

## USING GRAPHS TO ANALYZE DATA

### Key Points about Using Graphs to Analyze Data

There are different types of graphs and ways that data can be analyzed using the graphs.

- Graphs are based on the coordinate plane. Data are the points on the plane. Data is usually mathematical information in a set of numbers. If collecting data about the ages of people living on one street, the data is all the ages. The data can then be organized into groups, and evaluated. **Mean, mode and median** are different ways to evaluate data.

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**PREVIEW**

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- The **median** of a set of data is the middle number. The median can be found by arranging the data from low to high and finding the middle number. If a set of data has an even number of data, the median can be found by averaging the two middle numbers.
- The **mode** of the data is the number that occurs most often in a set of data. It is possible for a set of data to have more than one mode. If a list of data has more than one number that occurs multiple times, then the numbers that occur the most are the mode. If all the numbers occur one time, the set of data has no mode.

**Data can be displayed in many ways.**

- A **frequency distribution** is used to display intervals or categories, and how many times that interval or category is picked.
- A **histogram** is used to graph frequency distributions.
- A **bar graph** compares data in categories and uses bars, either vertical or horizontal, to display the data.
- A **line graph** is useful for graphing how data changes over time. With a line graph, data is plotted as points and lines are drawn to connect the points to show how the data changes.

- A **circle graph** is used to display data that can add up to 1 or 100%.



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- A **box and whisker plot** arranges data based on the median of the data. A box and whisker plot displays many pieces of information such as the lowest and highest numbers of the data and the median of the whole set of data as well as the median of the upper and lower half of the data. The median of the data for the lower half, whole set, and upper half are called the first quartile, second quartile, and third quartile respectively.

2 | 2, 5  
3 | 1, 2, 6

## Try This!

1. Find the **mean**, **mode**, **median** of the following data and make a **box and whisker plot**:

2, 5, 10, 2, 6, 7, 14, 6, 2, 8, 11, 9, 3

2. Make a **bar graph** for the data that shows the number of acres in national forest:

Yellowstone- 2,200,000

Adirondack- 6,000,000

Glacier- 999,200

3.



now

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4.

Red cars -29%

Blue cars-24%

White cars-5%

Silver cars-27%

Green cars-15%

5. Make a **stem-and-leaf plot** for the data about number of hours worked at a factory:

35, 40, 42, 38, 25, 20, 33, 28, 41, 40