# Unit 3b-Nonproportional Relationships

Content Area: **Math**
Course(s): **Math 7 Pre-Algebra Honors**
Time Period: **Marking Period 3**
Length: **Wk 2-3  Go Math! Advanced 2 Module 12**
Status: **Published**

## Essential Questions

- How can you use tables, graphs, and equations to represent linear non proportional situations?
- How can you determine the slope and the y-intercept of a line?
- How can you graph a line using the slope and y-intercept?
- How can you distinguish between proportional and non proportional situations?

## Big Ideas

Proportional and non proportional situations can be defined, evaluated and compared using tables, equations, and graphs.

## CSDT Technology Integration

8.1.8.DA.1: Organize and transform data collected using computational tools to make it usable for a specific purpose.

8.1.8.AP.2: Create clearly named variables that represent different data types and perform operations on their values.

8.1.8.AP.6: Refine a solution that meets users' needs by incorporating feedback from team members and users.

Activity:  Taco Truck Activity-Desmos.com.  In this activity, students use the Pythagorean theorem as a tool to solve problems involving diagonal distances. In a quick prelude, students reason with the Pythagorean theorem and with rates in a situation that they may encounter in their daily lives: taking a shortcut to save time. Students then determine the best path to a taco truck from a spot on the beach. The activity culminates in a class-wide race.

## Enduring Understandings

Functions

8.F.2 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions.

8.F.3 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.

8.F.B.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x,y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.

Expressions and Equations

8.EE.6[M] Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane; derive the equation y = mx for a line through the origin and the equation y= mx + b for a line intercepting the vertical axis at b.

## Mathematical Practices Focus

1. Make sense of problems and persevere in solving them. Lesson 12.2
2. Reason abstractly and quantitatively. Lesson 12.3, 12.4
3. Construct viable arguments and critique the reasoning of others. Lesson 12.1, 12.2, 12.3, 12.4
4. Model with mathematics. Lesson 12.1, 12.3, 12.4
5. Use appropriate tools strategically. Lesson 12.3
6. Attend to precision. Lesson 12.1, 12.2, 12.3, 12.4
7. Look for and make use of structure. Lesson 12.1, 12.2