

# Algebra/Geometry Institute Summer 2003

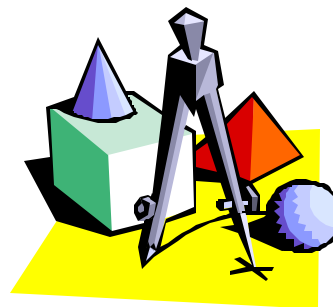
## Lesson Plan 2

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**School:** Broad Street

**City:** Shelby, MS

**Grade Level:** 6<sup>th</sup>-8<sup>th</sup>



### 1 Teaching objective(s)

Given an inequality, write a corresponding real-life situation.

Model and solve linear inequalities using the properties of equality.

Graph a linear inequality.

### 2 Instructional Activities

The teacher will ask students what they think inequality means. Discussion and clarification of the term “inequality” will occur.

The teacher will ask students to think of an instance or event in their lives where there was some form of an inequality. Students will be asked to tell what the situation was, where it happened, when was it, who was involved, and if possible, what the outcome was. Students will then be placed in small groups and asked to share their examples. One example from each group will be selected to be shared with the class. The teacher will begin the “sharing” phase with a real-life situation dealing with an inequality of his or her own. (For instance, why some children get more toys than others at Christmas.)

Discussion of the symbols used to write inequality statements will take place. Each symbol and its meaning will be explained. ( $<$  means “less than”,  $>$  means “greater than”,  $\leq$  means “less than or equal to”,  $\geq$  means “greater than or equal to”) The teacher will ask students for other phrases that mean the same, i.e., more, over, above, below, smaller, larger, exceeds, fewer, at least, at most, etc.

The teacher will then model how to translate phrases into symbols. Examples could be, Mary has more money than Joe. Write an inequality sentence depicting that statement. (  $Mary > Joe$  ) The teacher will then use this same example to illustrate use of variables in an inequality. (Let  $m = Mary$  and  $j = Joe$ . Rewrite the inequality using variables and you get  $m > j$ .) Other examples could be: The teacher will need at least 7 extra copies of the test. ( $t \geq 7$ ), we need up to 19 desks, etc.

Students will be given phrases to translate into symbols. Examples: I got less than 6 hours sleep, y is smaller than 5, 3 plus a number is more than 10, etc. Students will be instructed to write these phrases as inequalities.

The teacher will review the properties of equality and explain to students that they can solve inequalities by using properties similar to those you use when solving equation. The teacher will model the procedure used to solve inequalities. The basic rules will be explained as whatever you do to one side, you do to the other. Example:  $2x + 9 > 11$ . Step 1, subtract 9 from both sides.  $2x + 9 - 9 > 11 - 9$ . Step 2,  $2x > 2$ . Step 3, divide 2x by 2 and 2 by 2,  $\frac{2x}{2} > \frac{2}{2}$ .  $x > 1$ . Examples will also be given involving the operations of multiplication and division. Introduction of the term solution set and modeling of how to graph an inequality will be illustrated by the teacher. Students will be given examples of inequalities to solve and graph for practice.

Students will use newspapers to locate examples of inequalities or locate expressions that can be translated into an inequality, for instance, comparison of temperatures in surrounding areas or in different states, profit-sharing points, wall street figures, etc.

Students will participate in a game called “YOU’RE THE GREATEST.” Divide students into small groups. Give each group a specific set of inequalities and a set of cards with the corresponding values of their solution sets. Students will shuffle the cards and place them facedown in a pile. Label the sections of a spinner with the inequalities. Each group will decide which player goes first. Each player pulls a card and spins the spinner. If the card is in the inequality’s solution set, the group gets a point. The first group to score 21 points wins.

The teacher will group students in threes. The first student writes a less than or greater than sentence, the second one translates it into an inequality, the third student solves and graphs the inequality. Then they switch places.

### **3 Materials and Resources**

Resource textbooks, pen, pencil, newspapers, spinner, solution set cards.  
Students problems for practice, activities and ideas for game have been adapted from:  
Glencoe, **Mathematics – Applications and Connections, Course 3**, pages 43 – 47,  
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### **4 Assessment**

Teacher observation, performance assessment, portfolios.