Slope

Grade Level: 7th and 8th grade
Topic: Unit Rate & Rate of Change
Objectives: Student will gain more fluency with slope type of understanding.
Indiana Mathematics Content Standards:
7.AF.4: Define slope as vertical change for each unit of horizontal change and recognize that a constant rate of change or constant slope describes a linear function. Identify and describe situations with constant or varying rates of change.

8.AF.5 Interpret the equation $y=mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. Describe similarities and differences between linear and nonlinear functions from tables, graphs, verbal descriptions, and equations.

Indiana Mathematics Process Standards: PS.1: Make sense of problems and persevere in solving them. PS.2 Students will be able to reason abstractly and quantitatively. PS.4: Model with mathematics.

Mathematics Content Goals: Students will be able to identify slope of a graph as positive, negative or no slope.
Students will be able to identify a graph based on "steepness"

Language Objectives:Students will articulate main ideas and supporting details using target vocabulary.

Materials: fishing poles, with magnets, cards with vocabulary words

Vocabulary: constant rate, unit rate, proportional relationship, slope, rise, run, positive slope, negative slope, constant of proportionality, slope of the line, linear equation, ordered pair

Procedure:We will show different pictures of lines and discuss, does this line appear to have positive slope? Does it appear to have negative slope? How do you know? Look at the line from left to right, just like reading a book and then decide.
Introduction:Discuss some real life slope models. (ramps, our school has several, mountains, hills etc.)

Instruction:Try to discuss some real life examples and then just show lots of examples of equations and lines. The examples will include pictures of graphs with lines on them. This will be done as a discussion with a small group.

Practice (Application):Using the Frayer Model to relate the connections between these vocabulary words. Slope goes in the middle. Slope is a constant rate, and can be written as a unit rate, it is a ratio of rise:run and can be called a constant of proportionality. Have students draw a picture if they want, and don't forget to give non-

examples. We will also play go fish or fish bowl on the second day for more practice with the vocabulary words.

Review/Assessment:Use the on-line portion of our textbook to extend the lesson and possibly either assign or assess from Pearson/Math XL. Use quizzizz for a review/fun quiz game.

Closing: Students will discuss the vocabulary words or cards that they picked with a partner, take turns and try to restate their partner's words. They should feel comfortable to teach some of the vocabulary to another student.