

Lesson Plan – Slope with GeoGebra

Grade Level: 7th grade

Objectives

- Student will access the Internet and the Web Poster created for this activity with the instructions and website links.
- Student will read the definition of slope and methods (rise/run and $\Delta y / \Delta x$) for calculating slope from an online dictionary.
- Student will graph points on a graph and calculate the slope using the rise/run method.
- Student will calculate slope for the same points using the $\Delta y / \Delta x$ method without using the graph.
- Student will access the software program, GeoGebra, and generate lines.
- Student will access the software program, GeoGebra, and create points and identify their coordinates.
- Student will access the software program, GeoGebra, and calculate slope using the $\Delta y / \Delta x$ method.
- Student will access the software program, GeoGebra, and calculate slope using the rise/run method.

Michigan GLCEs

A.PA.07.06 Calculate the slope from the graph of a linear function as the ratio of “rise/run” for a pair of points on the graph, and express the answer as a fraction and a decimal; understand that linear functions have slope that is a constant rate of change.

N.FL.07.08 Add, subtract, multiply, and divide positive and negative rational numbers fluently.

Materials

Computer with Internet access

Slopes and Equations of Lines with Geogebra student directions sheet, pencil

Webposter created using 4teachers.org’s Web Poster Wizard visiting the following websites:

- <http://www.coolmath.com/reference/math-dictionary-S.html> (Coolmath dictionary)
- http://www.coolmath.com/algebra/Algebra1/06Lines/06_findingslopegraph.htm (Lesson 6)
- http://www.coolmath.com/algebra/Algebra1/06Lines/07_findingslope2points.htm (Lesson 7)
- <http://mathcasts.org/gg/student/lines/slopes/slope1.html> (Activity 1 - GeoGebra)
- <http://mathcasts.org/gg/student/lines/slopes/slope2.html> (Activity 2 - GeoGebra)
- <http://mathcasts.org/gg/student/lines/slopes/slope3.html> (Activity 3 - GeoGebra)
- <http://www.iowamath.org/resources/graph/rectangular/twelve.gif> (graph paper)

Procedures

The teacher will begin the lesson by introducing the lesson to the student. *Today we are going to review how to calculate the slope of a line using 2 different methods. Then you will access the Internet and use a software tool for Geometry and Algebra called “GeoGebra” and calculate the slope of the line.* At this time, the teacher helps the student get logged onto the Web Poster student directions sheet. The activities and the directions are intended to be self-directed and self-explanatory. The teacher will observe and take notes and will be available for questions or to prompt the student in their thinking.