Introduction to Parallel Lines

**China**
- **Thinking:** In the figure, nail sticks a, b, and c together, and imagine all of them can be extended infinitely in both ends. Draw line a intersect line b on the left side, then draw line c to intersect line b on the right side of line a. During this rotation, there is a position that line c does not intersect with line b.
- **Russia**
  - **Theorem:** Two lines that are parallel to a third line are also parallel to each other.
  - **Proof:** Let two lines a and b be parallel to a line c. Assume that line a and b that is not parallel, which means they will cross each other at point P. Then, these lines that are parallel to a line c will go through point P. But that is a contradiction because we cannot draw more than one line through this point that is parallel to the given line.

United States
- **Some lines in the same plane do not intersect at all.**
- **Inequalities:** Solve for positive integers.
- **Assessment:** Approximate the length of the side of a square if its perimeter is P, then $s = \frac{P}{4}$, where $1 ≤ s ≤ 1.5$.

**Introduction to Inequalities**

**China**
- **Question:** If $2t \geq 70°$ and $2t$ is the speed of car $A$, what is the speed of car $B$?
- **Conclusion:** 4.86:39.32

**United States**
- **TMIS Reports for 1999, 2003, 2007**
- **References:**
  - Department of Mathematics, University of Wisconsin–Eau Claire
  - Office of Research and Supported Programs, University of Wisconsin–Eau Claire
  - Graph created in Microsoft Excel

**Acknowledgements:**

- **Motivation:** Mathematics not only applies to daily life, but is the foundation of all sciences. A large part of global competition revolves around the growing economy and the advanced knowledge. To maintain a leading position requires a well-educated workforce and talented people to do research.
- **Research Team:** The team includes three students: Chelsey Drophman, Alice Oswalt, and Ying Yang.
- **Project Work:** Using mathematics textbooks from each of the respective countries, the team compiled the selected topics. The manner in which the topics were presented are different, and the level of difficulty of examples and homework exercises, and the type of assessment questions that were used were examined and discussed. The team also shared knowledge of their respective schools and their middle school experiences.
- **Recommendation:** Based on their findings, the research team has developed a list of recommendations that could enhance the mathematics education in the middle grades in the United States.

**Conclusion:**
- There are at least 25 students in the auditorium, number of students ≥ 25.