

# Mellow Yellow: Interpreting Graphs

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**Description:** Students interpret linear piecewise time-distance graphs that represent different stories about a character, Mellow Yellow. They decide whether a given graph corresponds to the motions (walking fast, walking slow, stopping, going backward) described in the story. Students then create stories based on given graphs and create graphs based on given stories.

**Technology Strength:** By providing an animation of the story that matches the graph, this model provides students visual feedback to check their mathematical understanding of how location and speed are represented on the graph. Students can relate the real-time motion of Mellow Yellow to the visual display of the graph.

**Objectives:** Make sense of data given in the form of a graph; read a narrative of a situation that changes over time and make a graph that represents these changes; understand that rate is represented as the slope of a line on a graph of distance vs. time, and that a negative slope represents moving back toward the starting point

**Prerequisites:** Familiarity with graphs and slopes

**Suggested Grade Level:** 5 to 9

**Sketchpad Level:** Beginning

**Suggested Duration:** 45 minutes

**Suggested Classroom Setting:** Whole Class, Student Pairs. This activity, designed for use by student pairs, can be easily modified for whole-class use.

**Preparation:** Review the Activity Notes. Preview the student sketch. Work through the steps on the worksheet and make a copy of the worksheet for each student.

**Materials:** None

**Student Worksheet(s):** Mellow Yellow

**Student Sketch:** Mellow Yellow.gsp

**Presentation Sketch:** None

**Vocabulary:** Graph, slope, axes, rate, speed

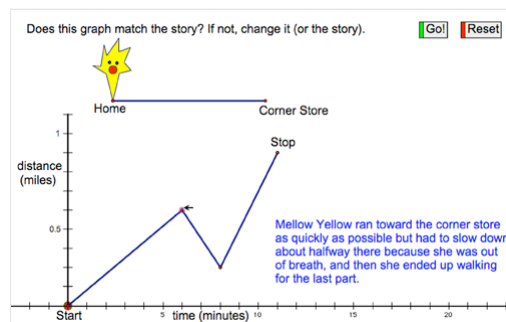
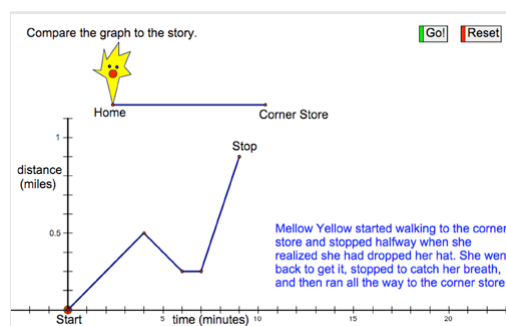
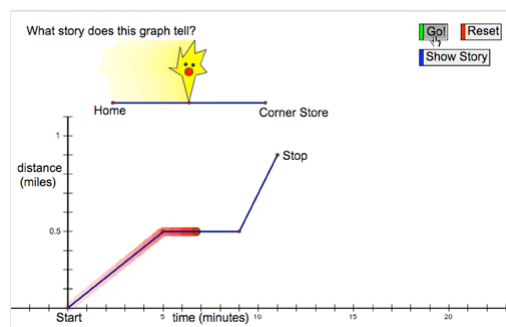
**Sketchpad Version:** GSP5

## Using the Sketch:

This model shows a time-distance graph and the character, Mellow Yellow, on the end of a line segment. Students press *Go!* to start corresponding animations of Mellow Yellow moving from *Home* toward *Corner Store*, and a red point that represents Mellow Yellow's location along the graph, as shown in the first illustration. When the red point moves along the horizontal portion of the graph, Mellow Yellow does not move. Students are asked to describe the story and then press *Show Story* to read the one provided.

On subsequent pages, students compare the stories, graphs, and animations to help them make sense of various features of the graphs, including relative slopes, slopes of zero, and negative slopes, as shown in the second illustration.

On some pages, students are asked to change the graph to fit the story, as in the third illustration. When they drag the points that connect the segments, the animation of Mellow Yellow will change to match the graph. In this way, the real-time motion of the animation provides visual feedback to help students interpret the graph.



## Sketch Tips:

Sketch Tips show skills needed in this activity, and the step at which the skill is first used.

Sketch Tip	Tip Sheet or Tip Video
Step 1: Change to a different page using page tabs	Moving Between Pages
Step 3: Select, deselect, and drag objects with the <b>Arrow</b> tool	Using the Arrow Tool