Lesson #4: Slope as a Rate of Change Part 1 - Notes   Date: _____

To explore what "rate of change" is, we first need to refamiliarize ourselves with "rate". A **rate** is a comparison of two quantities expressed as different units:
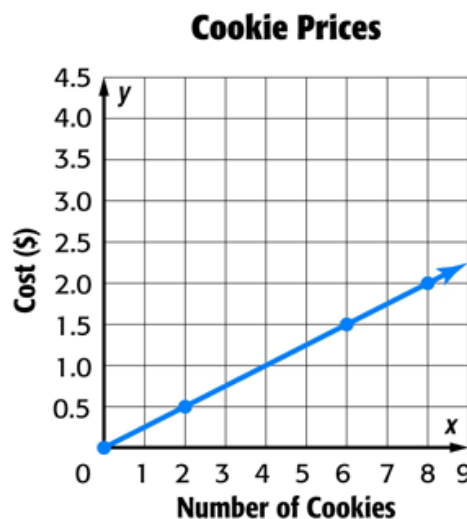
Examples:

A line on a graph is always changing (unless it is flat or $m = 0$). Rate of change, then, is the rate at which a line on a graph is changing. Thankfully, we know how to calculate this change by calculating the slope! Thus,

Rate of change = $m = \dfrac{Rise}{Run}$

Example 1: Given the graph to the right:

a) Calculate the rate of change. Include the units (always include units).

b) What does the rate of change represent?

Cookie Prices

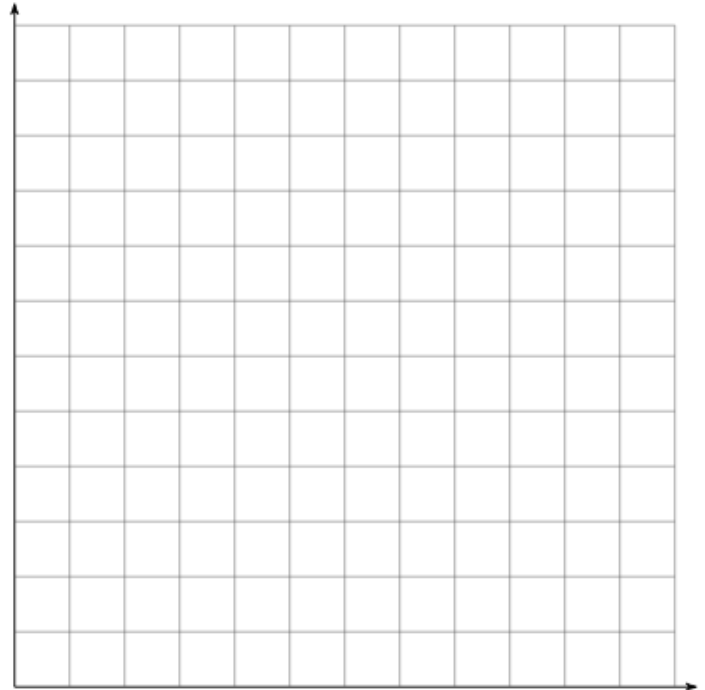Cost ($)

Number of Cookies

c) How much would 7 cookies cost? If I spent one dollar, how many cookies would I get?

d) The information for question c) was in the graph. The rate of change allows us to go beyond the graph. How much would 20 cookies cost?

Example 2: Timmy drives a cab. He charges $5 for every trip plus $1.50 for every kilometer driven.

a) Create a table to represent 0 to 10 kilometers, then graph the table. Label the axes and give the graph a title.

Distance (km)	Cost ($)
0	5

b) What is the rate of change, and what does it represent?

c) What is the cost of a 7.5km cab ride with Timmy?