

Rate of Change and Slope

English Learner Instructional Strategy

Vocabulary Support: Make Connections

Take students to different sets of staircases inside or outside of the school. Distribute tape measures to pairs of students and ask them to measure the height and depth of two steps from each staircase. Upon returning to class, connect the height of the steps to the term *rise* and the depth of the steps to the term *run*. Prompt students by asking *Where have you walked up steps that have been really steep or really flat? What made them steep/flat?* Explain that the height and depth of each step, or the rate of change from step to step, determine the slope of the steps.

Display the words *rate of change* and *slope* and their formal definitions on the board. Ask students to calculate the slope of the stairs to connect the definitions to the activity.

English Language Development Leveled Activities

Beginning Level	Intermediate Level	Advanced Level
<p>Word Knowledge</p> <p>The word <i>change</i> has many meanings in English. Ask students, <i>How many different ways can you think of to use the word change?</i> Allow students to work in pairs and create a list of meanings. Ask each pair to draw one or two of their meanings and share them with the class.</p>	<p>Show What You Know</p> <p>Distribute whiteboards and markers to students. Describe various slopes, such as positive, negative, zero, and no slope. Ask students to sketch a line representing each slope on the white board. Call on individual students to explain their drawings.</p>	<p>Listen and Write</p> <p>Ask students to write one or two sentences in response to each of the following prompts.</p> <p><i>Describe a line with a positive slope.</i></p> <p><i>Describe a line with a negative slope.</i></p> <p><i>Describe a line with a slope of zero.</i></p>

Multicultural Teacher Tip

As you discuss *rate of change*, remain aware that *change* has many meanings in English, ranging from money to algebraic calculations. Students may have difficulty with the language surrounding the math in this particular section. Allow them to use dictionaries to find definitions and develop a chart as a class that illustrates as many meanings of the word *change* as possible.

NAME _____ DATE _____ PERIOD _____

Vocabulary

Rate of Change and Slope

Use the word cards to define each vocabulary term and give an example.

Word Card

rate of change

Definition

The way a quantity changes because of a change in another quantity.

Example Sentence

Some products have a very high rate of change, so it is important for companies to keep up with the interest of the customer.

tasa de cambio

Definición

Cómo cambia una cantidad debido a un cambio en otro cantidad.

Word Card

slope

Definition

The rate of change in the y -coordinates (rise) to the corresponding change in the x -coordinates (run) for points on a line.

Example Sentence

The larger the slope, the steeper the line created on a graph.

pendiente

Definición

La tasa de cambio en las coordenadas y (subida) al cambio correspondiente en las coordenadas x (carrera) para puntos en una línea.