

# Mean Meets the Median: Measures of Central Tendency

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**Description:** Students drag a fixed number of data points to different locations on a number line and observe the effects on the median and the mean. Students can explore the difference in the median that occurs between having an even and odd number of data points. The emphasis of the activity is not so much on calculating the values of the mean or median given a data set, but on understanding how the mean and median behave depending both on how the data is distributed and on the number of data points.

**Technology Strength:** Students see the location of the median and the mean on the number line change as they manipulate data points. They can easily compare what happens to the median and the mean as a data point is moved continuously.

**Objectives:** Understand properties of the mean and median; predict how changes in distribution will affect the mean and the median

**Prerequisites:** Familiarity with mean and median

**Suggested Grade Level:** 6 to 7

**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):** Mean Meets the Median

**Student Sketch:** Mean Meets the Median.gsp

**Presentation Sketch:** None

**Vocabulary:** Mean, median, data set, outlier, greater than, less than, vertical

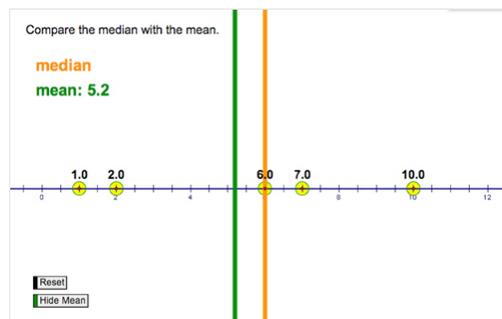
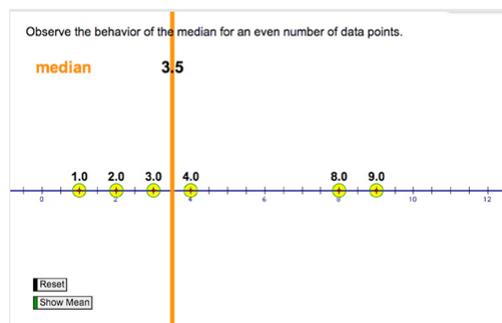
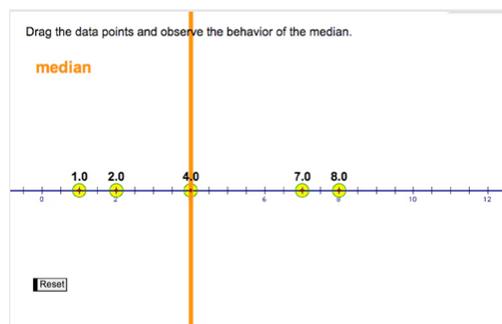
**Sketchpad Version:** GSP5

## Using the Sketch:

In the model, a vertical orange line indicates the value of the median for the five data points on the number line, as shown in the first illustration. As students drag any of the data points along the number line, the value of the median changes accordingly. Students use the model to explore properties of the median and to observe characteristics of data sets with the same median.

The next page includes six data points, with the median calculated as the mean of the third and fourth data point, as shown in the second illustration. Students compare the behavior of the median of an even number of data points with the median of an odd number of data points.

Pressing *Show Mean* displays the value of the mean, both numerically and as a vertical green line on the number line. As shown in the third illustration, the last page shows the median and the mean for five data points. Students investigate how their behaviors compare.



## 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 1: Select, deselect, and drag objects with the <b>Arrow</b> tool	Using the Arrow Tool
Step 14: Create an Animation button using <b>Edit   Action Buttons   Animation</b>	Animating