Graphs are often used in Social Studies (bar graph, histogram) to help you better understand what's happening with the data.

The graphs that we will look at today are drawn in a coordinate plane or grid. While the graphs that we look at today have points that are connected by a line or a curve, this is not always the case. Graphs are called <u>continuous</u> when all the points are connected. This occurs when data is <u>measured</u>.

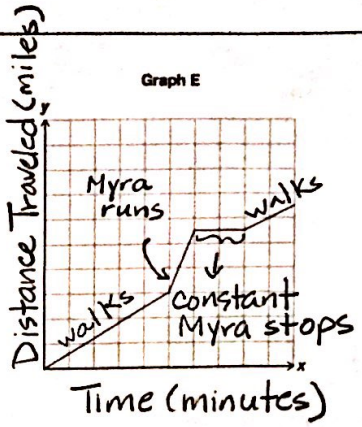
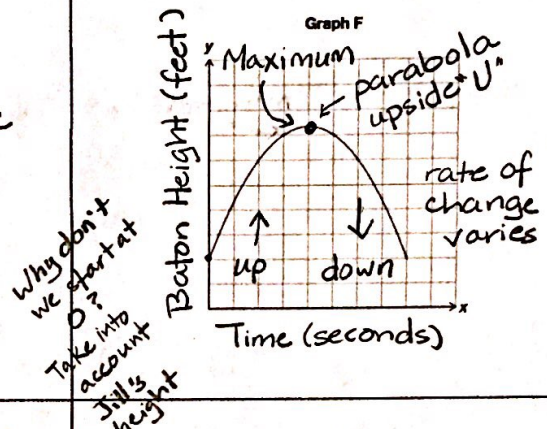
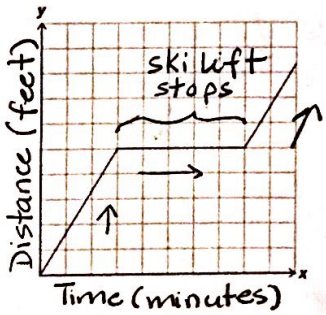
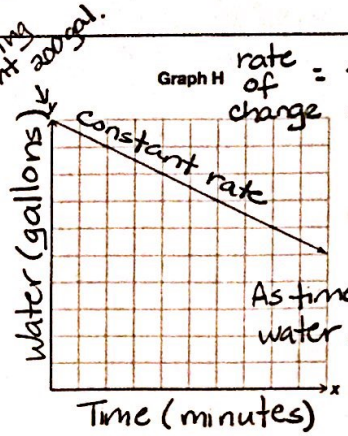
Let's look at each of the graphs on the guided notes and try to determine which of the 8 scenarios are being modeled on the coordinate plane. We will have to consider each situation and interpret the meaning of the data values shown.

Algebra 1: 1.1 Guided Notes – Day 2 Name Answer Key Period _____
Understanding Quantities and Their Relationships

Problem 2 – Matching Graphs and Scenarios Graphs give you a visual perspective. They help you understand the relationship between independent (x) and dependent (y) quantities →

Scenario	Function Family	Sketch of the Mathematical Model Label the x- and y-axes with the quantity and unit measure.	Graphical Behavior: Increasing, Decreasing, Constant, or Combination?	Graphical Behavior: Absolute Minimum or Absolute Maximum?
Music Club	Linear	Graph A: y-axis (dependent) Cost (dollars); constant rate going uphill; As # of songs ↑ the cost ↑; # of songs x-axis (independent)	Increasing	None
Smart Phone, but Is It a Smart Deal?	Exponential week: 1, 2, 3, 4, 5 interest: $1, $2, $4, $8, $16	Graph B: Rate of change varies; Interest (dollars); Interest doubles so growth is exponential; Time (weeks); Gets close to 0 but never intersects the x-axis.	Increasing	None
Jelly Bean Challenge	Absolute Value	Graph C: # of jelly beans the guess is off by; some people guess less; some people guess more; Minimum; # of jelly beans guessed	Decreasing, then Increasing	Minimum # of jelly beans guessed = # of jelly beans in the jar.
It's Magic	Exponential cuts: 0 pt, 2nd, 3rd, 4th length: 20, 10, 5, 2½, 1¼	Graph D: Length of each piece of rope (feet); Downhill; The rope is cut in ½ each time so growth is exponential; # of cuts	Decreasing	None

All graphs are continuous because data is measured.

A Trip to School	Linear Piecewise	Graph E  	Combination Increasing, Constant, and Increasing	None
Baton Twirling	Quadratic	Graph F  	Increasing, then Decreasing	Maximum The maximum height the baton reaches
Can't Wait to Hit the Slopes!	Linear Piecewise	Graph G  	Combination Increasing, constant, then Increasing	None
Something's Fishy	Linear	Graph H rate of change = $\frac{\Delta y}{\Delta x}$ = $\frac{\text{gallons}}{\text{time}}$  	Decreasing	None