



## Algebra/Geometry Institute Summer 2003

### Lesson Plan 1

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**School:** GREENVILLE WESTON HIGH  
**City:** GREENVILLE  
**Grade Level:** 9<sup>TH</sup> GRADE ALGEBRA 1

#### 1 Teaching objective(s)

E. Model and solve linear inequalities using properties of equality.

#### 2 Instructional Activities

- Teacher will give the definition of inequality which is a statement that two expressions are not equal. Inequalities contain one of the following signs:  $<$ ,  $>$ ,  $\geq$ ,  $\leq$ , and  $\neq$ .
- Teacher will give students a list of vocabulary words to be defined and added to the word wall.
- Vocabulary Words
  - Origin
  - Negative
  - Positive
  - Inequality
  - Integers
  - Line graph
- Teacher will demonstrate how to solve examples of the inequalities listed below and graph them also.
  - Ex 1 ( $3x < -4x + 14$ )
  - Ex 2 ( $2x > -8$ )
  - Ex 3 ( $-5x > -8x + 9$ )
  - Ex 4 ( $2x - 7 \geq -21$ )
  - Ex 5 ( $-12x - 11 \leq -8x + 21$ )

- Teacher will explain that the inequality sign will be reversed whenever division or multiplication by a negative number occurs according to the Division Property of Inequality.
- Teacher will demonstrate how to distinguish between endpoints being inclusive in the solution set and non inclusive.
- Teacher will use the open and darkened circle or use parenthesis or brackets.
- Teacher will explain that the open circle is used to notate endpoints that are non-inclusive in a solution set and the darkened circle is used to notate solutions are inclusive in a solution set on a line graph.
- Students will draw numbers from 1-10 to place solutions to particular problems taken from the worksheet and place them on the board.
- Students will construct a number line to display solutions to the problems from the worksheet and place them in order from least to greatest.
- Students will complete an activity called “find someone who”. Each student will receive a worksheet with various inequalities and they will be given a 15 minute time limit to network with classmates to determine who can work a particular problem. The students are to get a signature or initials from the student that solves the problem.
- Students will share their solutions at the end of the 15 minute time limit and correct mistakes if any. If no mistakes are found, students will be selected at random until all problems have been solved.
- I will assess the students from the worksheet provided as well as from the activity provided.

### 3 **Materials and Resources**

Identify various materials and equipment needed for activities. Complete references will be provided.

- Holt, Reinhart and Winston 2001 [Algebra 1](#)
- Worksheets created from problems on page 284-287 will be used for assessment purposes.
- timer

### 4 **Assessment**

Teacher will assess the students from the worksheet provided along with the activity. Teacher will also do assessment from the homework assignment.

# WORKSHEET

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Complete each of the following by following directions.

1) Graph on a number line the inequality  $x \leq 4$

2) Solve  $-3m \leq 12$  (graph your solution)

3) Solve and graph  $4z - 3 \leq -z + 7$

4)  $-2p \leq -3 + -9$  (solve and graph)

5)  $7 + 3x \leq -4x$  (graph the inequality)

6)  $4w - \frac{1}{2}(3w + 10) \geq 0$  (solve and graph)

7)  $-5w \leq 25$  (solve and graph)

8)  $3x + 2 > 8$  (solve only)

9)  $5x < 4x + 6$  (solve and graph)

10)  $3y < \frac{1}{2}$  (solve and graph)

## FIND SOMEONE WHO

You have 15 minutes to correctly solve each of these inequalities. You may get up and walk around to confer with your peers. Be sure to have the person that assists you with a problem to sign or initial your worksheet.

1)  $13(x) - 5 < -5x - 41$

2)  $2(3x - 4) \leq -2x - 16$

3)  $-5x \leq 3(-x + 4)$

4)  $6b > 2b - 16$

5)  $9a \leq 12 + 8a$

6)  $6x > -18$

7)  $4a + 3 \leq 2a - 4$

8)  $-1(4x - 3) \leq 15$

9)  $6c > -12$

10)  $28x > 4(5x + 5)$