetland area; set up a weather station with a rain gauge and wind vane; or improve possibilities for recreation and inspiration by building a nature trail or planting a flower or vegetable garden.

Nature journaling doesn’t have to be one more “extra” to fit into your day. It meshes beautifully with, and enhances the study of, almost any discipline. Besides science and language arts, it can be integrated into the visual arts, math, geography, history...even music and physical education. See Appendix A for subject area correlations for specific activities. Look for ways to use journaling to accomplish goals and address academic standards that are already part of your curriculum, instead of trying to find room to squeeze it into an already tight schedule. The biggest initial challenge with nature journaling in the formal classroom is making a place for it. Once you come to value it and commit to making it a priority, you will find your own creative ways to incorporate it into the school day.
Nature Journaling in Nonformal Settings
Journaling can be used equally effectively in nonformal educational settings. At nature centers and other sites where school groups visit for a few hours to a few days, the time is often scheduled down to the minute. Though students spend time in an inspiring natural setting, they rarely have time to fully absorb their surroundings without the constant stimulation of group activity. Nature journaling offers students a chance to slow down, observe carefully, make connections to previous experiences and knowledge, and reflect on the personal relevance and deeper significance of a field trip experience.

You could devote part of the daily schedule to a nature journaling lesson composed of a series of activities. Alternatively, you could integrate nature journaling into existing programs, as an introductory activity to help engage students in the topic, or as a conclusion that will help them process their new knowledge. A challenge in nonformal settings is the fact that journaling tends to become more and more effective as students develop familiarity with the process. If students spend only a short time at your facility, you won’t have time to slowly build skills and comfort levels, and you often won’t know how much experience students have with journaling before they arrive. But if you are sensitive to their needs and flexible enough to adapt to the situation at hand, you can strike an effective balance between active exploration, reflection, and creative self-expression.

Collaboration Between Formal and Nonformal Settings
Nature journaling offers excellent opportunities for collaboration between formal and nonformal educational settings. If you are a classroom teacher taking students on a field trip, you might have them write about their expectations for the trip or list questions to which they hope to find answers. You could use some of the activities in this guide to explore the schoolyard before the trip, and then have students bring their journals along and draw comparisons between the field trip destination and what they observed at school. When you return to school, have students reflect on the experience and perhaps expand some of the notes they jotted down outdoors into a polished poem, prose piece, or art project. In turn, nonformal educators can have students journal on site, and then provide teachers with suggestions for continuing to use journals back in the classroom to further reflect on the experience.

The Past, Present, and Future of Nature Journals
You and your students will be in good company as keepers of nature journals. Nature journaling has a long history that continues to this day. In Chapter Four you will find brief sketches of the lives and work of journal-keepers of the past and present. Exploring their stories with students is an excellent way to introduce students to the value of journaling. They will see the importance of recording information in a journal for a wide range of professions, from writers to scientists to explorers to artists. Delve deeper into some of the other resources listed in the bibliography, and be assured that you are building your efforts on the sturdy foundation of a well-established tradition!
A Historical Context for Nature Journaling
The first nature journals were written on the walls of caves and cliffs around the world. The cave paintings and petroglyphs of our earliest ancestors depict the animals of their time and the events of their lives, giving us a rare glimpse of a long-ago world.

In more recent centuries, scientists, explorers, writers, artists, and naturalists have all used journals to help them keep track of their observations and discoveries. Renowned journal-keepers in recent history include Charles Darwin, Meriwether Lewis and William Clark, Henry David Thoreau, John Burroughs, John Muir, Aldo Leopold, and Rachel Carson (see pages 23-25). They all used nature journals to help them accomplish the things for which we remember them today. Their gifts as both observant scientists and eloquent writers shine through in their journals. They exemplify the naturalist’s broad outlook as they contemplate our place in the environment and reveal a larger ecological picture.

Today's Nature Journalists
Contemporary scientists, natural history writers, and artists continue to find nature journals enjoyable and useful. Many writers use journals as a first step on the path to a polished piece of work. For instance, most of Edward Abbey’s Desert Solitaire came out of the pages of the journal he kept as a park ranger at Arches National Monument.

For others, the journal is an end in itself. Clare Walker Leslie and Hannah Hinchman are avid journal-keepers whose extensive volumes are filled with artistic renderings of the natural world. Both emphasize the value of the journaling process in coming to understand a place more deeply. In A Trail Through Leaves, Hinchman also suggests that a journal is a valuable tool for better understanding yourself. She writes, “When I began my first journal, I meant it to be a volume of woods lore... Before I closed the covers on Volume One, I had discovered that the journal was my most powerful ally in crafting the kind of life I wanted. I was building a scaffolding of choices and attitudes, forging affinities, discovering what colors, places, times of the day I could truly call ‘mine.’”

There are countless citizens in every community who enjoy keeping a journal. They, too, can offer valuable insights on the process and the product, and even more importantly, they provide an authentic and local perspective. In addition to exploring the works of published authors, consider seeking out dedicated and enthusiastic journal-keepers in your own place and inviting them to share their experiences with students.
Writing the Future

All the benefits that nature journalists of the past and present enjoyed can be experienced by those who begin a journal today. But the role of the nature journal in the future may be even more critically important. We are facing a worldwide environmental crisis. Many native cultures that lived sustainably in their homelands for centuries were guided by a worldview that was firmly rooted in local nature. People felt a deep responsibility for the world around them and viewed the animals, plants, rocks, water, and earth of their homes as sacred. Our increasingly global society lacks this sense of the sacredness and interdependence of creation; we have no story to tell us how to live in balance with our world. Nature journaling is one way to begin rewriting that story.

It's all a question of story. We are in trouble just now because we do not have a good story. We are in between stories. The old story, the account of how we fit into it, is no longer effective. Yet we have not learned the new story.

- Thomas Berry -
The Dream of the Earth

A nature journal is a story about a particular place and a journal-keeper's own explorations and perceptions of it. Every page, every word and image that you and your students choose to include says something about your relationship with your place. Nature journaling sends you on a quest for meaning in the fertile boundary where science meets the arts, and it helps you create a personal map through the territory that brings the meaning into sharper focus. You draw connections between yourselves and everything around you. You examine your thoughts and feelings and values, and you develop ways to express yourselves clearly and effectively in your own voices. You struggle to define your role in the world. Perhaps you find that a measure of responsibility comes with that role.

The words journal and journey come from the same root. If a nature journal can start us off on a journey toward creating a new worldview – one that restores the sacredness of creation and helps us live more harmoniously with the natural world, other species, and present and future generations of the human community – then perhaps this is some of the most important work we can do.
2. The Outcomes of Nature Journaling

The nature journaling activities in this guide seek to promote three broad aims, listed below along with more specific goals that contribute to achieving them. On the following pages, the aims and goals are illustrated in a model that reveals further interconnections between them.

AIMS

1. **Environmental Sensitivity.** Students develop their sensitivity to the environment through sustained contact with the outdoors, solitude in nature, and positive role models.

2. **Naturalist Outlook.** Students explore the local surroundings as naturalists, strengthening both their intellectual understanding of the environment and their emotional connection with their place.

3. **Self-Identity.** Students engage in writing, art, and other expressive activities that encourage critical thinking, creative self-expression, and values clarification, leading to a deeper sense of self-identity and a stronger personal voice.

GOALS

A nature journal is a lens through which we view the world around us. Changing lenses reveals different aspects of our environment and develops different skills. The activities in the guide are arranged into six sections, each one a lens that offers a different perspective on the natural world. The goal of each section reflects the perspective it promotes.

**Sensory Awareness: Opening Your Eyes**
Students explore the natural world through each of their senses. They develop a keen sensory awareness of their environment and perceive its details more clearly.

**Curiosity and Wonder: Looking With New Eyes**
Students look at aspects of the world in new ways, in a spirit of discovery. They find an appreciation for the beauty and intricacy of nature and awaken their curiosity to learn more.

**Observation Skills: Zooming In**
Students sharpen their skills of observation, zooming in on details, patterns, cycles, and changes in the environment. They come to recognize the biodiversity and ecological processes at work all around them.

**A Place in Space and Time: Zooming Out**
Students consider the unique features of their place through different spatial and temporal scales, zooming out to view it in a broader historical and regional (even global) context. They feel a sense of place: connection with and care for the place where they live.

**Biophilia: Looking Through Other Eyes**
Students learn to recognize other species that share their place, investigating their lives and imagining the world from their unique perspectives. They experience a feeling of empathy toward other living things and understand that their own lives are enriched by biodiversity.

**Reflections: Looking Within**
Students engage in an internal dialogue in which they consider and clarify their own thoughts and feelings about their place in the natural world. They develop strong critical and creative thinking skills, a deeper awareness of their own values, and a personal voice in which to express their views.
THE NATURE JOURNALING TREE

Nature journaling is a process that helps students sink roots in their local environment. As new skills and attitudes grow out of these roots, nature journaling becomes a tool for branching out toward greater environmental literacy. The nature journaling tree places the aims and goals of the guide into a framework based on this metaphor.

SOIL
Preparing fertile soil is the essential first step for successfully introducing students to nature journaling. Students need a safe and respectful atmosphere where they feel comfortable exploring, expressing, and sharing their views. They also need a balance between guidance and freedom. Within the structure of clear expectations, each student should be encouraged to be creative and explore his or her own unique style.

SEEDS
When the soil is prepared, you can add the seeds. These are the inspiration that draws students into a nature journaling project and stimulates their interest and creativity. You can plant these seeds by exploring the lives of renowned naturalists and journal-keepers of the past and present, showing students examples of the work of these and other nature journalists (including other students), and modeling the journaling process for students.

ROOTS
Nature journaling helps establish the roots of environmental literacy. Keeping a journal is a way for students to gain awareness and knowledge about the natural world and skills for becoming responsible citizens in their home places. The roots of the tree are the inherent opportunities provided by nature journaling: sensory awareness, curiosity and wonder, close observation, explorations of place, encounters with other species, and self-reflection. These roots are the goals of the guide and also the sections into which the activities are arranged. All these components should be part of a nature journaling experience, as each one is a different lens that, together with the others, helps students construct a complete picture of their place and their own relationship with it.

TRUNK
The processes employed in nature journaling form the trunk of the tree. These are the means through which the opportunities at the roots grow into new skills and attitudes. Positive experiences in the outdoors are essential. Regular contact with local natural surroundings, including experiences of solitude, fosters environmental awareness and knowledge. The processes of writing and drawing are not just a form of communication but a powerful way to create meaning from experiences. Translating observations and ideas into words or images leads students to ask deeper questions about aspects of their world, think critically about ideas, come to understand them on deeper levels, and store newfound knowledge in long-term memory.
**BRANCHES**
The solid base formed by the roots and trunk of the tree help students branch out toward greater environmental literacy. The three main branches on the tree represent the guide’s three broad aims. The leaves on those branches are the skills and attitudes that support each of the aims.

**Environmental Sensitivity.** Childhood experiences in the outdoors – particularly those that involve solitude and positive role models – are the most important factor in developing environmental sensitivity, a key prerequisite to environmentally responsible behavior. Nature journaling promotes the following characteristics of environmentally sensitive citizens:

- **Keen senses.** Students become more perceptive and observant, an important skill for identifying patterns and changes in the world around them.

- **Appreciation and enjoyment** of natural settings. Students explore with a sense of wonder, developing a stronger appreciation for the beauty and complexity of the natural world. They feel comfortable spending time outdoors alone and with others.

- **An empathetic perspective** toward the environment. Students develop a connection with places and other living things that compels them to work toward preserving or restoring biodiversity and environmental quality.

**Naturalist Outlook.** Being a naturalist is less an occupation than an outlook on the world, one that includes both an emotional connection with nature and an intellectual understanding of the environment. Nature journaling promotes the following aspects of a naturalist outlook:

- **Sense of place** is a deep awareness of one’s home place, and a conscious decision to identify with it and take responsibility for the quality of life there. Choosing to value the local is a key factor in creating healthy, vibrant, living communities, and also an important step in recognizing relationships between other places and one’s own.

- **Knowledge of species and ecology.** Contact with the natural world enhances students’ skill in identifying other species and recognizing ecological principles at work.

- **An interdisciplinary view** of the environment. Nature journaling invites students to explore nature from many angles: science, math, literature, history, art, music. This “big picture” perspective is essential for devising solutions to complex environmental problems.

**Self-Identity.** In a journal, students’ own observations, ideas, and opinions have value. As they reflect on the natural world and their place in it, they develop a stronger sense of self-identity and thus a firmer set of convictions on which to base attitudes and behaviors toward the environment. Nature journaling promotes:

- **Values clarification.** Students clarify their own values about the environment by questioning and contemplating their place in the natural world.

- **Critical and creative thinking skills.** As they draw conclusions from their observations and ideas, students exercise their critical thinking abilities. At the same time, the creative nature of journal-keeping encourages students to think divergently and invent original solutions to problems. These are essential skills for effective decision-making regarding the environment and in all aspects of life.

- **Personal voice.** Students strengthen their own voice by striving to put their thoughts down in words or images and exploring different styles of expression. They experiment with new ways to tell the story of themselves, their place, and the connections between them.
3. Teaching Nature Journaling

Teaching nature journaling well is an art...but a learnable one! This chapter provides a number of ideas and strategies to help you succeed in your role as a facilitator of the process.

Defining Your Role

A Fine Line Between Structure and Freedom
In leading nature journaling, you tread a fine line. On one hand, you want to guide and motivate your students to extend their perceptions, think with greater depth and breadth, and refine their skills in translating their observations and thoughts onto the pages. You want to give them prompts that will help them get started if they are unsure of where to begin, and positive responses that will encourage them to keep going. On the other hand, you don’t want to stifle their creativity. You want them to feel ownership and pride in what they create, develop their own style, and feel that the final product is uniquely theirs.

Become a Journal-Keeper Yourself
The best preparation for beginning a nature journaling unit is to become a journal-keeper yourself. Whether or not you have kept a journal in the past, try the activities before doing them with students. Strive to stretch your own comfort level. For example, if writing comes easily to you but you rarely draw, be sure to try some drawing activities. Expanding your repertoire will give you more angles from which to engage students, and also help you understand the challenges they face.

Journal With Your Students
You are an important role model for your students. Journal along with them; let them see you doing the same activities you ask them to do. You will demonstrate your own enthusiasm and convey the value of the process.

You Need Not Be An Expert
A Place in Space
No one says you must be an expert on nature to facilitate nature journaling. You need not identify every plant and bird you encounter; you can observe and appreciate them whether or not you know their names. Demonstrate the value of lifelong learning by carrying field guides with you and looking up the answers to questions (including your own) as they arise. You may not be able to teach wonder in the presence of nature, but you can exude it!

Consider Yourself a Guide
Think of yourself as a guide who walks with students and helps them see in different ways, providing them with opportunities to make their own discoveries and experiment with a variety of techniques. The skills you need to be an effective guide come from your own personal experience and enthusiasm for nature and for journaling. Strive to draw students into journaling projects in a spirit of collaboration, where they can catch your enthusiasm and follow your lead.
A CLOSER LOOK: Tips for Taking Students Outdoors

Going outdoors is ESSENTIAL to achieving the aims of nature journaling!
Nature journaling is a perfect opportunity to get students looking, listening, and learning outside, in any season of the year. When students know what to expect and what you expect from them, spending time outside with their journals can be a highlight of the day.

Conditions
Weather can greatly impact the success of a journaling session. On those glorious days when the sun is shining and everyone wants to be outdoors, your job is easy. But nature journaling can also reveal how much there is to see and learn on stormy or wintry days. (And while others sit inside, you can revel in your adventurousness!) Just keep in mind that students are more likely to enjoy the experience and give it their best effort if they are comfortable.

• Before you go out, make sure students are properly dressed for the weather. You might want to collect some extra hats, mittens, sweatshirts, and rain ponchos.
• On hot days, carry sunscreen and water with you. Seek out shade and cool breezes.
• Take advantage of microclimates in cold weather. Look for low areas or trees to block the wind, and sunny rather than shady places.
• On particularly cold or wet days, adjust the length of time students spend outdoors. Leave the journals inside, and go on a walk to gather observations and impressions; then return inside to record them. Or take scratch paper outside for quick notes and sketches.

Preparing To Go Out
Many students are accustomed to viewing the outdoors as a play space rather than another learning environment like the library or the computer lab. Be patient, and recognize that it may take some time to develop appropriate outdoor behavior.

• Give clear directions. Be sure all students understand what they will be doing before going out.
• Agree on a signal for beginning an activity and gathering the group together afterward: a clapping rhythm, a bird call, or a musical bell can all work well.
• Set expectations for their time outdoors, and establish consequences for not following them. Rules might include the following:
  1. Safety first.
  2. Respect all living things (other people, plants, animals).
  3. Stay in the established boundaries and follow directions.

Outside
• Clearly designate when it is time for students to be focused, quiet, and working.
• If students have a familiar place they always go or a process they always follow when it is time for nature journaling, it may be easier for them to settle in and focus on the task at hand.

Tricks for the Trail
• You need not always stop and sit down to journal. When you travel from place to place, have students record their observations and feelings as they walk. Rotate leaders and ask them to note whether they feel or notice different things at different places in the line.
• Be ready to take advantage of spontaneous gifts such as animal sightings. Model appropriate behavior, and share in the discovery and wonder.
Creating an Environment for Journaling

Foster Safety, Trust, and Respect
Journaling asks students to take a leap into the realm of self-expression. Whether you are planning a one-hour lesson or a year-long endeavor, your first task is to establish an atmosphere where students feel comfortable sharing personal opinions and emotions. Discuss with students ways of communicating that are considerate of others’ feelings. Foster mutual respect by listening carefully to what students have to say. Send the message that their opinions are valuable, their voices are worth listening to, and their ideas will be respected. This will help create a place where students feel safe enough to take risks and develop their own voices.

My life is created as I narrate, and my memory grows stronger with writing. What I do not put in words on a page will be erased by time.

- Isabel Allende -

Respect Privacy
Journaling can bring deep feelings and private matters to the surface. Some of these may be appropriate to share with a teacher, but some may not. Be sure to establish in the beginning that a nature journal is different from a diary; it is a place to consider the world around us and our place in it, and entries should be related to this area of study. If you will collect and read students’ journals, respect their need for privacy by encouraging them to use loose-leaf notebooks and remove sections they don’t want others to read before handing them in, or paperclip pages together that should remain private.

Setting Students up to Succeed

Establish Guidelines and Expectations
Begin any journaling project by establishing guidelines for students to follow. You may want to have students help brainstorm their own rules and post them in the classroom. Be sure they know how they will be assessed. Once you have established criteria and students know what is expected of them, they can move freely within this structure. The guidelines are like a jungle gym: once the bars are in place, you can use them to do all sorts of amazing things – swing from rung to rung, hang from your knees, flip upside down, slide down the poles… Every student will find a different way to use the framework. Eventually, some may experiment outside the bars, but all should start by learning techniques and building strength and flexibility. Some students crave structure, while others revel in freedom. Strive to give them just enough direction to help them succeed, but not so much that it stifles their creativity.

Build Ownership
Students will be more invested in the journaling process if the journal they use feels special to them. Build a sense of ownership by having them select, make, or decorate their own journals. For journal entries, provide different kinds of paper and a variety of writing and drawing implements. Encourage them to experiment with all the media and personalize their entries.
**Celebrate Individuality**
There is no wrong way to keep a nature journal. The process of journaling does not lead down a straight path to a single answer. Help students explore less-traveled trails and find their own way. Provide examples of a wide variety of styles. Emphasize that their journal won’t – and shouldn’t – look like anyone else’s! Each one of us has a unique way of looking at the world and expressing what we see.

**Provide Opportunities for Personal Choice**
When choosing activities, ask students for their input. Provide a diversity of activities that will engage the many different types of learners in your group. Offer options. Students will find their work more meaningful if they can tailor it to fit their own preferences. Encourage them to draw connections between journaling projects and other school subjects or outside interests.

**Fostering Growth**

**Cultivate Enjoyment**
As you come to see what individual students respond to and get excited about, tailor activities to meet the specific needs of your class. What activities really let certain students shine? Which students find the process of making the entries alone satisfying, and which ones thrive on sharing their work and receiving positive feedback? Use these insights to maintain enthusiasm and promote growth.

**Build Bridges**
Although initially you want to engage students by focusing on what they enjoy, you will also want to encourage individuals to stretch their abilities by trying things that are more challenging for them. Strive to build bridges from the familiar to the new. For example, if a student enjoys drawing and is reluctant to write, encourage him to begin writing captions for his pictures and later expand these into more complete paragraphs. If a student is a kinesthetic learner and has difficulty sitting still to journal, suggest that she walk around, pausing along the way to write or draw what she observes.

**Encourage Goal-Setting**
Make time for students to set goals, independently or in collaboration with you. Personal goals help to build ownership and ensure success, by encouraging students to think through the reasons for keeping a journal and the steps they will follow. From time to time, ask students to reflect on their progress and consider what they have accomplished.

**The Flow of a Nature Journaling Experience**

**Start Where Students Are**
As you plan journaling exercises, consider students’ past experiences with journaling. If they are new to it, start slowly. Begin with low-pressure group projects or warm-ups. Once their curiosity is aroused, introduce individual journals. Keep initial assignments fun, concrete, and specific. Appeal to their spirit of adventure and mystery; set activities up as a search for clues about what is happening outdoors or a hunt for treasure.
Gradually Build Comfort Levels
Proceed at a pace that gradually builds students’ comfort level with the process of journaling and with expressing their creativity and deeper feelings. Generally this means moving from more structured to more open-ended types of activities over time. Begin with opportunities to simply record observations and events in words or pictures. Next challenge them to make connections to the broader context of the world around them. Finally, ask them to record their personal feelings about what they observe: the meaning of the observations in their own lives.

Strive Toward Independence
Ultimately, a nature journal should be an individualized, open-ended endeavor. The activities in this guide are intended to be bridges that move students from active, structured exploration of the outdoors to a more free-form process of reflection and self-expression. Eventually you may not need to provide prompts at all. When they are ready, give students the privilege of spending time in a favorite outdoor place and recording their thoughts in a format of their choice.

Assessing Student Learning
Assessment can be a challenging aspect of journaling, but also a valuable one. It is a window into the journal-keeper’s perceptions and needs, and reveals whether you have set up an atmosphere where students feel safe enough to take risks. In both formal classrooms, where it is a necessity, and in nonformal settings, where it may play a more minimal role, it helps educators refine their approach and reach individual students more effectively.

Emphasize Content Over Mechanics
Journals are not the place for stylistic perfection. Students should be able to invent spellings, experiment with language, and express themselves freely. Emphasize communicating whole thoughts, including rich details, and telling a compelling story. De-emphasize grammar and mechanics. Journal entries are a rough draft that can later be revised into a polished product.

Respond to Student Entries
One way to monitor students’ progress and provide them with feedback is to respond to their entries. Use a separate sheet of paper (try sticky notes) for your responses so students can remove them later. Alternatively, you could respond directly in a student’s journal, engaging in a written conversation. Responses can be very important for beginning journal-keepers. They provide proof that what students write is important, and help students develop confidence in their work and themselves. Responses also set up a dialogue between you and the student, an opportunity for each of you to get to know the other in a new way. In your responses, strive to:

- **Support the message.** Connect with what a student says by agreeing, sharing similar ideas, or simply acknowledging the value of his or her opinions.

- **Provide information.** Include facts or information when appropriate, or suggest resources a student can use to find out more about a given topic.

- **Clarify and extend thinking.** Ask for clarification, and challenge the student to rethink and expand on ideas. Pose thoughtful questions.
Create Assessments That Foster Growth

A journal reflects a personal response to the environment, and thus journaling should be an activity with minimal input from others. Use questions rather than criticism to encourage closer observation and deeper thinking. Give beginning journalists a chance to develop confidence. Don’t try to assess all aspects of their progress at once. Instead, focus on one or two areas for improvement, and evaluate holistically, not page by page. What does the journal as a whole indicate about a student’s effort, understanding, and growth?

Strategies for Keeping Assessment Manageable

Because journal entries are so varied and personal, the process of reading and responding can be illuminating but also overwhelming. Particularly if you have many students, consider your own sanity when planning your assessment strategy! Try collecting a portion of the journals each week, so you see each journal several times in a grading period, but you don’t have to read them all at once. Use an assessment rubric with clear criteria. If possible, incorporate self-assessment (see Appendix E on page 90) and opportunities for students to receive feedback from peers. Have open-journal “quizzes” to create an extra incentive for students to make complete entries.

Curriculum Connections and Extensions

Draw Curriculum Connections

Journals work best for the greatest number of students when they are used actively in class and students see concrete evidence of their function and importance. Strive to tie nature journals to academic pursuits whenever possible. Encourage students to make connections between their observations in nature and what they are learning in other subjects. Science concepts and vocabulary can be put to use in journal entries. Writing techniques such as simile and metaphor, active verbs, and allusion to literary works can all enhance an entry. When learning different forms of poetry, have students employ them in their journals. If you are studying charts or graphs or fractions in math, represent natural phenomena in these terms. Draw connections between the landscape and events of historical significance in your area. Put new art techniques to work on the pages of the journal.

Infuse Journals Throughout the Day

Consider ways to use nature journals throughout the school day. For example, replace quizzes and homework with journal entries from time to time. Use nature journals to stimulate class discussion, start small-group activities, and reinforce learning experiences. Take them along on field trips: prepare for the trip by writing about previous knowledge and listing questions; record information and impressions on the trip; and reflect on what was learned afterwards.

Use Journals as Jumping-Off Points

Provide opportunities for students to use their journals as a source of raw material for other projects. These extensions further reinforce the value of keeping a journal. For example, students could:

- Expand observations from journal entries into an essay or poem.
- Use sketches and notes to develop a detailed drawing or painting.
- Develop a science research project from questions and observations in their journal.
Sharing Journal Entries

The Benefits of Sharing
Incorporating time to share journal entries with classmates offers many benefits. For inwardly-directed students, the journaling process alone can be satisfying, but you may find that other students thrive on sharing and discussing their work with the class. Regardless of their preferences, sharing confirms the value of students’ work. It reinforces new understanding, validating students’ own opinions and simultaneously exposing them to new ideas. It promotes discussion and encourages further reflection; students are pushed to extend their thinking and be more descriptive in their writing. It helps students appreciate their own talents and those of their classmates. Share your own work with them, too; you become a partner in the game of discovery and they see that learning is a lifelong, ongoing process.

Techniques for Sharing
A variety of techniques can help you incorporate sharing into the nature journaling experience. Try the ideas in the sidebar and see what works best for your group. Regardless of the method you use, encourage comments and discussion, but emphasize the necessity for positive, constructive feedback. Model appropriate responses.

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A CLOSER LOOK:

Materials for Nature Journaling

Assembling supplies is a great way to get organized for teaching nature journaling. You may want to create a kit - as simple as a small box or backpack of crayons and colored pencils, or as elaborate as an entire trunk or shelf full of materials. Consider making the kit available to students when they are looking for materials or inspiration.

Here are a variety of things to collect for your kit or classroom:

The Bare Essentials:
- A journal for each student (see page 27 for ideas)
- A pencil for each student - and a few extras!
- Appropriate clothes and shoes for the weather
- Outdoor gear: sunscreen, water bottles, raincoats, hats, first aid kit, etc.

Other Useful Items:
- Clipboard or cardboard for a hard writing surface if journals are not hardbound
- Art supplies:
  - Crayons, colored pencils, watercolor paint sets, pastels, charcoal pencils, etc.
  - An assortment of paper (different textures, colors, weights)
  - Clear contact paper for covering pressed leaves or flowers
  - Glue sticks for pasting in objects or loose entries
- A hand lens or magnifying glass for each student
- A musical bell or bird call to signal the beginning and end of journaling activities
- Blindfolds for sensory activities
- A variety of natural objects (pinecones, sticks, leaves, rocks, seeds, bark, acorns, etc.) for drawing and sensory activities
- Rulers, compasses, and graph paper for map-making
- Equipment to keep track of the weather:
  - Thermometer (one that records the daily maximum and minimum is especially nice)
  - A wind vane or compass for determining the wind direction
  - A rain gauge (for rain) and meter stick (for snow) to measure precipitation
  - A book or poster for identifying cloud types
- Bird feeders or bird houses outside the window for animal observations
- Reference materials on local natural history:
  - Field guides to wildflowers, trees, birds, insects, mammals, etc.
  - Reference books about the geology, weather, and climate of your area
  - Maps of your neighborhood, city, watershed, and region
- A calendar for keeping track of phenology dates, moon phases, solstices and equinoxes, and other seasonal events
- Sample journal entries from past students and others for inspiration
- Books of historical and contemporary nature writing
- Relaxing music or recordings of nature sounds to play during indoor journaling time
4. Beginnings and Endings

Introducing and concluding a nature journaling experience skillfully is essential for its success. This chapter provides you with an assortment of ideas for beginnings and endings.

Introducing Nature Journaling to Students

Set the Stage
To get nature journaling off to a successful start, think carefully about first impressions. Before you launch into the activities, it is important to set the stage by discussing what a nature journal is and the reasons for keeping one. Some students may have negative feelings about journaling, while others may be avid writers or artists. Give them a chance to share their impressions. What do or don’t they enjoy about it? Encourage them to keep an open mind. If students prefer not to call it a journal at all, you could agree on another name, such as a nature notebook or an explorer’s log.

Define Nature Journaling Broadly
Emphasize to students that a nature journal is a special kind of journal. Like other journals, it is a place to record what you see and do and think and feel. But in a nature journal the place where you do all these things is very important. In looking at your nature journal, someone would learn a lot about you and what is important to you, but they would also learn about where you live: what the seasons are like there, what kinds of plants and animals share your neighborhood, whether you have lakes or rivers or mountains or a desert or ocean nearby. A nature journal is a way to celebrate what is special about your place. You can do this in lots of different ways. You will probably include some written words, but you could also include drawings, paintings, photographs, pressed plants, bark or leaf rubbings... your journal could even be an audio or video recording, a website, a collage, or a three-dimensional sculpture.

Emphasize the Personal Value of Nature Journaling
Discuss with students the benefits of keeping a journal. How many of them like to bring a camera when they go somewhere interesting or exciting? Why? Photographs help us remember places we have been and things we have done, and also help us share our experiences with family and friends. A journal entry, too, is a snapshot from a very particular place and time, and a nature journal can make even ordinary trips interesting and exciting. It will help you look closer and see things you have never noticed before. Every moment that you mark in the pages of your journal, you have claimed for your own. You can look back five years from now, or ten, or twenty, and all the details you captured will be just as fresh as if they just happened. A journal is a place to record not just what you saw through a camera’s viewfinder, but what you heard and smelled and touched and tasted, and how you felt.

Establish the Communal Value of Journals
A journal certainly has value as something we can share with family and friends and enjoy looking at in the future.
But it can be useful to society as a whole, too. Another way to engage your students in nature journaling is to explore how the importance of journals extends beyond their personal significance. Long ago, our ancestors recorded events on the walls of caves and cliffs, and others read messages and stories in the pictures. Before cameras and computers, explorers and scientists wrote their important discoveries in logbooks and journals. In fact, the journals of many famous people are so highly regarded that they are kept in museums. Other people are famous because of their journals, such as Anne Frank. Many ordinary citizens are journal-keepers too, and their observations help us understand patterns and changes in our environment. They record information about temperatures, the dates of the first snowfall and when lakes freeze and thaw, the kinds of trees and plants in their area, and animals they spot. Scientists combine all these observations to reveal changes in our global climate and the ranges and populations of wildlife and plant communities.

**Explore the Lives and Work of Historical and Contemporary Nature Journalists**

You and your students are in good company as keepers of nature journals. People have been recording their impressions of nature in journals for centuries. Scientists, explorers, writers, and artists have left us a long legacy of observations and musings and realizations in the pages of their journals. Though initially the names of historical naturalists like Henry David Thoreau, Aldo Leopold, and Rachel Carson may not captivate your students, their stories are fascinating and their writing is rich and evocative. If you can bring them to life for your students, they can follow in the footsteps of excellent role models. In addition to figures who loom large in history, there are many engaging contemporary nature journalists. The following pages contain brief biographical sketches and excerpts from the writing of some renowned nature writers and journal-keepers of the past and present. Whether you choose in-depth study or a quick overview, the most effective way to explore their lives and writing with students will depend on their grade level, previous experience, and interest. Try one of the following strategies:

- Bring in books by a variety of the people on the following pages and share their lives and work with students. Emphasize how they used their journals to accomplish the things for which we still remember them today. See the bibliography for additional resources, and look for audio or video recordings to further illuminate their lives.

- Make copies of the next three pages and have students choose one of the naturalists (or another of their choice), then copy a quote or passage into their journal and write a response to it. Do they agree or disagree with any opinions shared? How did the word choice make them feel? Did the passage remind them of times or places in their own lives?

- Have students adopt a naturalist of their choice and research this person’s life and work. The bibliography lists a number of biographies for youth. Have students create a one-page report that includes a photograph, a biographical sketch, and a description of the place where the person lived, as well as some excerpts from his or her writing. Make a copy of each report for all the students; they can bind the pages together to create a convenient directory of naturalist writers for future reference and inspiration.

- Alternatively, or in addition, students could present their naturalist to the rest of the class. Have them come as the character, dressed appropriately and with relevant props. They should point out where they live on a map, explain what has happened in their lives, and read some of their work, concluding with a chance for the class to ask them questions.
- Naturalist Writers of the Past and Present -

**Gilbert White** (1720-1793) was a country priest and amateur scientist who delighted in the natural surroundings of his English village. He took long daily walks and wrote letters to fellow naturalists about the "natural curiosities" he observed around his home, later compiled into a book.

*From The Natural History and Antiquities of Selborne:*
February 22, 1770. "Hedge-hogs abound in my gardens and fields. The manner in which they eat the roots of the plantain in my grass-walks is very curious: with their upper mandible, which is much longer than their lower, they bore under the plant, and so eat the root off upwards, leaving the tuft of leaves untouched."

**Meriwether Lewis** (1774-1809) and **William Clark** (1770-1838) made an 8,000 mile journey across the North American continent and back from 1804 to 1806. The two kept a detailed log of their challenges and adventures and described hundreds of plants and animals they encountered.

*From The Journals of Lewis and Clark:*
Wednesday, April 17, 1805. "The whole face of the country was covered with herds of Buffaloe, Elk & Antelopes; deer are also abundant, but keep themselves more concealed in the woodland. [They] are so gentle that we pass near them while feeding, without appearing to excite any alarm among them; and when we attract their attention, they frequently approach us more nearly to discover what we are."

**Charles Darwin** (1809-1882) kept a detailed log of the many strange plants and animals he saw when he sailed around the world in the Beagle. These careful observations were the evidence he used to propose the theory of evolution, now one of the foundations of modern science.

*From The Voyage of the Beagle:*
September 15, 1832. "The natural history of [the Galapagos] islands is eminently curious, and well deserves attention....I will first describe the habits of the tortoise, which has been so frequently alluded to. Some grow to an immense size: Mr. Lawson told us that he had seen several so large, that it required six or eight men to lift them from the ground..."

**Susan Fenimore Cooper** (1813-1894) was the first American woman to publish a book of nature writing and a careful observer of the interactions between humans and other living things. Not only did she celebrate the details of her home, she also tried to help people see their connections to other places and why they should take care of the land.

*From Rural Hours:*
May 28, 1849. "The mandrakes, or May-apples, are in flower... This common showy plant growing along our fences, and in many meadows, is said also to be found under a different variety in the hilly countries of Central Asia. One likes to trace these links, connecting lands and races, so far apart, reminding us, as they do, that the earth is the common home of all."
Henry David Thoreau (1817-1862) is best known for Walden, or Life in the Woods, a book inspired by his life at Walden Pond in Concord, Massachusetts. Thoreau assembled Walden from the pages of his daily journal, which he kept for 40 years. It was 15 volumes long in the end!

From "Where I Lived, and What I Lived For": "I went to the woods because I wished to live deliberately, to front only the essential facts of life, and see if I could not learn what it had to teach, and not, when I came to die, discover that I had not lived. I did not wish to live what was not life, living is so dear... I wanted to live deep and suck out all the marrow of life."

John Burroughs (1837-1921) spent most of his life near the Catskill Mountains in New York. He believed in careful and scientific observation, and was one of the first popular writers to embrace Charles Darwin's theory of evolution. Yet he also believed that knowledge about the world had to be accompanied by love for it.

From his journals:

November 27, 1877. "We talk of communing with Nature, but 'tis with ourselves we commune. Nature has nothing to say. It all comes from within. The air supports combustion, but 'tis the candle that burns, not the air. Nature furnishes the conditions - the solitude - and the soul furnishes the entertainment."

John Muir (1838-1914) was born in Scotland, grew up in Wisconsin, and found his true home in the mountains of California. He worked hard to save wild places, and was known as the father of our national parks. As he rambled from Alaska to South America, he kept a journal to record the rocks, plants, and animals he saw. From his field notes, he wrote vivid, exuberant accounts that brought these places alive for readers.

From John of the Mountains: "Wonderful how completely everything in wild nature fits into us, as if truly part and parent of us. The sun shines not on us but in us. The rivers flow not past, but through us, thrilling, tingling, vibrating every fiber and cell of the substance of our bodies, making them glide and sing. The trees wave and the flowers bloom in our bodies as well as our souls, and every bird song, wind song, and tremendous storm song... is our song."

Aldo Leopold (1887-1948) wrote poetic essays around the circle of the year at his family's shack in rural Wisconsin in A Sand County Almanac. Leopold believed in the importance of conservation, and he was a careful observer of ecology. He also developed a "land ethic" that helps us understand humans' relationship with the natural environment.

From Round River: "The outstanding scientific discovery of the twentieth century is the complexity of the land organism. Only those who know the most about it can appreciate how little we know about it. The last word in ignorance is the man who says of an animal or plant: 'What good is it?' If the land mechanism as a whole is good, then every part is good, whether we understand it or not. If the biota, in the course of aeons, has built something we like but do not understand, then who but a fool would discard seemingly useless parts? To keep every cog and wheel is the first precaution of intelligent tinkering."
Rachel Carson (1907-1964) awakened the world to the danger of pesticides like DDT in the 1960s with a book called *Silent Spring*. She was an award-winning author as well as an excellent scientist. Her journal entries (like the one below) are filled with examples of poetic writing and the curiosity and wonder that made her scientific discoveries possible.

*From Lost Woods:* "Saw tracks of a shore bird...followed them a little, then they turned toward the water and were soon obliterated by the sea. How much it washes away, and makes as though it had never been. Time itself is like the sea, containing all that came before us, sooner or later sweeping us away on its flood and washing over and obliterating the traces of our presence, as the sea this morning erased the footprints of the bird."

Edward Abbey (1927-1989) worked as a park ranger in the desert southwest, where he developed a deep love of the land and bitter anger about environmental damage. *Desert Solitaire* is a powerful personal response to the desert landscape, but he also wrote fiction: *The Monkey Wrench Gang* is a wry and irreverent account of another approach to environmental protection.

*From Desert Solitaire:* "The air is so dry here I can hardly shave in the mornings. The water and soap dry on my face as I reach for the razor: aridity....Sometimes it rains and still fails to moisten the desert – the falling water evaporates halfway down between cloud and earth. Then you see curtains of blue rain dangling out of reach in the sky while the living things wither below for want of water."

Annie Dillard (b. 1945) says she writes not about nature so much as "what it feels like to be alive." But *Pilgrim at Tinker Creek* is an important contemporary work of nature writing. In it, she explores the mysteries of the natural world around her home from many perspectives.

*From Pilgrim at Tinker Creek:* "I live by a creek, Tinker Creek, in a valley in Virginia's Blue Ridge....It's a good place to live; there's a lot to think about. The creeks are an active mystery, fresh every minute....The mountains are a passive mystery, the oldest of all....You can heave your spirit into a mountain and the mountain will keep it, folded, and not throw it back as some creeks will. The creeks are the world with all its stimulus and beauty; I live there. But the mountains are home."

Leslie Marmon Silko (b. 1948) is a leading voice among today's Native American writers. Her poetry, fiction, and essays emphasize the importance of storytelling as a way to make sense of our experiences in the places where we live.

*From "Landscape, History, and the Pueblo Imagination":* "Stories are most frequently recalled as people are passing by a specific geographical feature or the exact place where a story takes place....There is a giant sandstone boulder about a mile north of Old Laguna...ten feet tall and twenty feet in circumference. When I was a child, and we would pass this boulder driving to Paguate village, someone usually made reference to the story about Kochininko, Yellow Woman, and the Estrucuyo, a monstrous giant who nearly ate her."
Share Examples
In addition to the renowned naturalist writers, share other examples of journal entries to inspire students with the range of possibilities. Introduce them to published examples of journals. Read excerpts from literature in which characters keep journals. Show them some of your own work, and share with them the work of students their own age, to give them confidence that they can do something similar. Discuss the examples and encourage students to find techniques that others have used that they would like to try.

Ease Into Journaling
Especially if students are reluctant about journaling, consider starting with some fun group projects to ease them into it. Create a class phenology chart where students can record observations about weather, seasonal changes, and plant and animal sightings. Make a class journal about a particular event or phenomenon (such as animal sightings, fall leaves, signs of spring) and have each student contribute a page.

Model the Process
If students are new to journaling, they may need some guidance regarding what goes into a good entry. Model the process for them. Verbalize your thought process, and then translate your thoughts into words and drawings on the blackboard or an overhead transparency while students follow along. Demonstrate what should be included in each entry. When students understand the basic idea, brainstorm a list of additional topics or approaches as a class. Write a class entry: students contribute; you record. Then send them off to get started on their own journals.

Encourage Creativity
Emphasize to students that the most important thing to remember about a nature journal is that it is theirs. Their journal won’t look like John Muir’s or Rachel Carson’s or yours or anyone else’s, because every one of us sees the world in a different way. We could go on a hike and walk down the exact same trail, but we would all notice different details and feel different things and think different thoughts. Try to help students feel empowered to interpret activities creatively and in a way that reflects their own style. A journal is a work in progress, not a final product, and there’s no such thing as the wrong way to do it.

A CLOSER LOOK:
“What advice would you give someone your age who was about to start a nature journal?”
Here are some insightful answers to this question provided by a group of sixth graders:

- It’s more fun than you think and you learn a lot about nature.
- Don’t be hard on yourself, just relax and have an open mind.
- You learn a lot without having to take a test.
- Think hard but not too hard and have fun.
- Go outside and close your eyes and listen to what you hear.
- Imagine.
- Write about what you feel.
- It’s your journal so be creative with it.
- Notice everything about everything.
- You have to try it! It’s the best time ever.
Types of Journals

Though nature journaling need not be done exclusively on the pages of a book, it lends itself well to this format... and it gains appeal quickly when students have a special journal to use.

There are many options for student journals, including both purchased and handmade varieties. Regardless of which you choose, try to give students an opportunity to make it their own by decorating or personalizing it in some way.

Purchased journals:
- A spiral notebook ~ readily available and inexpensive
- A blank book or sketchbook ~ more expensive, but much sturdier and more satisfying, and they come in all shapes and sizes, with decorative covers or plain, with blank pages, ruled pages, or a combination. Look for them at bookstores or art supply stores
- Folder or binder with loose-leaf pages ~ a major advantage here is that you can easily add or remove pages, which can later be bound together into a book

Recipes for Hand-Made Journals:

**TWIG BINDING**
1. Assemble covers and as many pages as you like
2. Punch two holes at the top
3. Feed one end of a rubber band up through each hole

**YARN BINDING**
Just like it looks: folded cardboard cover with pages inside and yarn ties

**SEWN BINDING**
1. Crease the pages down the middle
2. Tape two pieces of cardboard together, leaving a gap so they open and close smoothly
3. Lay the pages on the covers and glue the first and last page onto the inside of the cover

**COVERS**
- Use sturdy cardboard
- Decorate as desired
- Laminate or cover with clear contact paper for added durability
Concluding a Nature Journaling Unit

There are many ways to bring closure to a nature journaling unit. Whether students have been working on their journals for an hour, a week, or months, a well-planned conclusion helps them reflect on their progress and appreciate their achievements. It may also encourage them to continue nature journaling on their own. Choose from among the following suggestions, or devise an approach of your own.

**Self-Assessment.** Have students write a final entry in which they reread and evaluate their journal. Which entries stand out as particularly valuable? Why? What patterns do they find between entries? What does the journal reveal about who they are and what is important to them? See Appendix E on page 90 for a list of suggested questions for self-assessment.

**Time Capsule.** Ask students to imagine that their journals are discovered one hundred years from now. Discuss with them how journals kept by ordinary people in the past have given us clues about how daily life and places have changed over time. What would their journals reveal? What would a reader learn about this place, and about the person who wrote it and what was important to him or her?

**Travel Brochure.** In groups or individually, have students use their journals to write a travel brochure about their place. What is special about it? What would attract people to it? They might also consider the attractions for other species: if, for example, a deer, a hawk, a wolf, or a frog was looking for a home, why should it come and live here?

**Guided Tour.** If each student has a site she or he has visited consistently throughout the journaling experience, and if these sites are within walking distance of one another, conclude with a walking tour. Have students choose a name for their site to share with the group, and give each student a chance to take the lead and guide the others to his or her chosen location. At the site, the student can explain its most interesting features and some of the experiences or insights gained there, and/or share some favorite journal entries. Before the tour, you could compile a map that shows each site and the path you will follow between them. You may want to create a ceremonial mood and ask students to remain silent as you travel from site to site. End the walk with a celebration: break the silence and share refreshments!

**Journal Buddies.** Partner with a class of younger students and have your students choose some of their favorite journaling activities to adapt and teach to the younger class. Encourage them to review the teaching techniques and activities you used and discuss which seemed most effective, then design their approach based on what their conclusions. Have them help the younger students make journals of their own, and then divide into pairs or small groups for the activities.
**Gallery Exhibit.** Set up an exhibit of the students’ journals. Be sure to give them a chance to remove or cover any pages they want to keep private. Ask them to write a few paragraphs about who they are and what they’d like people to know about their journals. Mount these for display, along with photos of the students at work and the places that inspired their entries, as well as any finished pieces of writing or artwork that emerged from the journaling process. Invite other classes and parents to view the exhibit and mingle with the artists.

**Nature Journaling Conference.** Hold a conference where students present the results of their nature journaling projects. Students’ sessions could follow one of the following formats: a) highlights from a few favorite entries, b) insights about what makes their place special, or c) an in-depth look at a topic they found especially interesting and explored in detail. Discuss effective presentation techniques and encourage students to use visual aids. Create a program for the conference, design nametags for the presenters, and invite other classes or parents to attend. You could even invite a long-time journal-keeper from the community to give a keynote address.

**Class Publication.** As a class, create a publication that incorporates work from all of the students’ journals, such as:

- A newspaper or newsletter
- A natural history magazine
- A field guide to a particular place or season
- A collection of essays, poetry, and artwork focused on a place
- A phenology calendar that shows the common seasonal happenings of each month
- Natural history or phenology pages for a school website
- An audio or video recording that features students reading their work

Make a copy of the publication for every student, and be sure to make extras to distribute in your community. You could even sell them to cover the costs of production or to raise funds for a special field trip. Hold an event to celebrate the students’ achievement, such as a public reading, a book signing, or a guided hike where students explain features of interest.
The pursuit of truth is like picking raspberries. You miss a lot if you only approach it from one angle.

- Randal Marlin -
5. Nature Journaling Activities

A nature journal is a set of lenses that helps students open their eyes and see the world around them in new ways. Changing lenses reveals different aspects of the environment and develops different skills. The activities that follow provide intellectual and emotional interaction with the environment and make use of both written and artistic forms of communication. The activities are arranged into six sections, each one a lens that offers a different perspective on the natural world.

The Six Section Themes

Sensory Awareness: Opening Your Eyes
Curiosity and Wonder: Looking With New Eyes
Observation Skills: Zooming In
A Place in Space and Time: Zooming Out
Biophilia: Looking Through Other Eyes
Reflections: Looking Within

Components of Each Section

A Quotation introduces the section theme.

The Goal explains the intended outcome of the activities in the section.

Excerpts from Students’ Writing illustrate the kinds of awareness promoted by each theme.

A “Warming Up” Activity helps students start thinking about the theme and prepares them for the in-depth outdoor activities. This is a brief introductory activity that can be done either indoors or out.

“Digging In” Activities provide opportunities to head outdoors and explore the theme in depth and from multiple angles.

A page of “Exploring Further” ideas at the end of each section gives brief descriptions of additional activities to continue exploring the section theme.
<table>
<thead>
<tr>
<th>Activities</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sensory Awareness: Opening Your Eyes</strong></td>
<td></td>
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Sensory Awareness
- Opening Your Eyes -

Going out together to discover new places is the surest way to be reminded that we do not see the land with the same eyes, nor smell it with the same nose. It sings different songs to each of us.

- Gary Nabhan -
The Geography of Childhood
Sensory Awareness
- Opening Your Eyes -

Goal:
Students explore the natural world through each of their senses. They develop a keen sensory awareness of their environment and perceive its details more clearly.

I felt the wind in my hair and felt the snow crunch under my feet.
~ Jason, Grade 6

I heard birds whistling all over but didn't see one. ~ Catherina, Grade 7

I felt cold, and the snowflakes landing on my face. ~ Vanessa, Grade 4

I felt a big tree that was wet with the dew from the morning.
~ Megan, Grade 7

I felt the leaves that were smooth in the middle, but as you moved your fingers outward the edges became jagged and not as smooth.
~ Ray, Grade 7

I walked by some whistling trees. ~ Dominique, Grade 6

I saw dark, wispy smoke-like clouds...shards of ice laying around, and also I saw the crisp light-blue sky. ~ Taylor, Grade 6
1. Mystery Bags

Preparation
Put a different natural object into each of the paper bags. Number each bag and set it up at a separate station.

Procedure
1. Discuss our five senses, and the fact that as humans we tend to rely most on sight. When we focus on our other senses, it can open up new dimensions of understanding.
2. Tell students you have placed “mystery objects” in each paper bag. Ask them how they could find out what is inside. They could peek in the bag and see. Sight is just one of our five senses. Is there another way to find out about the objects without using our eyes? In just a moment, they will have a chance to try to guess the identity of the objects without looking at them.
3. Divide students into small groups to travel from station to station. They should bring their journals and pencils.
4. As they move through the stations, have them reach into each bag in turn and feel the object inside. They could also shake the bag and listen to the sound it makes, or smell the object to see if that gives them any new information, but they must not look!
5. Have them write down the number at each station and some descriptive words about the object. Is it soft, hard, lumpy, smooth, squishy, silky, etc? After thoroughly exploring and describing the object, they can write what they think it is in their journal. Emphasize that they must not say their guess aloud!
6. After students have been to all stations, discuss each bag one by one. What words did they use to describe the object? What do they think it is? Reveal the objects and talk about how much information they were able to discover using senses besides sight. What are the strengths and limitations of each sense? Are all of our senses equally important?

Alternatives and Extensions
- For a more extended exercise, students could draw the object as accurately as they can based on how it feels.
- Students could also move through the stations with a partner. One partner describes to the other what the object feels like, using as many descriptive words as possible without naming the object, while the other attempts to guess what it is. For this option, you’ll want the stations far apart so that the objects’ identities aren’t inadvertently revealed too soon.
2. Sound Maps

Preparation
Choose an outdoor location with a variety of interesting sounds and an area large enough for students to spread out to listen.

Procedure
1. Explain to students that they will be making a map of the sounds they hear around them. Have them make a mark in the center of a fresh page. This represents their own location on the map. Each time they hear a sound, they will mark its location in relation to themselves. Nearby sounds are indicated close to the center mark, faraway sounds near the edges of the paper. Marks should be interpretive and quick so as not to take much time away from listening. Suggest to students that they think about the signature that different sounds would make on their paper — a wavy line for the wind, for instance, or a series of swishes and dots for birdsong. If they choose, they can add a legend to help them remember what the symbols mean.

2. Show students how to make “deer ears” by cupping their hands behind their ears to magnify the sounds.

3. Agree on a signal for starting and stopping. Tell students that they should find a listening place away from others where they can sit comfortably until you call them back. Give them a moment to get situated, then give the signal to begin listening.

4. After five to ten minutes of listening and mapping, call the group back together to share what they heard. How many kinds of sounds did they hear? Did they hear different sounds depending on where they were? What sounds did they especially like, or not like? Did any sounds surprise them or make them curious? Ask them to consider how the sounds they heard compare to what they might hear in other locations — a busy street corner, a forest, a lakeshore.

Alternatives and Extensions
- Mapping requires relatively advanced spatial skills. If your students are not ready for mapmaking, simply have them close their eyes and count how many different sounds they hear.
- Do this activity again and compare sounds in a different location, or at a different time of day or time of the year.
- Have students share the sound signatures they used. Discuss why they interpreted them that way, and why it is that people perceive the same things in different ways.
3. Blind Walk

Preparation
Find an outdoor area with a variety of sensory stimuli – trees to touch, logs to step over, evergreen needles or flowers to smell, running water, bird songs, etc. Check the area for any safety concerns (poisonous plants, broken glass, steep hills) so you can caution leaders to avoid these areas with their blindfolded partners. Then try it! Have someone guide you through the area, and make a sample map as a model for students.

Procedure
1. Take students outdoors and divide them into pairs. They should work with someone they trust, but certain pairs of best friends may find it difficult to concentrate together. Use your judgment. A fun way to divide into random pairs is to take a bucket and put in two oak leaves, two pinecones, two acorns, etc... then each student reaches in and pulls out one item. The person whose object matches theirs is their partner.

2. Pass out blindfolds, and explain that one partner will start as the leader and the other will wear the blindfold. With the leader guiding, the blind student will use his or her other senses to create a mental picture of the path traveled.

3. Model good guiding techniques. Leaders should take their partners’ hands or elbows or put a hand on their shoulders; they should walk slowly and keep their partners safe. Suggest that they keep spoken directions to a minimum (or even don’t speak at all) and stop often to soak up sensory impressions.

4. Provide suggestions for the blind partner: Listen to the sounds of the wind and the birds. Try to feel on your skin when you are walking through sun or shade. Notice what the ground feels like under your feet, and if this changes. Touch everything you can. For instance, if you encounter a tree, feel its bark: is it rough or smooth? Can you reach all the way around it? Does it have any branches low enough to reach? As you walk through grass, try to feel how long it is, and if it is wet or dry. What can you smell?

5. After ten to fifteen minutes of exploring, the blind partners can take off their blindfolds and retrieve their journals. Have them create a map in which they attempt to reconstruct their walk, putting in as many details as they can recall about each of the things they encountered on the way. (Try to have another activity to engage the leaders at this point, so they are not tempted to give their partners hints.)
6. When they think they have all the landmarks on their map in the correct order, have them try to retrace their steps with their eyes open this time. Remind them that they can still use their other senses too – if they are not sure whether it is the same tree or not, touch it and see if it feels the same! Leaders can go along, but they should give their partners a chance to try to piece the whole trail together before they tell them if they missed anything. Have them compare their maps with the actual path traveled and see how close they came.

7. When they finish, partners switch roles and repeat the activity. New leaders should be sure to take a different route.

8. When everyone is finished, gather the group together and discuss the experience. How much of the walk were they able to remember when they made their maps? Were they surprised by anything that looked different than what they were picturing in their minds? Did the path seem longer when they were blind or when they could see? Did objects seem bigger or smaller?

9. Conclude the experience by having students discuss their favorite sensory impressions from this activity. You could give them a few minutes to return to a favorite spot on their path to write or draw more about what they experienced there.

**Alternatives and Extensions**

- As a class, agree on a series of perhaps ten favorite spots encountered in this activity. Draw a map of the path to travel to get from one to the next, and give each stop a name. Write a few prompts to help others explore it, such as: “Kneel down and touch the spongy moss” or “Smell the lilac bush.” Make copies of the map and give it to another class or the students’ parents to follow.

- If time or space is limited, you could have leaders guide their partners to just one tree and back to the starting place. After drawing the tree, the previously blind partner tries to find it.
4. Silent Hike

Preparation
Plan a route for an outdoor walk. Seek out a variety of sensory stimuli along the way. Look for opportunities to experience close-up views, landscape vistas, different colors and shapes, smells, sounds, and textures. Practice the hand signs on page 40; sign language is an excellent way to give directions while maintaining a quiet mood. Make a copy of the chart on page 41 for each student if you wish to use it. If possible, arrange to take students out in small groups for the walk; a large group detracts from the quiet mood.

Procedure
1. Discuss our five senses and brainstorm a list of words to go along with each sense. For example, words for the sense of touch could include smooth, rough, warm, cool, silky, spiny.

2. Explain that you will be going on a walk outdoors in a few minutes. This is not just any walk – it is a Silent Hike. On a Silent Hike, a person uses all of her senses. She walks slowly, opens her ears, breathes deeply, and stops along the way to look closer or touch things with interesting textures. Of course, on a Silent Hike there is no talking!

3. Pass out the sensory impressions chart, or have students make their own charts in their journals. Explain that as they walk, they will record sounds, smells, sights, and textures they experience on their charts. Encourage them to use specific, vivid words and phrases. Discuss similes and metaphors, and suggest that they draw comparisons to make their descriptions even more effective: moss might feel “like a thick carpet” or leaves appear to be “dancing” in the wind. If you choose to include the sense of taste, emphasize that students should use it only when you indicate to them that something is safe to taste.

4. Teach students the signs you will use to give directions and direct their attention to interesting things while you walk. You may also want to have students rotate through the line from front to back on the walk, so that each student has a chance to be the leader. You can tap students lightly on the shoulder to indicate that it is time for the leader to step to one side, let the line pass, and join again at the end.

5. Afterward, have students write a paragraph or a poem using their descriptive words to bring the writing alive. Encourage them to help a reader imagine the experience in rich sensory detail.
Sign Language for a Silent Hike

Teach students some of these signs before you go out for a Silent Walk. You can use the signs to give directions and also to direct students' attention to interesting sights, sounds, smells, and textures. Practice the signs together, and encourage students to use them to share their observations with you and each other. For example, if they notice something they want others to see, they can tap a neighbor lightly and use the "see" sign to show him or her where to look. Take a look at a sign language dictionary to add to your repertoire after you get these down.
Silent Hike Sensory Impressions

In each column, make a list of words and phrases that describe what you experience with each of your senses on your hike. Be as descriptive and precise as you can.

<table>
<thead>
<tr>
<th>Things We Encountered</th>
<th>Sight</th>
<th>Hearing</th>
<th>Touch</th>
<th>Smell</th>
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Onomatopoeia. This delicious word means words that sound like what they describe: burble, murmur, chickadee-dee-dee! Although we already have many words that came to us from the natural world, there are many more waiting to be harvested. What is the word for the sound of your favorite bird songs, rain falling on a lake, the wind in the trees? Go out with students to listen to the sounds around you, and collect a new vocabulary given to you by nature. Then use these words in your writing.

Natural Art Explorations. Any of these techniques add color and texture to journal entries and provide hands-on contact with elements of the natural world.
- Press leaves and flowers in your journal, then cover the pages with clear contact paper.
- Make bark or leaf rubbings. Try a variety of trees. Use field guides to identify and label them, or just compare the different shapes and textures.
- Paint with watercolors using water from a stream, pond, or puddle.
- Make prints by dipping leaves, ferns, pine needles, and other natural materials in paint.
- Make natural paint out of mud, pond water, or clay. Use twigs, pine needles, pinecones, and feathers for paint brushes.
- Paint a colorful design on paper, then set it out during a rainshower to be transformed. After it dries, paste it onto a journal page.
- Make collages by gluing soil, different shades of sand, flowers, leaves, and other objects onto a page. Add words to explain where the materials came from and what they mean.

Spoken Poem. In a place with a variety of sensory stimuli, gather your group into a circle and ask them to stand quietly for a few minutes to soak up the sounds, scents, and sights around them. Then create a spoken poem by going around the circle with each person contributing a word or phrase that describes one thing they experienced. It is fine if two people choose to say the same thing; poetry often uses repetition. The result can be quite delightful. You might even want to capture it by recording it on a tape.

Writing Prompts.
- What are some of your favorite sensory impressions? Write about some of the smells, sounds, sights, tastes, textures, and touches that you can remember most vividly or that bring you good memories.
- If you had to give up one of your senses, which one would it be? What specific sensations (particular smells, sounds, colors, etc.) would you miss the most after giving it up?
Curiosity and Wonder
- Looking With New Eyes -

One way to open your eyes is to ask yourself, "What if I had never seen this before? What if I knew I would never see it again?"

- Rachel Carson -
The Sense of Wonder
Goal:
 Students look at aspects of nature in new ways, in a spirit of discovery. They discover an appreciation for the beauty and intricacy of nature and awaken their curiosity to learn more.

I like to go on nature walks, because I can explore. ~ Emily, Grade 4
I saw mice tracks! ~ Luke, Grade 5
All of the trees I saw had ice shining on them. I'd never seen anything like it. It was really cool. ~ Julia, Grade 6
When I saw the tree I thought of it being upside down and looking at the roots. ~ Bailey, Grade 7
I was thinking of how cool everything is going to look when it's covered with snow. Also I was thinking of how many more clouds are in the sky and the difference it makes in light. ~ Jenna, Grade 4
5. Partner Drawing

Background
Careful observation and accurate, detailed description are important skills for nature journaling. This game is not only fun, it is excellent practice for descriptive writing. In order to successfully describe an unidentified object to their partners, students must be very clear and complete.

Preparation
Gather an assortment of natural objects – pinecones, leaves, sticks, acorns, driftwood, seed pods, flowers, bark, etc. Unusual or oddly-shaped objects are especially effective. Alternatively, locate an area outdoors where students can find their own objects.

Procedure
1. Hold up an object and ask students to help you describe it without naming it. Imagine someone is listening who cannot see the object, and model the kinds of details to mention: size, shape, number of different parts and how they relate to each other, whether the shape reminds them of anything.
2. Have students pair up and sit back to back. Instruct each pair to choose an Artist and a Describer. Artists close their eyes. Describers raise their hands, and you place an object in each raised hand. Or Describers could go and find their own nearby natural object or focus on a distant object.
3. Artists then open their eyes. As Describers explain the object’s appearance as accurately and in as much detail as possible, Artists try to draw exactly what they are told. Describers must not name the object or give clues about its identity; the goal is not to get the Artists to name the objects correctly, but to give them enough details that they are able to draw this particular stick, or pine cone, or rock. Artists can ask questions if needed.
4. When a pair finishes, they switch roles with new objects.
5. Afterward, have them compare the drawing and the actual object. How well do they match? Discuss what kinds of words or phrases the Describers used that Artists felt were especially effective. Which job was more difficult? Do they notice more about the object after trying to describe or draw it? Discuss the importance of being very clear and very descriptive so that your partner can see in his or her mind what you see in front of you, and relate this to writing descriptive journal entries.
6. I Wonder...

Background
Curiosity is fundamental to the outlook of scientists and naturalists. The world is full of things to wonder about, and the first step to learning something new is to ask a question. An excellent beginning for this activity is one of those spontaneous events that prompts lots of questions from your students: a rare animal sighting, a dramatic weather event, a new object in the classroom, an intriguing book or article on a topic that interests them. You could wait for this to occur, or orchestrate it yourself by revealing something unusual to the group.

Preparation
Gather an assortment of the following items for sparking curiosity and encouraging independent research: an assortment of natural history reference materials such as books, posters, magazines, and field guides; natural artifacts; photographs; magnifying glasses and/or a microscope. Designate a place to keep these materials where students can access them readily.

Procedure
1. If students need some prompting to spark their curiosity about aspects of the natural world, give them time to explore outside or peruse the materials you have brought in. If an event has already generated excitement and questions, skip this step.
2. Have students open to a fresh page in their journals and write "I Wonder." Then ask them to write down several questions they have about something in the outdoor environment.
3. Encourage students to continue adding to their list of "I wonder..." questions. Whenever new questions pop into their heads, as they are working on other activities in their journals or just exploring outside during free time, they can jot these down. In addition to scientific questions, it is fine to include questions that are simply musings without an answer.
4. Have students select one of the questions to which they think they could find an answer, and investigate it using reference materials, their own observations, or a combination of both. Keep the reference materials accessible so they can work independently on their research when they have time.

Alternatives and Extensions
- When students have a list of both scientific and imaginative questions, create a poem with the theme "I wonder..."
7. Natural Alphabets

Background
Kjell Sandved’s picture book *The Butterfly Alphabet* is a remarkable collection of close-up photographs of butterfly wings with patterns that resemble each letter of the alphabet. *ABCs Naturally* by Lynne Diebel and Jann Kalscheur depicts the alphabet in photographs of a variety of natural objects. Both are excellent examples of creative thinking and close observation of the patterns of nature.

Preparation
Choose an outdoor area to take students to search for letters. You could go to a central location, set boundaries, and let them wander, or walk slowly as a group as the changing scenery presents new views.

Procedure
1. Explain to students that a nature journal is a way to see the world with new eyes. Show them *The Butterfly Alphabet* and/or *ABCs Naturally*. Suggest that they can try to see the world this way too. When we look for them, we can find letters hiding in many of the patterns of nature – tree bark, branches, leaves, clouds, mud cracks, shadows. Point out several examples to get them started.

2. Have students search for the letters in their first names. They will need to look both up and down, think big and think small. You can tell them they can look at both natural and human-made patterns, but specify that they must be “found” letters, not real letters printed on a sign, a license plate, or someone’s shirt! Making the letters themselves does not count either. They should draw each letter they find in their journal, making sure to draw it accurately the way it appears. They could also make notes about where they found each letter.

3. Afterward, invite them to share their favorite discoveries and discuss the process. Were they surprised at how many letters they found once they started looking?

Alternatives and Extensions
- For a bigger challenge, have students hunt for the whole alphabet.
- They could also use digital cameras to take pictures of the letters they find.
- Follow up this activity by having students create a finished piece of art from their sketches, or make a cover for their journal.
8. Treasure Map

Preparation
Identify an area to do this activity. Copy the prompt cards on page 49 if you wish to use them, and/or gather paint sample chips in a variety of colors from a paint store.

Procedure
1. Explain to students that they are about to go on a treasure walk. What kind of treasure do you find on a treasure walk? You never know! You simply open your eyes and see what new, unexpected gifts are given to you by the world. It could be anything... a spiderweb sparkling with dewdrops, a deer track in the mud, a blooming flower, a tiny green bug.

2. Divide students into pairs or small groups, or have them work alone. Explain what you want them to look for. For younger students or those who would benefit from extra focus, hand out the prompt cards to guide their searching. You could give a whole set of cards to each individual or group, or assign specific categories to different groups. You could also pass out paint sample cards and challenge students to find a natural object that matches its color precisely.

3. Establish the following guidelines: Walk slow. Make a map of the path you follow. Whenever you see something unexpected or new or exciting (treasure!) mark your discovery on your map.

4. Model the mapping process for students so they understand how it works. Show them how to make a legend or label the features on their map. If you wish, discuss how to use a compass to add cardinal directions to a map.

5. Tell students how long they have to work, and establish boundaries. Circulate as they work to offer further guidance.

6. When students have finished their maps, give them time to share their discoveries with one another. They could lead a partner to favorite finds, or simply describe them to the group.

Alternatives and Extensions
- Have individuals or groups choose one treasure that they particularly liked and make a detailed map to it, marking the starting location and landmarks along the way. Then they can exchange maps and follow them to each other’s treasure.
### Treasure Map Prompt Cards

<table>
<thead>
<tr>
<th>Collect Textures</th>
<th>Touch Everything</th>
<th>Can you find something in every color of the rainbow?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can you find something soft, hard, smooth, rough, silky, fuzzy, prickly, warm, cool...</td>
<td>Imagine you have never touched ANYTHING before. Feel grass, leaves, trees, rocks, soil as if for the first time.</td>
<td>Red-Orange-Yellow Green-Blue-Purple Black-Brown-Gray-White</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Look for something that is a TRIANGLE</th>
<th>Look for something that is a CIRCLE</th>
<th>Look for something that is a SQUARE</th>
</tr>
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<tbody>
<tr>
<td>Find Something Beautiful</td>
<td>Follow Your Nose</td>
<td>Close your eyes and listen. What do you hear?</td>
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<td></td>
<td>How many different smells can you find? Which one is your favorite?</td>
<td>Search for the source of the sounds.</td>
</tr>
</tbody>
</table>
More Ideas for Discovering Curiosity and Wonder

**Folk Tales.** Share with students several folk tales or myths that explain how things in nature came to be the way they are. Discuss story-telling as a traditional technique that people have used for centuries to understand and explain the world around them. You may want to discuss the scientific explanations for those phenomena as well. Then invite each student to look for something in nature that they find intriguing. Why is the cardinal so bright red? Why does a beaver have such a flat tail? Why does that aspen tree in the yard have four separate trunks? Ask them to write a story explanation that describes how this came to be. Sit around a campfire (with real flames or imaginary ones) and tell your tales to each other.

**Solo Sit.** This works well in a wooded area where birds and squirrels chirp and scurry, or near a pond where frogs call and dragonflies swoop, or any other natural place where there is usually a flurry of activity. Go out with your students and have each member of the group find a quiet place and make him- or herself comfortable there. Notice how your arrival may have disturbed the animals around you. Did the birds stop singing or the chipmunk scurry into its hole? If you sit very still and silent, you can watch the world come back to life around you. Animals will resume their activities, and you may even be lucky enough to get a close-up look at one. You will start to notice other things, too, the longer you sit—the wind in the trees, the buzzing of insects, the way the sun feels on your skin. Documenting this change makes an excellent journal entry.

**Natural Sculpture.** Collect a variety of interesting natural objects from the immediate vicinity: driftwood and rounded stones near a lake or stream, fallen leaves and sticks from a forest, last year’s grasses and seed heads in a meadow. Arrange them into a sculpture right there on the ground. Give the sculpture a name, and decide what it represents. You have made a three-dimensional, all-natural, wordless journal entry! Take a picture of it if you like, and then return from time to time to watch its progress as it returns to the earth. For inspiration from a master of this technique, look for books by Andy Goldsworthy at your library.

**Writing Prompts.**
- Imagine that you have shrunk to the size of a mouse. Look around you at the trees, the grass, the trails or sidewalks, and the buildings. What does your world look like? Where would your house be? What kinds of dangers would you have to look out for? Where would you play? Where would you go to rest?
- Go outside and look at something—a tree, a cloud, a blade of grass—as if you have never seen anything like it before in your life. Describe it, and give it a name. Do you like the way it is shaped, its colors, or the sound it makes in the wind? Does it remind you of anything? Could you use it for something?
Observation Skills
- Zooming In -

We do not describe the world we see; we see the world we can describe.

- John Searle -
The Artist's Way
Observation Skills
- Zooming In -

Goal:
Students sharpen their skills of observation, zooming in on the details, patterns, cycles, and changes in nature. They come to recognize the biodiversity and ecological processes at work all around them.

I saw a lot of trees, some hardly up to my knee. I also saw loads of fallen leaves. ~ Hannah, Grade 4

I saw snow! Something I didn’t see on our first walk. ~ Julia, Grade 6

I thought how cool it is that God made it so we could still see the moon in the day. ~ Austin, Grade 7

There were trees with no leaves, but then had little piles of leaves which I assumed were nests. ~ Beth, Grade 8
9. Memory Game

Preparation
Arrange an assortment of natural objects on a tray. Ten to twelve objects works well – leaves, twigs, stones, flowers, seeds, pinecones, etc. Cover the objects with a bandana.

Procedure
1. Gather students in a circle on the floor. Place the tray with the covered objects in the center of the circle. Make sure all students can see the tray. Explain that they will have one minute to look at the objects and try to remember as many as they can. Reassure them that this activity is just a workout for their memories; they won’t be graded on how well they do!
2. Uncover the objects. After a minute, cover them up again. Pass out pencils and paper, and have students write down or draw as many of the objects as they can remember.
3. When they have finished, ask volunteers to name objects one at a time. Discuss the students’ strategies and success. How many made a list of items? How many drew them? Did anyone make a map of where each item was? This is an excellent illustration of how we all approach a challenge in different ways. Was it easy to remember all the objects? Do they think they could improve their performance with practice?
4. Discuss the importance of observation. How do scientists use close observation? Artists? Others? Nature journaling is one way to practice these skills. A journal can help you sharpen your observation skills and notice more of what’s around you, and it can also help you remember more of what you see.

Alternatives and Extensions
- A more involved, outdoor version of this activity is an effective way to begin and end an extended nature journaling unit. Before doing any other activities, take students on a short walk around the schoolyard without asking them to notice anything in particular. When you return, give them a blank sheet of paper and ask them to draw and label as many things as they can remember from the walk. You could also have them write a few sentences about what they experienced. Do the same thing at the conclusion of the unit. Pass back their work from the beginning, and ask them to compare the two. Did they notice more the second time? Does anyone feel she or he has become more observant? This is an excellent way to help students recognize the value of journal-keeping for enhancing observation and recall skills.
10. Close-Up Drawing

**Preparation**
Choose an outdoor area where students can search for small objects to draw: flowers, leaves, seed pods, rocks, lichens, moss, or insects, for example. They could also use small parts of larger objects, such as the bark on a tree, or a section of the ground. If you cannot go outside, bring an assortment of objects into the classroom and arrange them so students can choose one they find intriguing. Gather hand lenses and jar lids to distribute to students.

**Procedure**

1. Have students trace around a jar lid to make a circle in their journal. Give each one a hand lens or magnifying glass. Show students how to hold the hand lens up to their eye and then bring the object closer and closer until it comes into focus.

2. Send them on a search for a small object to draw, or have them select an object from your collection. After they have carefully observed the details of their objects, they should draw exactly what they see in the lens inside the circle on their journal page.

3. Encourage students to add written notes to describe what they see. Suggest that they make a sketch of the whole object and then indicate how their magnified circle fits into the bigger picture. Encourage them to write down any questions that occur to them while they draw. (You could begin the "I Wonder" activity on page 46 while doing this activity.)

4. Those who finish first could exchange objects with someone else and make a second drawing while others are still working, or look for answers to their questions.

5. Discuss with students the kinds of details they noticed about their objects as they drew. What did they discover by looking closer? What did they see that made them curious? Ask them to share some of their questions, and discoveries.

**Alternatives and Extensions**
- Start this activity by bringing in close-up photographs of various objects and having students guess their identities.
- After students make their drawings, set up a display with the objects and the drawings, and let students try to match each drawing with its corresponding object.
Observation Skills: Zooming In

11. Field Guides

Background
This activity is best introduced after students are familiar with journaling and have begun to develop their curiosity about particular aspects of the natural world. A wealth of information on natural history is available in field guides and reference books, as well as in popular science magazines and on the Internet.

Preparation
Collect an assortment of field guides and reference materials from the library. Make a list of potential topics that relate to the natural history of your area.

Procedure
1. Have students choose a subject they find interesting to investigate in more detail. Are they especially tuned into birds, or wildflowers, or the weather? Brainstorm a list of possibilities for those who need help selecting a topic. It should be one they can make direct observations about outdoors at school or at home.
2. Once they have chosen a topic, explain that they will become an "expert" in that subject and the author of a field guide to it. Show students examples of field guides, and have them dedicate a section of their journals to become their field guide. It should include their own observations, sketches and/or photographs, and information found in books. Encourage them to write down questions sparked by their observations, and then use those questions to guide their research.
3. Post a list of each expert's topic. Encourage students to use their classmates as resources when they have questions that relate to someone's field of expertise.

Alternatives and Extensions
- Look at Kristin Pratt-Serfini's Salamander Rain: A Lake and Pond Journal for examples of field guide-type journal entries.
- Make copies of each student's field guide pages, or have them each take their best information and create one polished page. Compile these all together into a class field guide to your area.
- When students have fully investigated their topics, hold a conference where each student presents what she or he has learned to the rest of the group.
Digging In

In a Nutshell
Students choose a natural process to watch over a period of time and document their observations.

Materials
- Time-lapse video (optional)
- Journals
- Pencils

Location
Outdoors

Time
10-20 minutes each time, over a period of days or weeks

Special Considerations
Spring is undoubtedly the best time for this activity, with its endless array of buds bursting into leaves and flowers blooming. But don’t overlook the potential at other times of the year: a summer garden, snow accumulating or melting in winter, the monthly moon cycle, etc.

12. Time Lapse

Preparation
A time-lapse video of a seed sprouting or a flower opening is an excellent way to introduce this activity and generate interest. If you have access to one, cue it up to show students. Consider locally and seasonally appropriate subjects, and choose your own time-lapse process to follow.

Procedure
1. Show students some time-lapse photography. Or have them close their eyes while you describe a vivid series of images: a bare patch of soil in the snow; a tip of green poking up; a leaf unfurling, a stalk growing upward; a bud forming, swelling, darkening; a bright yellow crocus blooming!
2. Give students a chance to describe other amazing time-lapse sequences they have seen. Then, employing a bit of drama and mystery, reveal that these kinds of things happen outside the window every day.
3. Take students outside to select a location where they can follow a process over the course of several days to several weeks. Each time they go out to observe their phenomenon, they should note the date and time, make a sketch of what it looks like (using the same scale and perspective each time), and record any other observations.
4. After making their final entries, have students refer to their notes to describe what they observed to classmates. Discuss the process. Did they enjoy it? Did they make any discoveries? Did anyone notice something unexpected or surprising? What is the value of these kinds of close observations? Who uses them?

Alternatives and Extensions
- In addition to sketches, take photos of the subject’s progress.
- Use the notes and sketches to write a detailed description of explaining the process observed.
- Use sketches or photos to create a polished piece of artwork that shows the whole sequence in color and detail.
- Assemble a flip book of photos or sketches to view the process at fast-forward speed.

Time Lapse Subjects
- A bud opening into a leaf
- A flower blooming
- A fern unfurling
- Fruit or seeds forming
- Snow accumulating
- A snowpile melting
- A lake freezing or thawing
- A dead plant or animal decomposing
- A moon cycle from full to new and back to full
- The stars moving across the sky in one night, or through the seasons
Insider's View. Take students out to collect plants. Be sure to choose something common and abundant. There is rarely a shortage of things like plantain spikes, clover flowers, or dandelion seed heads! Bring back the plants and dissect them. Study them carefully, as scientists. Use a magnifying glass. Count the leaves or petals, break open seeds, note characteristics such as stem shape, leaf shape, texture, and color. Record your observations in words and sketches.

Observation Window. Designate one window in the classroom as the observation window. Put up bird feeders and corn for the squirrels outside it. Set up a rain gauge, a thermometer, and a wind vane. Keep field guides handy. Post a list where observers can write down what they notice. How many different species of birds visit the feeder? What kinds of clouds do you see in the sky? Keep track for a month of how many days are sunny or rainy, or graph maximum and minimum temperatures. Post your classroom phenology calendar nearby (see page 63).

Frames. Cut windows in different shapes and sizes of cardboard, and have students use them as frames to focus intently on small pieces of the big picture. Encourage them to try a variety of views: close-up sections of tree bark and flowers; a square patch of soil or leaf litter; a view of the sky; a wide-angle vista of the horizon. Capture a view in a haiku poem: three lines of five, seven, and five syllables. Students could write a whole series of haikus, one for each of their favorite views, and then transcribe them around the edges of the frame.

Temporary Entries. On a sandy beach, a muddy sidewalk, or a snowy field, find a pointed stick and write a sentence about the place, the day, or your own feelings. If it’s a place where others seldom go, return each day and watch as your undisturbed words slowly fade away. You could even take a series of photographs, or sketch the process. If you choose to write your sentence in a place where lots of people pass by, watch them instead. Make yourself inconspicuous on a park bench with your journal, and keep track of how many people stop to read what you wrote. You could even give them instructions. “Look up at the clouds!” or “Stop and take a deep breath of the fresh spring air!” See how many people follow your suggestion.

Writing Prompts.

think back to when you were very young. How has your neighborhood or your town changed since then? Were there other changes before you were born that your parents or grandparents talk about? What could you do to help your town change in good ways?

In general, do you think kids or adults are more observant? If you think kids are, why do you think adults stop noticing as much as they get older? If you think adults are, how do you think they develop that skill?
A Place in Space and Time
- Zooming Out -

I do not know whether it is possible to love the planet or not, but I do know that it is possible to love the places we can see, touch, smell, and experience.

- David Orr -

*Earth in Mind*
Goal:
Students consider the unique features of their place through different spatial and temporal scales, zooming out to view it in a broader historical and regional (even global) context. They feel a sense of place: a connection with and care for the place where they live.

I saw "my tree". I got attached to my tree. ~ Brook, Grade 4
I thought that the wind talked to me. ~Kirstie, Grade 3
When I was walking I thought I was in heaven. I thought the forest was very butufe and wonderfule. ~ Shannon, Grade 3
It was very beautiful outside. The sun shown just right. I saw an empty soda bottle. Someone should have picked that up. ~ Alexandria, Grade 6
13. Place Descriptions

Preparation
Read through the passage at right from Aldo Leopold, select another from a favorite author, or (even better) write one yourself about a meaningful experience.

Procedure
1. Have students close their eyes while you read a passage that evokes the rich details of a particular place and time. Ask what kinds of images they saw in their minds. Where was it? What season was it? Can they imagine what it feels like to be there?

2. Ask students to think of a place and time in their own lives that they remember clearly. Prompt them with questions to help them recall specific details. What was the weather like? What did you see, hear, and smell around you? How did you feel? Have them write a paragraph where, instead of naming the time and place of their memory, they give sensory clues that will transport a reader there with their words.

3. When they finish writing, have them read their descriptions to a partner or the class. The audience can give their impressions at the end. What images did they see? Where was it? What time of the day and year was it? Ask them to be more specific than just spring, summer, winter, or fall: was it the early fall of brilliant colors and crisp air, or late fall when the leaves are dry and brown on the ground and the sky is cold and grey? Discuss what kinds of things made the descriptions most effective. Encourage students to include these same kinds of sensory clues in their future journal-writing.

Alternatives and Extensions
- After listening to and discussing the students' descriptions, have them revise their piece into a polished product.
14. My Place

Preparation
Find or make a map of the surrounding area to mark students’ places. Create guidelines about what you would like them to do when they visit their place. You may want to have specific exercises for each visit, or general instructions for all visits.

Procedure
1. Have students choose a place in nature to visit regularly over a period of time (for example, each day for a week, each week for a month, each month for whole school year). It need not be a spectacular location; the best places are those that are accessible and easy for students to visit frequently. Each student could choose a different place, or even an individual tree, in the schoolyard to call their own. They could also do this activity after school hours in their own neighborhood.

2. Mark each student’s place on a map. Encourage them to give it a name. Provide them with guidelines about what to do when they visit their place such as: record the time, the date, the weather, their observations, and changes they note from the last visit. Encourage them to record what they see, hear, touch, and smell there. Have them make a map of the site.

3. Many of the skills students have practiced in other activities can be done here. Try to provide opportunities to explore their places at different times of the day and different seasons of the year. If possible, they could even visit their site at night, or watch a sunrise or sunset there. Encourage students to look at their place from different perspectives (close-up, wide angle) and consider their place through time. How did it come to be here, and who else (people and other animals) spent time here?

4. At the end of the exercise, have students review the observations they made in their place and look for a story there. Have them reflect on what they learned in their place, and hold a guided tour where each student takes the class to his or her spot – physically or by way of an imaginary field trip – and tells the story of what is special about it.

Alternatives and Extensions
• Take a photo of students in their places (perhaps one in each season) that they can add to their journals.
• For additional ideas for exploring a place, see Joseph Cornell’s *Journey to the Heart of Nature*, which provides an excellent series of activities for regular visits to a chosen place.
15. Phenology Calendar

Background
Phenology is the recurring phenomena that indicate the changing seasons – temperature, wind speed, cloud cover, precipitation, time of sunrise and sunset, moon phases, animal sightings, migration and hibernation, plant growth, leaf drop, frosts, first snowfall, etc. By recording the dates when these phenomena occur, you create a picture of your place through the seasons. If you keep good records from year to year, you can make comparisons and look for patterns.

Preparation
Create a class calendar for students to record their phenology observations. This can serve as an example to help students create their own phenology pages in their journals.

Procedure
1. Introduce the concept of phenology to students. How do they know what season it is right now? What signs tell them? How do they think these changes affect other animals and plants?
2. Explain that phenology means keeping track of clues about the changing seasons and how plants and animals react to them.
3. Show them the calendar you have made, and encourage them to add their own observations over the course of the school year. Discuss the value of these records when they are kept over long periods of time. For example, scientists have used long-term records of ice-on and ice-off dates on northern lakes to study global climate change.
4. Have students incorporate phenology pages (perhaps one for each month) in their own journals.

Alternatives and Extensions
- If you collect data year after year, have students draw comparisons. They could represent temperatures, precipitation, and other patterns graphically and calculate averages over time.
- Make index cards with pictures of common phenological events, such as the first snowfall, lakes freezing, the first returning robin, the first thunderstorm, dandelions blooming, etc. Tie a string across the classroom, and use clothespins to hang each card on the string when you observe that event. You will have a visual display of the chronological progress of the seasons. Write the date that the event occurs each year on the back of the card.
More Ideas for Exploring Perspectives on a Place

**Phenology Penpals.** Connect with a class of students in a different part of your state, country, or even the world. Exchange observations about what is happening in the places where each of you live. Compare your places. How are the seasons the same or different? How does their weather compare with yours? What kinds of animals do they see, and what kinds of trees or flowers are blooming? Can you make any conclusions about similarities and differences between your place and theirs? Can you find connections between them, such as birds that migrate through both places, a river that flows from one to the other, or storms that affect both?

**Brainstorm Place Poetry.** This is a good way to introduce poetry to a skeptical group. It’s a bit like the magnetic poetry you find on refrigerators in many homes these days. Low-pressure, fun, and every now and then something profound emerges. Choose something of significance in your neighborhood – an old, gnarled tree, a river or stream, a hill where people go to watch the sunset. Go there, and sit where everyone can see this thing. Take along a big sheet of paper or a whiteboard. As you observe, ask students to call out words that come to mind. The words could describe what this place or thing looks like, smells like, sounds like, or feels like. They could also be about what it represents, or how it makes you feel. Write down the words, and when the storm of ideas subsides, post the board where everyone can see it. Students then arrange some of the words into their own poems. Haiku is a good form for this: three lines with five, seven, and five syllables each. Or let it be free-form. Either way, the word list tends to jumpstart the process.

**Close Up/Wide Angle.** Imagine your place from contrasting perspectives. What do tourists see when they pass through for a day or two? What does a long-term resident see? What does a tree see that has been rooted in the same place for a hundred years? What does a Canada goose see as it stops by on its way north in the spring? Try making some sketches that show these different views. Don’t be afraid to use humor! Perhaps for the tourist, there is nothing but a highway, a few motel signs, and an ice cream store. The goose may see a great big pond to land on, with all the houses and streets tiny and insignificant around it. Now think about what you see when you look at your place. What stands out? What details do your eyes simply pass over?

**Writing Prompts.**

- What are the names of some of the places in your neighborhood? Do you or your family or friends have made-up names for any places? Why did you choose them? Does it matter if a place has a name, or what it is?

- Think about each of the seasons in the place where you live. What are some of the sights, sounds, and smells that tell you a new season has arrived? Do you have a favorite season? What do you like about it? Would you ever want to live in a place where the seasons are different?
We cannot win this battle to save species and environments without forging an emotional bond between ourselves and nature as well - for we will not fight to save what we do not love.

- Steven Jay Gould -
Goal:
Students learn to recognize other species that share their place, investigating their lives and imagining the world from their unique perspectives. They feel empathetic toward other living things and understand that their own lives are enriched by biodiversity.

I saw a bird on a branch. The bird looked cold. ~ Richie, Grade 6
I thought about what it would be like to be an animal and have your home be gone when people throw trash and wrappers on the ground. ~ Ashley, Grade 6
I chose to be an owl and wrote about what the owl thinks as he hunts. ~ Grade 6 Student
I was a bush. I wrote a letter to me from my bush explaining what it can see, smell, hear and other interesting things. ~ Grade 4 Student
16. Rock Pass

Background
Empathy is the ability to imagine life from another’s perspective and identify with that other being’s feelings. This activity helps students practice this skill in the context of a sensory game.

Preparation
Find a place outdoors where students can hunt for their rocks, or collect enough rocks yourself for each student to have one.

Procedure
1. Have students hunt for a special rock, or let them select one that appeals to them from your collection. Gather students into a circle. If your group is larger than ten or twelve, two smaller circles will work better.
2. Ask students to explore their rock very carefully. What is it shaped like? What does it feel like when they roll it between their hands? Rub it on their cheek? How heavy is it? Does it have its own smell?
3. Once they know their rocks well, collect the rocks and put them into a bag or box. Ask students if they think they can identify their own rocks without using their eyes. Pass out blindfolds or have students close their eyes. Begin passing rocks around the circle one by one.
4. Tell students that they should carefully feel each rock. If they think it is their own, they can put it in their lap. If not, they should continue passing it to their right. Walk around the circle and keep an eye out for any rocks that may get dropped along the way. When passing stops and everyone has a rock, give the eyes-open signal. Give them a chance to swap if they didn’t end up with their own, or play another round.
5. Now ask students to imagine what their rock might have thought of the adventure it just had. Did it enjoy being passed around? Was it worried that it wouldn’t be claimed? How did it feel when you found it again? After they have had time to write down their rock’s feelings in a story, give them a chance to share their stories with one another.

Alternatives and Extensions
- Combine this activity with a study of the geologic history of your region. Encourage students to consider the whole of the rock’s life history, and include in their story the many other adventures it has had.
17. New Perspectives

Preparation
Do this activity yourself before you introduce it to students. You can then share your entry with them. Modeling will help them understand the idea of perspective, which can be challenging.

Procedure
1. Read Byrd Baylor’s *The Other Way to Listen* or another book that describes life from a different perspective. Ask students if they ever wondered what the birds were whistling about, or what that chattering squirrel was trying to tell them, or if even the wind might have something important to say.

2. Outdoors, have students spend some time investigating the things that are part of their environment. They should choose some other being (a plant, an animal, or some other part of the environment like a rock, a stream, or a cloud) whose story they’d like to tell.

3. Have them imagine seeing the world through the ‘eyes’ of that being. Encourage them to see what the world looks like from that vantage point – get down on their bellies with their noses on the ground if they’re writing as an ant or worm, lie down on their backs and look up at the sky if they’re a bird.

4. In order to take on the identity of the being they chose, they will need to make a leap of imagination. Challenge them to imagine what it would really be like to experience the world as this other being. How do you feel? What does a day involve? Who do you interact with? How do you experience the passing of time (slow or fast)? What makes you happy or sad or worried or excited? What is your job? (That is, your role in nature?) What would happen if you missed work for a day?

5. Encourage them to create a distinctive voice for their character and write with that voice. Their accounts could take a variety of forms – for example, a first-person narrative, letters, a picture book, or a conversation between two beings.

6. Have students share their accounts with the group. Discuss the different perspectives they chose. How does perspective affect the way we see the world? Is anyone’s version more “true” than anyone else’s? Did anyone find a connection between themselves and the thing they wrote about?

Alternatives and Extensions
- Have students revise their stories into a polished version and type or write them neatly. Then have them draw a picture of the “author” of the story and display their final products.
18. Animal Detectives

Preparation
Familiarize yourself with common animal tracks and signs (see the bibliography for resources). Do a preliminary search for animal signs in the area. You can use your finds to help guide students to make their own discoveries.

Procedure
1. Discuss with students the kinds of signs that tell us about where animals have been and what they have been doing: tracks and trails, fur or feathers, scents, sounds, scat, chewed leaves or bark, holes or nests. Have students noticed any clues left by the animals who call their neighborhood home?
2. Discuss how detectives discover clues. They have to look very close, and they often focus on patterns or things that are out of the ordinary. Even the smallest detail may be significant. They also need to be quiet and sneaky. In order to find animal signs, students will use these same skills.
3. Outdoors, pass out hand lenses and establish boundaries. Emphasize that they must keep track of their findings in their journals. Give examples of careful observations: what did you see, precisely where did you see it, and what else was nearby? Encourage them to illustrate their writing with sketches and use field guides to help with identification.
4. Send students out as detectives on the trail of animal signs. Remind them not to step on tracks so that others can see them. Be sure they look for other signs too. Encourage them to consider what the animal was doing, how long ago, and why.
5. After 15-20 minutes, regroup and have students share their observations. What kinds of signs did they find? What do they think the animals were doing? If anyone found something especially interesting, invite them to show the group.
6. On a large sheet of paper or whiteboard, make a map of the area students just explored. Using their notes, students can add the tracks and other signs they found in the appropriate locations. Then take a look at the big picture. Do you see any patterns? What conclusions can you draw about what kinds of animals live here and how they spend their days? Record the group’s conclusions and speculations, and make further observations in the days to come to see if these are verified.

Alternatives and Extensions
• Divide the area into sections, and have groups of students work together to map each section, then combine the maps.
19. Snail Trails

Preparation
Do a preliminary search for small creatures in the area. You can use your finds to help guide students to make their own discoveries.

Procedure
1. Discuss animal homes with students. All animals (including humans) have the same basic needs: food, water, shelter, and space. These constitute habitat. How do our homes and neighborhoods provide these things for us? How do other animals meet these needs?

2. Ask students what kinds of animals might use the nearby area for habitat. They have likely seen squirrels, rabbits, and birds, perhaps even raccoons or deer or foxes. But even if we don’t see any animals outside, there are many other, much smaller, creatures here all the time – insects, spiders, snails, slugs, and worms, for example. Their homes are much smaller too, although they still provide all the same basic needs.

3. Explain to students that they will be visiting one of these small creatures in its home. Of course, as a guest, they will be on their best behavior and will treat their host’s home with care. Distribute hand lenses and establish boundaries and expectations. Students should observe, but not disturb, the animals they find. Be aware that on sunny days hand lenses can be used to cause burns or start fires. Let students know that if they choose not to use the hand lens respectfully, they will lose the privilege.

4. Send them out with their journals to search for a very small animal. A good guideline for size is no bigger than their thumb. If they are having trouble finding one, suggest that they gently turn over rocks and logs or look under woodchips or between the cracks of the sidewalk.

5. Once they find a creature, they should spend 10 to 15 minutes quietly observing its movements and drawing a map of its path. Have them include in their map any obstacles or other creatures it encounters in its travels. Encourage them to note their own feelings as they watch it, and also note what they think the creature might feel about being watched.

6. After 15 minutes, have students return any rocks or logs they have moved. Regroup and let them share their observations and the maps they made. Discuss the kinds of animals they found and how many there were. How do their homes provide their basic needs? What is their role and importance in the natural world?
More Ideas for Finding a Connection with Living Things

Species Lists. Have students start a list in their journals of all the different species of plants and animals they encounter. Look up unfamiliar ones in field guides, or ask teachers, neighbors, or parents who are interested in the outdoors to help you identify them. If you cannot find out what they are, describe them and make up your own names for them.

Feathered Friends. Put up a bird feeder outside the classroom and observe the birds who visit. Start a class journal page where you keep track of your observations about what the different species look like, how they move around, whether they seem calm or nervous, if they come alone or in flocks, and how often and at what time of day they come. Often the same birds will come back again and again. Can you distinguish any individuals? Once you start to recognize them, give them names to help you keep track of them.

Graffiti Wall. Cover a wall with newsprint. Give students markers and crayons and let them cover it with writing and drawing — but all in the voices of other-than-human species who share your place (or other things like rocks, lakes, rivers, soil, and sky). What kinds of messages do students think they might want to leave for us?

Live Performance. Have students write a monologue in the voice of another animal or plant, or a conversation between two characters (see New Perspectives on page 68). Make masks, costumes, or puppets to represent the animals. Then give a performance where students do dramatic readings, act out their pieces in a play, or present a puppet show.

Writing Prompts.

- If you could talk to any wild animal or plant and you knew it would understand you, what would you choose to talk to? What would you say? What questions would you ask? Is there anything you think it might want to ask you?
- What are your favorite and least favorite animals? Is it our job as humans to try to prevent other animals from becoming extinct? Are all animals important, whether we like them or not? Are there any animals that you think the planet would be better off without? What might happen if we removed them?
Reflections
- Looking Within -

The act of recording a life...is also the act of creating a life.

- Hannah Hinchman -

* A Trail Through Leaves

- October 5 -
The first snow, We race out to celebrate and soon find ourselves careening down the trail, our feet light with the exhilaration of this annual magic.

- October 12 -
Slept out under the full moon. A warm, misty night, the forest bathed in bright moonlight.

- October 28 -
An incredible show of Northern Lights. Shimmering green curtains dance across the northern sky, with bright stars behind and an awe-inspiring draped over the crowd outside the West Dome.
Reflections
- Looking Within -

Goal:
Students engage in a personal dialogue in which they consider and clarify their own thoughts and feelings about their place in the natural world. They develop strong critical and creative thinking skills, a deeper awareness of their personal values, and a personal voice in which to express their views.

It felt very relaxing outside. I wish we could have stayed longer before we came back in. ~ Caitlin, Grade 8

I felt alone and quiet and at peace with nature. ~ Aaron, Grade 8

I felt the air, wind, grass and trees. I thought about would we be able to live here without any of this? ~ Katie, Grade 7

I thought how much effort God must have put into making a world so beautiful. ~ Jim, Grade 4
20. **Symbolic Objects**

**Preparation**
Collect an assortment of natural objects, photographs of scenes of the natural world, and poetry or excerpts of writing about nature. Place them on desks around the classroom or in a circle outside or on the floor.

**Procedure**
1. When students enter, ask them to walk around and pick up the objects, look at the images, and read the words. After everyone has had a chance to circulate throughout the room, ask them to sit down beside something that speaks to them.
2. Give them a few minutes to write about what they chose, and why it is significant to them. More than one student can choose the same object, but they should do their writing individually, without talking.
3. Then go around the circle and invite students to share the reasons for their choices with the class. What does the object represent? Is it like them in some way, or does it remind them of something that is important to them?
4. Discuss how each one of us carries a different set of experiences and interests and ideas with us everywhere we go. They have just gotten a glimpse of what is below the surface of each member of the class. Explain to students that nature journaling is an opportunity to explore their own interests and ideas in greater depth, and to use their own unique outlook to communicate what they see and how they feel about it. It is also a chance to find out more about the interests, abilities, and ideas of their classmates, if they choose to share them with each other.

**Alternatives and Extensions**
- Instead of bringing in objects and pictures yourself, ask students to bring something from home that represents them.
- Do this activity outdoors, and have students search for an object or a process in nature that can serve as a metaphor for something important in their own lives.
21. Circle Poems

**Background**

Interdependence is an important concept in ecology. Plants, animals, water, air, and earth are all connected to each other in some way. The water and air that sustain us, the food that nourishes us, and the materials we use for shelter and clothing all are linked in complex cycles. Each link reinforces our dependence on and relation to other things. This activity encourages students to find ways to explore and express their connection to other parts of the world.

**Procedure**

1. Discuss the ecological concept that all things are connected, and that these connections form circles and cycles of interdependence and interrelation. Ask students to brainstorm a list of all the different parts of our environment (specific animals and plants, air, water, soil, rocks), and then draw lines linking things that depend on one another. Both literally and figuratively, we are all formed from pieces of everything else that has come before us.

2. Read the excerpt from N. Scott Momaday's poem "The Delight Song of Tsoai-Talee" on page 77. Ask students for their reactions. What images were especially vivid?

3. Ask students, "What makes you who you are? To what animals, plants, elements, images, and sounds are you connected? You might be connected because you need them to survive, or they need you. But you could also be connected because you find them beautiful or inspiring, or they enrich your life in some way.

4. Go outside and have students spend some time walking around or sitting in one place gathering ideas for their own poems.

5. Read the Momaday poem again, paying particular attention to the repetition and rhythm, and to the way he brings the poem to a close. Then have students write a circle poem of their own. As in Momaday's poem, they could begin each line with "I am..." Alternatively, you could let them choose their own structure. Some students may wish to write the poem in the shape of a circle to show the connections more clearly.

**Alternatives and Extensions**

- Have students make a drawing, painting, or collage to illustrate their poems.
- Have students read their poems aloud. After listening to a poem, invite the class to discuss the pictures it made in their minds.
From "The Delight Song of Tsoai-Talee"

I am a feather on the bright sky
I am the blue horse that runs in the plain
I am the fish that rolls, shining, in the water
I am the shadow that follows a child
I am the evening light, the luster of meadows
I am an eagle playing with the wind
I am a cluster of bright beads
I am the farthest star
I am the cold of the dawn
I am the glitter on the crust of the snow
I am the long track of the moon in a lake
I am a deer standing in the dusk
I am an angle of geese in the winter sky
I am the hunger of a young wolf
I am the whole dream of these things

You see, I am alive, I am alive
I stand in good relation to the earth
I stand in good relation to the gods
I stand in good relation to all that is beautiful
I stand in good relation to the daughter of Tsen-tainte
You see, I am alive, I am alive.

- N. Scott Momaday -
22. Celebrations

Background
*I'm in Charge of Celebrations* by Byrd Baylor is the story of a child who keeps track of important events and adventures in the natural world “besides the ones they close school for” and records them in a notebook. The idea that each of us is in charge of our own celebrations can serve as inspiration for nature journaling. A journal is a perfect place to record your celebrations...and in it, they will be preserved so you can revisit them years later.

Preparation
Read through the book. Then reflect on some times in your own life that you would claim as personal celebrations, in preparation for sharing these examples with your students.

Procedure
1. Read Byrd Baylor’s picture book *I'm in Charge of Celebrations* with students. After reading the story, ask them if it reminded them of a time in their own lives when they saw something beautiful or amazing, something that most people missed because they were indoors.

2. Ask students to think of an experience they have had that they would like to claim as a celebration of their own. Share with students some of your own personal celebrations as a model. Like the child in the story, they can give the celebration a name and write down the date (if they remember) and a few lines to describe the celebration. Then they can draw a picture to go along with the description.

3. Gather the group in a circle and have a celebration-sharing. Give each student a chance to describe one of his or her own celebrations and the picture that goes with it.

Alternatives and Extensions
- Keep a class “Celebrations” notebook where you record special events throughout the year.
- Suggest to students that they keep their own “Celebrations” pages in their journals. Each time something extraordinary happens, some encounter with the natural world that they don’t want to forget, they can write it in their journal to help them remember it and share it with others in the future.
Can I Quote You? Gather quotes from the writing of naturalists, scientists, artists, and others that you think will be of interest to your students. (Take a look at the quotes throughout this guide to get started.) Alternatively, students could seek out their own. Then invite them to copy the quote into their journal and write a response to it. What do the words mean to them? Do they agree or disagree with any opinions shared? Did specific words call up feelings or memories from their own lives?

My Stars. Invite students to step outside on a clear starry night, either at home or on a field trip. The sky is full of pictures and stories that people have seen for centuries. Many of the stories describe people or animals who did something helpful or brave and were rewarded by being placed in the sky. All the established constellations and the tales that go with them were dreamed up by someone, somewhere—and that means we can still create new ones! Have students pick out a star pattern as their own personal constellation, and make up a story about how it what it is and what it means. Encourage them to choose something inspiring to them, so that every time they see their stars in the sky they will be reminded of a goal or aspiration they have, or a time or place they want to remember. Black paper, star stickers, and silver pens make recording their constellation and its story very appealing.

Freewriting. When students are comfortable with their journals and have past experiences and ideas to draw upon as subjects, give them an opportunity for unstructured reflection. This is a chance to write and/or draw whatever they choose as they sit outdoors. Encourage them to use rich sensory descriptions and close observation, to ask questions, to look at things from a variety of perspectives, and to make connections to their own thoughts and feelings...but let them choose their own strategy and style.

Writing Prompts

- Think about your daily life. How do the things you do impact the place where you live and the animals and plants around you? Is there anything you could do differently to make your effect a positive one?

- In your house, are there certain rules that everyone has to follow? Why? What happens if someone doesn’t follow them? The Earth is a home for us all. Do you think there should be rules that people have to follow in our bigger house, the Earth? What rules would you make? What would be the consequences for not following them?

- According to a Native American saying, “We did not inherit the Earth from our parents, we are only borrowing it from our children.” What do you think this means? Do you agree? If you could write a letter to someone in the past or the future about the Earth where we all live, what would you say?
Bibliography

General Background on Journals and Writing

Nature Journaling

Teaching Nature Writing

Nature and Art
Sense of Place & Naturalist Intelligence

Activity Guides

Children's Books
Nature Writing Anthologies

Biographies of Historical Naturalists

Natural History Information

Environmental Organizations and Magazines
The Orion Society publishes a bimonthly magazine, Orion, of exceptional writing, poetry, photography and art on environmental themes. http://www.orionsociety.org
River of Words conducts an annual poetry and art contest for students on watershed themes. http://www.riverofwords.org
The National Wildlife Federation publishes Ranger Rick (for younger children) and National Wildlife. Both are good sources of information about animals and natural history.

Sources for Materials
Most of the books listed above should be available through your local library or bookstore. For journal-making supplies, try contacting printing presses or duplicating services in your area. They often have paper odds and ends that they may donate for education.

Butterfly and Nature Alphabet Posters are available through Kjell Sandved’s website www.butterflyalphabet.com or at 1-800-222-9464.
Acorn Naturalists Catalog carries many of the books listed above, as well a wealth of field guides and other natural history reference materials. They also sell hand lenses and magnifying glasses in quantity and other supplies for nature study. Highly recommended! www.acornnaturalists.com or 1-800-422-8886.
## Appendix A. Activities by Subject Area

Many of the activities included in this guide support skills in one or more traditional academic subject areas. Use this chart to help you make connections with your curriculum.

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Appendix B. Activities by Multiple Intelligences

Multiple Intelligence Theory broadens the scope of intelligence by suggesting that each of us has a unique profile of strengths. Currently the framework includes eight intelligences encompassing linguistic, mathematical, spatial, kinesthetic, musical, inter- and intrapersonal abilities, and naturalist skills. Many children enjoy learning about and spending time in the outdoors; nature journaling is an excellent way to develop or reinforce elements of the naturalist intelligence. Those students who are linguistically or artistically inclined will probably enjoy "traditional" nature journaling activities with very little prompting. Students with other strengths may thrive with alternative choices. This chart will help you create bridges to connect students of all intelligence profiles with the natural world and journal-keeping.

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Appendix C. Wisconsin Grade 4 Academic Standards

The extent to which a given activity addresses the Wisconsin Model Academic Standards will depend on how you choose to conduct the activity and whether or not you incorporate any of the optional extensions. Each activity below has the potential to help meet the standards indicated; consult the text of the standards to be sure you are covering them fully.

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<td>C.4.5, C.4.7, L.4.5</td>
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<td>Sound Maps</td>
<td>C.4.3</td>
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<td>A.4.1, E.4.1</td>
<td>C.4.7, E.4.5</td>
<td>A.4.1</td>
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</tbody>
</table>
Appendix D. Wisconsin Grade 8 Academic Standards

The extent to which a given activity addresses the Wisconsin Model Academic Standards will depend on how you choose to conduct the activity and whether or not you incorporate any of the optional extensions. Each activity below has the potential to help meet the standards indicated; consult the text of the standards to be sure you are covering them fully.

<table>
<thead>
<tr>
<th>Activity Title</th>
<th>Language Arts</th>
<th>Science</th>
<th>Social Studies</th>
<th>Visual Arts</th>
<th>Env. Education</th>
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<tbody>
<tr>
<td>Blind Walk</td>
<td>B.8.1, C.8.1</td>
<td>A.8.2</td>
<td>E.8.5, L.8.4</td>
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<tr>
<td>Close Up Drawing</td>
<td>A.8.4</td>
<td>C.8.1, C.8.2</td>
<td>C.8.6, E.8.5, L.8.4</td>
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<tr>
<td>Memory Game</td>
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<td>E.8.1</td>
<td>E.8.5</td>
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<tr>
<td>Mystery Bags</td>
<td>B.8.1</td>
<td>C.8.6, E.8.5</td>
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<td>Natural Alphabets</td>
<td>A.8.4</td>
<td>E.8.1</td>
<td>C.8.6, C.8.9, E.8.5, L.8.4</td>
<td>B.8.5</td>
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<tr>
<td>New Perspectives</td>
<td>A.8.3, A.8.4, B.8.1, B.8.2</td>
<td>F.8.2</td>
<td>E.8.5, I.8.1</td>
<td>B.8.3</td>
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<td>Partner Drawing</td>
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<td>C.8.6, E.8.5, L.8.4</td>
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<td>Place Descriptions</td>
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<td>E.8.8</td>
<td>E.8.1</td>
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<td>B.8.10</td>
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<td>Rock Pass</td>
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<td>E.8.5</td>
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## Grade 8 Standards Continued

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<tr>
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<th>Visual Arts</th>
<th>Env. Education</th>
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<tr>
<td>Silent Hike</td>
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<td>Sound Maps</td>
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<td>A.8.2, E.8.1</td>
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Appendix E. Assessing Nature Journals

The goals of each activity section provide you with general outcomes to help you assess students’ work in their nature journals. By including activities from each section over the course of a nature journaling unit, you will ensure that students have a broad range of experiences and develop skills in each area of focus. You will, of course, need to connect these general outcomes to your own curricular framework, the academic standards mandated in your state, and/or the mission of your organization or program.

Keep in mind that it is best to evaluate a journal holistically, rather than one activity at a time. This will give you a more complete picture of a student’s progress and accomplishments. Be sure students know how they will be assessed from the beginning, and try to create assessments that are genuine indications of progress and do not stifle creativity or prevent experimentation. An excellent way to incorporate more authentic and meaningful assessments is to have students evaluate their own progress. Students can use the following questions (modified from Hammond, 2002) to reflect on the personal outcomes of nature journaling.

Nature Journaling Self-Assessment

1. Has nature journaling helped you become a better observer of objects and events around you? Give some examples.
2. Has your journal helped you think in new ways? How?
3. Has your journal helped you express what you see and feel more creatively? How?
4. Have you tried new techniques and tools in your journal? What do you feel is the biggest risk you took? How did it work?
5. Has your journal helped you learn more about the environment? What? How?
6. Has your journal helped you feel more connected to the environment around you? How?
7. What is the thing you like most about your journal? Least?
8. What advice would you give to someone who was about to start a nature journal?
"We lay and looked up at the sky and the millions of stars that blazed in darkness. I have never seen them more beautiful: the misty river of the Milky Way flowing across the sky, the patterns of the constellations standing out bright and clear, a blazing planet low on the horizon. Once or twice a meteor burned its way into the earth's atmosphere.

It occurred to me that if this were a sight that could only be seen once in a century, this little headland would be thronged with spectators. But it can be seen many scores of nights in any year, and so the lights burned in the cottages and the inhabitants probably gave not a thought to the beauty overhead; and because they could see it almost any night perhaps they will never see it."

-Rachel Carson

*The Sense of Wonder*
A nature journal is a lens that helps you and your students open your eyes and see the world around you in new ways.

This guide shows you how to use nature journaling to explore and enhance:

Sensory Awareness ~ Curiosity and Wonder ~ Observation Skills ~
A Connection with Place ~ An Empathetic Relationship with Other Living Things ~ Self-Reflection and a Personal Voice

"My students loved it. A lot of them commented that now when they're outside they hear more things and pay more attention to what they see."
- Lynn, 6th grade teacher -

"It helped my students identify strengths they didn't know they had."
- Mary, 3rd/4th grade teacher -

"I felt very calm and peaceful....I thought it was a wonderful way to admire and see what we can see. And I think we should do it more often."
- Cora, 6th grade student -

"May 20
Rainy morning has cleared up into a cool sunny afternoon.
Birds singing, frogs calling. Leaves rustling. Tillium everywhere.
We gather mushrooms and leeks to take them back to the composite for a wild dinner."

"Wild Leek"