

Algebra/Geometry Institute Summer 2002



Lesson Planning Guide

Faculty Name: Cheryl D. Holliness
School: Leland High School
Grade Level: Geometry

MS Framework Competencies: 1a --- Define and recognize terms and symbols of geometry and use them to communicate ideas.

1 Teaching objective(s)

The student will use the terms segment and distance.

The student will find the distance between points on a number line.

2 Instructional Activities

Teacher will give students a ruler and ask them to measure the length of their index finger. They will be instructed to begin at the knuckle. We will then discuss the different measurements obtained. Students will be asked to draw a number line, work with a partner in their group and finger walk back and forth from two numbers of their choosing to see how steps are needed. Students will be called on to give a set of numbers used along with how far apart they are. Teacher will point out to students that they started at a point on the line and stopped at another point on the line. Teacher will then tell students that they have formed a segment.

Teacher will then give students the formal definition of a segment as being a part of a line that begins at a point and ends at a point, illustrate on the board how to correctly name the segment using the starting and ending point along with the appropriate symbol. Students will use construction paper to cut out a segment and four points labeled A, B, C, and D. Students will then compare a segment to a line and be able to tell how they are similar and how they are different. (A line is infinite and has no endpoints—a segment has a beginning and an end with two endpoints.) Students will then place their points on the line. To understand the concept of distance students will now use their ruler to measure the how far apart the points are located.

Teacher will now define distance as being how far away something is and show students how distance is represented. Distance is represented by (AB) and distance is always positive whether measuring using a ruler or using a formula. Students will note that no additional symbol is written over the points. Students will now cut out a number line and place the points on -4 , 0 , 2 , and 5 along with using points of their choice to name the coordinates. An illustration of a

number line will be placed on the overhead. Students will now be introduced to the term "betweenness." Teacher will show students that a point is between another when the points are collinear and the point is passed to get to another point on the line. Students will understand that they will only say a point is in the middle when it is known that the point is the same distance from the two outer points. Teacher will call on students by a show of hands to give the correct answer of how far a point is from another. Teacher will help students understand that finding the distance from one point to another is the same as finding the length of a segment. Teacher will tell students that two segments of equal length are congruent.

Students will follow along with teacher guidance from the board to use a compass and a straightedge to construct congruent segments.

Construct a segment that has the same length as AB.

- a. Use a straightedge to draw a line on your paper.
- b. Choose any point on that line. Label it Z.
- c. Place the compass at point A and adjust the compass setting so that the pencil is at point B.
- d. Using that setting, place the compass at point Z and draw an arc that intersects the line. Label the point of intersection Q.
- e. By construction $AB = ZQ$

Students will be given an independent activity from overhead to find the distance between points on a number line. Teacher will call on various students to give some of the answers and take up the papers to be graded. Pencils will be placed under desk so that no answers can be changed during this time. Worksheet for homework will be passed out.

As a closing activity students will measure the length of his/her pencil and see if there is another student in the room with the same pencil measurement.

3 Materials and Resources

Textbook, Merrill Geometry

Textbook, Houghton Mifflin

Geometry Test Bank by William K. Bradford Publishing Company

Number line

Overhead and transparencies

Compass

Straightedge

Calculators

Ruler

4 **Assessment**

The teacher will observe the students working in groups.

Oral answers to questions

The teacher will grade independent activity

5 **Enrichment (Optional)**

Write and solve for x then find the length of congruent segments using algebra concepts of solving an equation.