EISENHOWER PROFESSIONAL DEVELOPMENT PROGRAM

Mathematics Within: Space, Shape and Measurement Lesson Plan

Lesson Plan

Participant Name: Denise Gesme **Broad Topic:** Coordinate Grids

Sub Topic: Ordered pairs in Quadrants I, II, III, & IV

Lesson Name: Goldilocks and the Coordinate Grids

Objectives:

- Students will discover that coordinate grids can be used to determine location and size of polygons.
- Students will locate and identify points in all quadrants using ordered pairs.
- Students will discover that the opposite of every positive number is a negative number.
- Students will create polygons using ordered pairs, perimeter, and quadrant -clues.

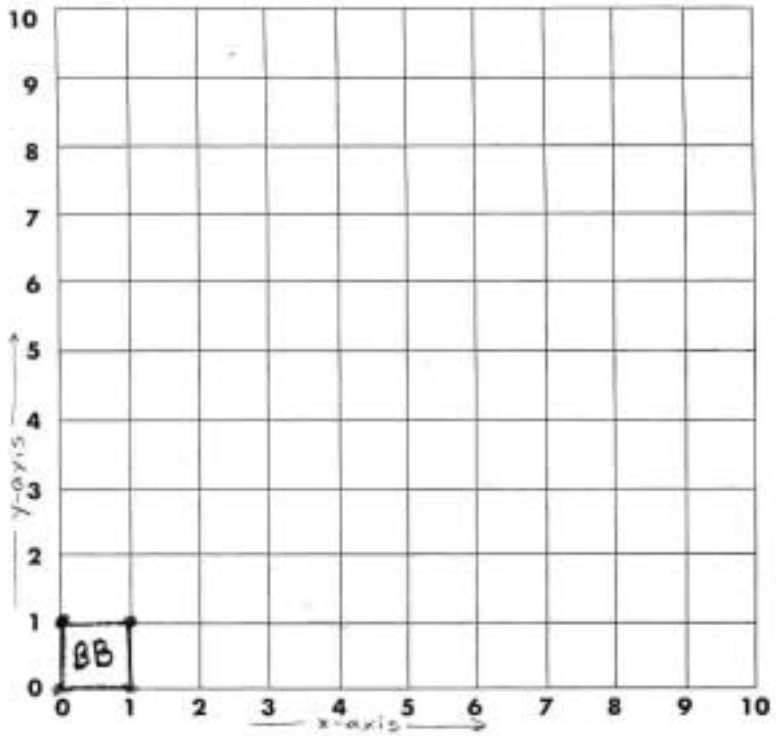
Materials:

- Large map of the woods for the story of Goldilocks and the Three Bears. Grid lines placed at 5-inch intervals. Y-axis labeled with letters and x-axis labeled with numbers. Create two small construction paper homes to be placed on map. For example, Goldilocks' home could be located at D4 and the Bears' home could be located at A2.
- Coordinate grid (all four quadrants) constructed on poster board. Grid lines at one-inch intervals. Cover quadrants II, III, and IV.
- 2-D models of the Bears' porridge bowls, chairs, and beds. Create a Baby, Mama, and Papa size of each object to fit inside quadrant I of the poster board coordinate grid.
- Copies of handouts A, B, and C (pp. 2, 3,4,).

Lesson:

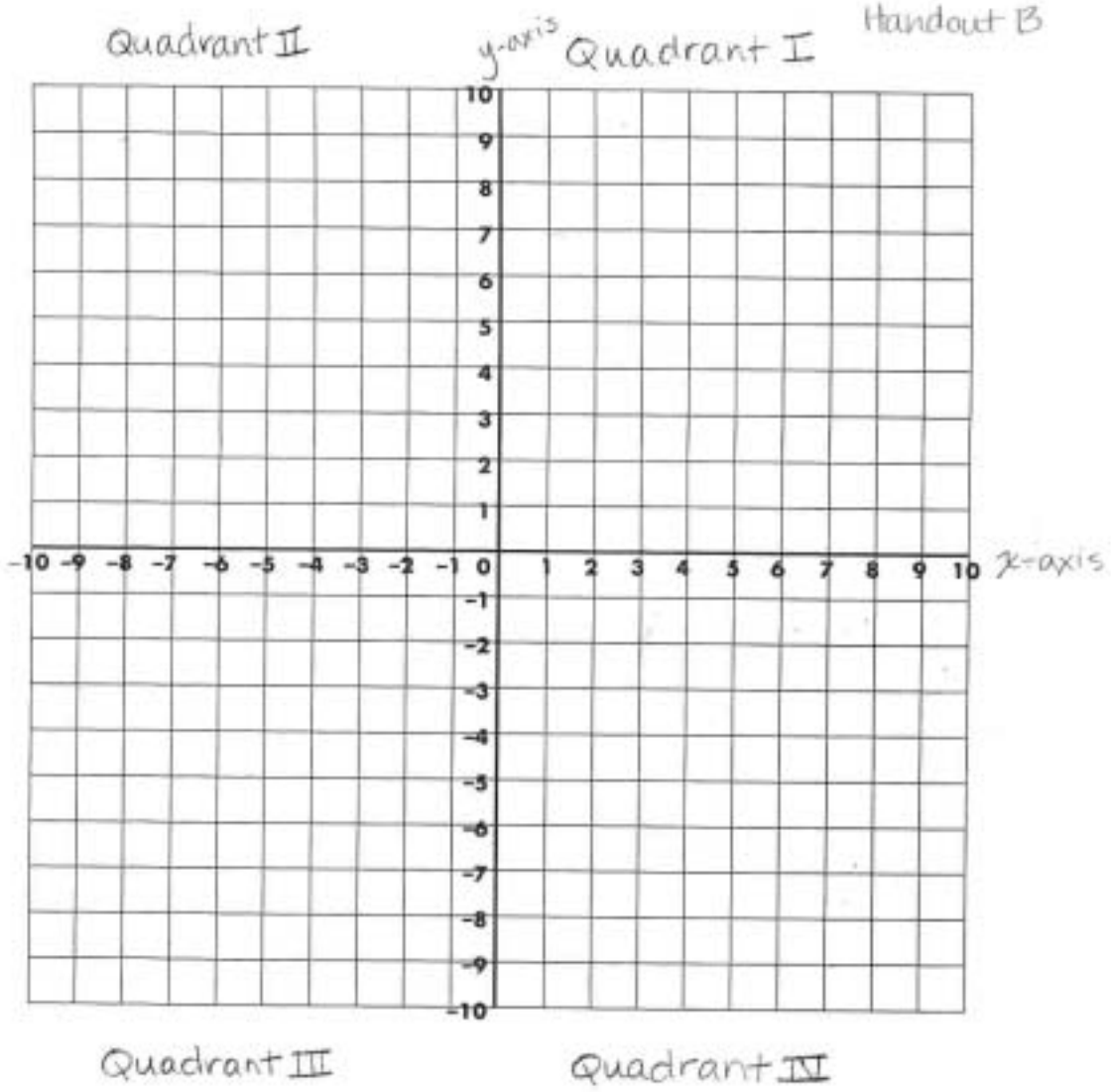
- Use the story of Goldilocks and the Three Bears as a framework for this lesson. Pose the following situation to students using the map of the woods: Goldilocks is trying to find her way home from the Bears' house. Students identify where homes are located and routes that could be taken.
- Using the poster board coordinate grid and 2-D models, tell students Goldilocks returns home and shares her experience with her family. Explore the size relationships between the 2-D models of the Bears' porridge bowls, chairs, and beds.
- Students create another set of items in the Bears' home: television sets (squares) using information provided about the ordered pairs on Handout A (page 2)
- Students will create skateboards (rectangles) for each member of the Bear family, however only Baby Bear's skateboard will be located in quadrant I. Solicit student ideas regarding the placement of Mama and Papa Bear's skateboards. Using the poster board coordinate grid, uncover quadrants II, Ill, and IV and discuss negative numbers. Students then use information provided in Handout B (page 3) to create skateboards.
- CHALLENGE - Handout C (page 4) requires students to nest the Bears' three television sets (squares) inside of each other. Each quadrant should be home to one of the television comers. The perimeter of each television set is provided on the handout.

Handout A



Bear	Shape of Television	Number of Sides	(x, y) Length of each side (in units)	Perimeter of Television	Coordinates (x, y)
Baby					(0,0), (1,0), (1,1), (0,1)
Mama					(1,2), (3,2) (3,4), (1,4)
Papa					(4,3), (7,3) (7,6), (4,6)

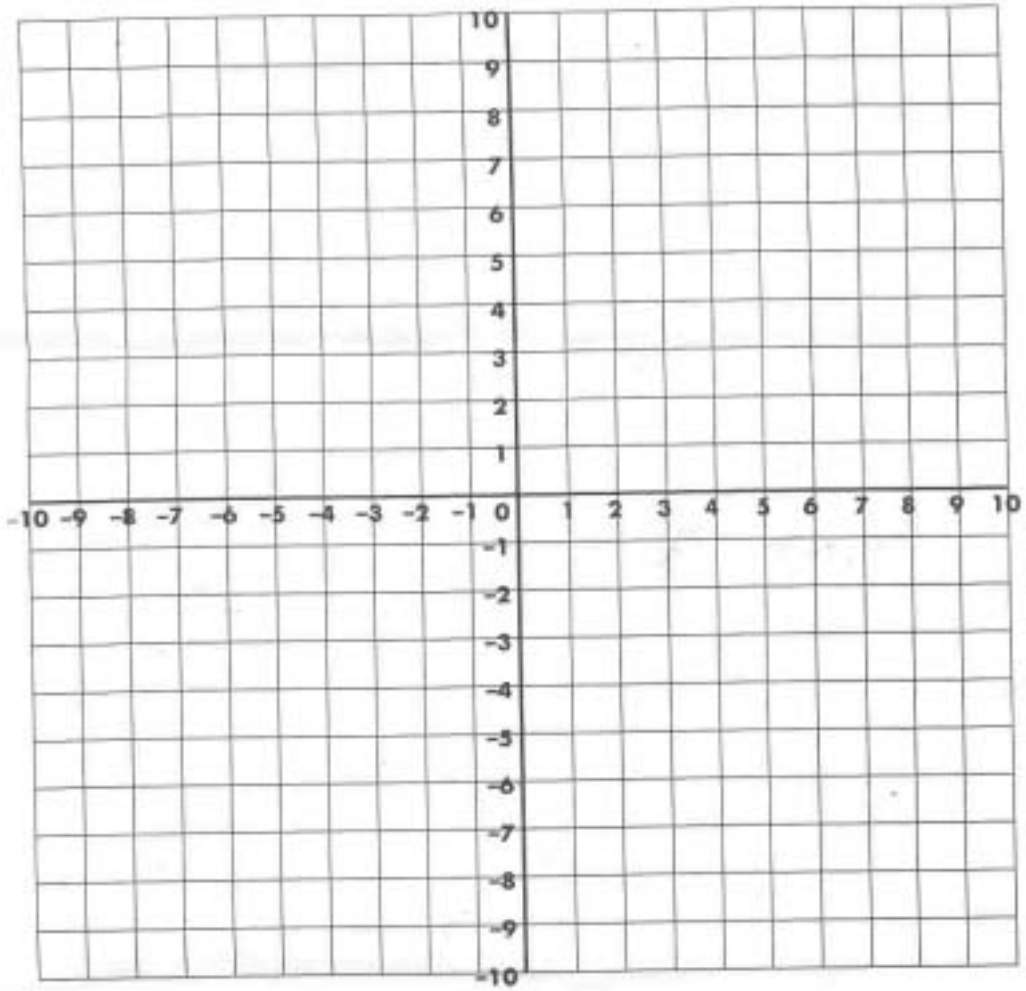
Handout B



Bear	Number of Sides	Length of Horizontal Side	Length of Vertical Side	Perimeter of Skateboard	Coordinates
Baby	4	2	1	6	(_,_), (_,_) (_,_), (_,_)
Mama	4	4	2	12	(-2,2), (_,_) (_,_), (_,_)
Papa	4	6	3	18	(2,-7) (_,_) (-4,-7) (_,_)

Handout C

Name _____



Bear	Number of Sides	Length of Horizontal Side	Length of Vertical Side	Perimeter of television	Coordinates
Baby				25	(_,_), (_,_) (_,_), (_,_)
Mama				49	(_,_), (_,_) (_,_), (_,_)
Papa				81	(_,_), (_,_) (_,_), (_,_)