Unit Map 2012-2013

Monroe #2 - Orleans BOCES (Regional Collaboration)

Collaboration / Math 8* / Grade 8 (Math Regional Curriculum)

Wednesday, October 31, 2012, 1:44PM

Standard/Module: Proficiency with Functions: 8.EE.6 (Week 10, 22 Weeks)

Stage 1: Desired Results

Standards Focus

- Major (70%) 8.EE.1
  8.EE.2
  8.EE.5
  8.F.1

Grade 8 Map

Standards

NYS: CCLS:Mathematics, NYS: 8th Grade , Expressions & Equations

8.EE Understand the connections between proportional relationships, lines, and linear equations.

- 6. Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y = mx + b for a line intercepting the vertical axis at b.

Enduring Understandings	Essential Questions
1. Linear equations can be used to solve mathematical and real-life problems.	1. How can use slope to solve real-world problems?
	2. What does slope tell you about a situation?
2. You can represent a relationship between two variables using a linear equation	

Critical Content

1. Similar triangle
   - proportionality
2. Slope m between two distinct points
3. Equations of lines
   - y = mx
   - y = mx + b

Skills	Vocabulary
1. Set up a coordinate plane and plot/label points in all four quadrants (6.NS.8). 2. Use similar triangles to determine the slope of a non-vertical line. 3. Derive the equation of y = mx for a line through the origin. 4. Derive the equation y = mx + b for a line intercepting the vertical axis at b.	Tier 2: coordinate plane, derive, intersecting, origin, rise, run Tier 3: linear, rate of change, right triangle, similar triangles, slope (m), y-intercept (b)

Stage 2: Assessment Evidence

Assessments

Find three smilar triangles on the graph of the linear function
Formative: Performance: Authentic Task

Students are presented with a linear function to graph. They are to find at least three similar triangles and color in each one on the graph. They should label the ratio of the "rise" over "run" for each triangle and show how how each ratio is equivalent to the others.

Stage 3: Learning Plan

Learning Activities	Resources
Magic Money Machine (see link) addressed 8th grade functions standards, but can be tied into this standard as well While graphing the equations, show students the similar triangles and write each slope in equivalent fractions form. For example, "notice that when I go up 2, right 4, I land on a point and I can write the slope as 2/4. I can also go up 1, right 2 and land on a point, and I can write the slope as 1/2. How is 1/2 related to 2/4? Find three more similar triangles that are valid for this line." Repeat this process for different equations with different slopes including negative slopes, fractional slopes, and whole number slopes. Magic Money Machine	www.illuminations.nctm.org www.illustrativemathematics.org

Differentiation Opportunities

When drawing in the similar triangles, color each in a different color. This helps students to see the right triangles that are similar.

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