Unit Map 2012-2013

Monroe #2 - Orleans BOCES (Regional Collaboration)

Collaboration / Math 5* / Grade 5 (Math Regional Curriculum)

Wednesday, October 31, 2012, 11:29AM

Standard/Module: Proficiency in Geometry 5.G.1 (Week 34, 6 Weeks)

Stage 1: Desired Results

Standards Focus

- Additional (10%) Connects to 5.G.2 and 5.OA.3

5th Grade Map.pdf

Standards

NYS: CCLS:Mathematics, NYS: 5th Grade , Geometry

5.G Graph points on the coordinate plane to solve real-world and mathematical problems.

- 1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the origin) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).

Enduring Understandings

1. Two and three dimensional objects with or without curved surfaces can be described, classified, and analyzed by their attributes.
2. An object's location in space can be described quantitatively.
3. The coordinate system is a scheme that uses two perpendicular lines intersecting at 0 to name the location of points in the plane.
4. The ordered pairs of the end points of vertical and horizontal line segments can be used to find the length of the segments.
5. Some problems can be solved by breaking apart or changing the problem in to simpler ones.
6. Some problems with the initial data point unknown can be solved by starting with the end result and reversing the steps and processes to work backward to find the initial data point.

Essential Questions

1. How are points graphed?
2. How can we show the relationship between sequences on a graph?
3. How do we use an object's attributes to classify it?
4. How do we use ordered pairs to find the length of line segments (or the distance between two points)?
5. How do we use simpler problems to solve more complex ones?
6. How does working backwards help us solve a problem?
7. How do you name a point on a coordinate grid?
8. Why are the pairs of numbers used to describe points on a coordinate grid called ordered pairs?

Critical Content

Coordinate Geometry

- Plotting points

- Coordinate pairs
- Horizontal/vertical
- x/y axes
- coordinate plane
- graphing
- counting units

Problem Solving

-Multi-step

-Working backwards

Skills	Vocabulary
1. Students must understand the Cartesian coordinate system. 2. Students must understand ways to find the distance between points on the coordinate plane. 3. Students must be able to solve simpler problems to solve the original problem. 4. Students must be able to work backwards to solve a problem. 5. Students must be able to identify and graph points on a coordinate grid. 6. Students must be able to interpret ordered pairs.	Tier 2- dimensional, classify, analyze, attributes, horizontal, vertical Tier 3- quantitatively, coordinate system, perpendicular, intersecting, plane, line segments, ordered pair, coordinate grid, origin, x-coordinate, y-coordinate, x-axis, y-axis

Stage 2: Assessment Evidence

Assessments

Graphing the Points
Formative: Test: Written

Example:

Connect these points in order on the coordinate grid below:

(2, 2) (2, 4) (2, 6) (2, 8) (4, 5) (6, 8) (6, 6) (6, 4) and (6, 2).

What letter is formed on the grid?

Solution: "M" is formed	
Stage 3: Learning Plan	
Learning Activities	**Resources**
These standards deal with only the first quadrant (positive numbers in the coordinate plane. **Example:** Connect these points in order on the coordinate grid below: (2, 2) (2, 4) (2, 6) (2, 8) (4, 5) (6, 8) (6, 6) (6, 4) and (6, 2). What letter is formed on the grid? Solution: "M" is formed **Example:** Plot these points on a coordinate grid. Point A: (2,6) Point B: (4,6) Point C: (6,3) Point D: (2,3) Connect the points in order. Make sure to connect Point D back to Point A. 1. What geometric figure is formed? What attributes did you use to identify it? 2. What line segments in this figure are parallel? 3. What line segments in this figure are perpendicular? *Solutions: trapezoid, line segments AB and DC are*	Grid/graph paper www.illustrativemathematics.org www.illuminations.nctm.org Nctm.org(Illuminations): *Finding Your Way Around* - Students explore two-dimensional space via an activity in which they navigate the coordinate plane. Nctm.org(Illuminations): *Describe the Way* – In this lesson, students will review plotting points and labeling axes. Students generate a set of random points all located in the first quadrant.

parallel, segments AD and DC are perpendicular **Example:** Emanuel draws a line segment from (1, 3) to (8, 10). He then draws a line segment from (0, 2) to (7, 9). If he wants to draw another line segment that is parallel to those two segments what points will he use? Students need to understand the underlying structure of the coordinate system and see how axes make it possible to locate points anywhere on a coordinate plane. This is the first time students are working with coordinate planes, and only in the first quadrant. It is important that students create the coordinate grid themselves. This can be related to two number lines and reliance on previous experiences with moving along a number line. Multiple experiences with plotting points are needed. Provide points plotted on a grid and have students name and write the ordered pair. Have students **describe** how to get to the location. Encourage students to articulate directions, attending to precision as they plot points. Present real-world and mathematical problems and have students graph points in the first quadrant of the coordinate plane. Gathering and graphing data is a valuable experience for students. It helps them to develop an understanding of coordinates and what the overall graph represents. Students also need to analyze the graph by interpreting the coordinate values in the context of the situation.	

Differentiation Opportunities

Students can use a classroom size coordinate system to physically locate the coordinate point (5, 3) by starting at the origin point (0,0), walking 5 units along the x axis to find the first number in the pair (5), and then walking up 3 units for

the second number in the pair (3). The ordered pair names a point in the plane.

When playing games with coordinates or looking at maps, students may think the order in plotting a coordinate point is not important. Have students plot points so that the position of the coordinates is switched. For example, have students plot (3, 4) and (4,

3) and discuss the order used to plot the points. Have students create directions for others to follow so that they become aware of the importance of direction and distance.

<< Previous Year

Last Updated: Tuesday, October 30, 2012, 1:51PM

Atlas Version 7.2.6
© Rubicon International 2012. All rights reserved