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Web Applet Lesson

Calculators are not the only technological tools available to teachers in the classroom. Often, there are several valuable instructional resources to be found on the internet that can be used to generate lessons in the classroom. Below is a link to a page containing a java applet exploration on the slope-intercept form of a linear equation:  
[http://www.analyze-math.com/Slope\\_Intercept\\_Line/FindEquationLine.html](http://www.analyze-math.com/Slope_Intercept_Line/FindEquationLine.html)

I have developed a lesson plan here to show how such an applet could be used in the classroom. Activities such as these allow students to “see math happening.” Instead of math being nothing more than a series of numbers meshed together in different ways, this allows students to really see what these numbers mean. Thus, activities of this sort allow for students to make earlier and deeper connections within the discipline of mathematics.

SOLs:

- A.6 The student will select, justify, and apply an appropriate technique to graph linear functions and linear inequalities in two variables. Techniques will include slope-intercept,  $x$ - and  $y$ -intercepts, graphing by transformation, and the use of the graphing calculator.
- A.8 The student will write an equation of a line when given the graph of the line, two points on the line, or the slope and a point on the line.

Goal:

- To develop an understanding of the slope-intercept form of linear equations by using an interactive web applet.

Objectives:

- Students will use the interactive web applet to demonstrate understanding of slope (steepness or grade of a line) by matching lines with similar slope
- Students will use the interactive web applet to demonstrate understanding of  $y$ -intercept (where a line crosses the  $y$ -axis) by matching lines of the same  $y$ -intercept.
- Students will be able to form the equation of a line on a given graph by matching its slope and intercept

Materials:

- Board or overhead with a Cartesian grid
- Computers with a bookmark to the following website:  
[http://www.analyze-math.com/Slope\\_Intercept\\_Line/FindEquationLine.html](http://www.analyze-math.com/Slope_Intercept_Line/FindEquationLine.html)

Motivation:

1. Draw a line on the board or overhead and ask students if they think it is possible to find an equation of this line based on just seeing the graph.
2. Allow students to guess at the equation, or offer methods that it can be solved for.

Transition: As students start delivering affirmative answers, announce that students will be using their computers to try matching graphs to equations written in slope-intercept form.

Lesson Procedure:

3. Instruct students to form pairs for the computer activity. Once each pair is seated at a computer, have them open their web browsers and click on the bookmark to the “Find Equation of a Line” website.
4. Read through the first paragraph on the page with the students, further explaining the terms “slope” and “y-intercept” if students do not recall or are not familiar with them.
5. Direct students to click on the button that says “click here to start,” and allow them to play with the applet.
6. Walk around the classroom to assist students who are having problems matching lines using the slope-intercept form of a line. Have each pair demonstrate to you that they can match at least one line. Once the class appears comfortable with the procedure, bring them back together as a whole.

Closure:

10. Once the class is back in a group, ask the class about their observations: any patterns they might have noticed, questions they may have had, etc. Bring their attention back to the line on the board and help them find its equation as a group.

Extension:

11. If time allows, go through more than one example on the overhead/board for the class to work through.