

## G8 Playlist: Graphing and Comparing Proportional Relationships

Aligns with *CCSS.MATH.CONTENT.8.EE.5*: Graph proportional relationships, interpreting the unit rate as the slope of the graph. Compare two different proportional relationships represented in different ways. For example, compare a distance-time graph to a distance-time equation to determine which of two moving objects has greater speed.

### Related Standards

- 7.RP.2.b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.
- 7.RP.2.c Represent proportional relationships by equations. *For example, if total cost  $t$  is proportional to the number  $n$  of items purchased at a constant price  $p$ , the relationship between the total cost and the number of items can be expressed as  $t = pn$ .*
- 7.RP.2.d Explain what a point  $(x, y)$  on the graph of a proportional relationship means in terms of the situation, with special attention to the points  $(0, 0)$  and  $(1, r)$  where  $r$  is the unit rate.
- HS.F-IF.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). *For example, given a graph of one quadratic function and an algebraic expression for another, say which has the larger maximum.*



## Objectives

In this module, you will learn and practice the following skills:

- Graph proportional relationships.
- Compare two different proportional relationships expressed in different ways.

Let's get started!

## Key Terms

- A **unit rate** is a rate with a denominator of 1.
- A **slope** shows how much a quantity changes every time the independent variable increases by 1.
- The **coefficient** of a term is a number directly in front of the variable. For example, in the monomial  $4x$ , 4 is the coefficient.

PREVIEW



## Graphing and Comparing Proportional Relationships

(8.EE.5)

A **unit rate** is a rate with a denominator of 1. A **slope** shows how much a quantity changes every time the independent variable increases by 1. The **coefficient** of a term is a number directly in front of the variable. For example, in the monomial  $4x$ , 4 is the coefficient.

If your students...

Think the numerator of the unit rate / slope refers to the change in  $x$  instead of the change in  $y$

WATCH: Slope and Proportional Relationships

<https://www.youtube.com/embed/oXvYXmqMDyU>

Think that a fractional slope, such as  $5/2$ , could be referred to as a unit rate.

WATCH: Interpreting the Unit Rate as Slope

<https://www.youtube.com/embed/yZmoFWSyayY>

### For extra practice with unit rates:

PLAY: Rate Problems

<https://www.brainingcamp.com/content/rates/problems.php>

PLAY: Unit Rate Practice

<https://www.ixl.com/math/grade-7/unit-rates>

PLAY: Matching Unit Rates

<http://www.sheppardsoftware.com/mathgames/ratios/MatchingRates.htm>

PLAY: Finding Unit Rates

<http://braingenie.ck12.org/skills/105198>

