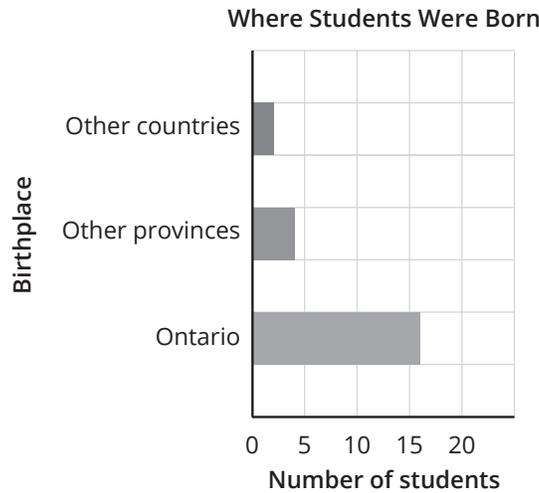


## 2 Selecting a Type of Graph

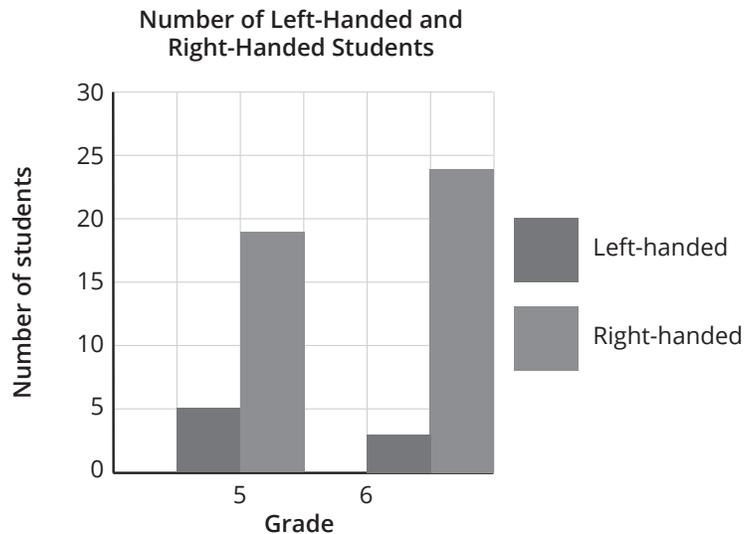
### Bar Graphs and Double Bar Graphs

You can choose the best type of graph to display a set of data.

A bar graph shows how often each category in a data set is selected. For example, this bar graph shows that more of the students in the class were born in Ontario than anywhere else. The bars in a bar graph are not connected because the categories they represent are separate.

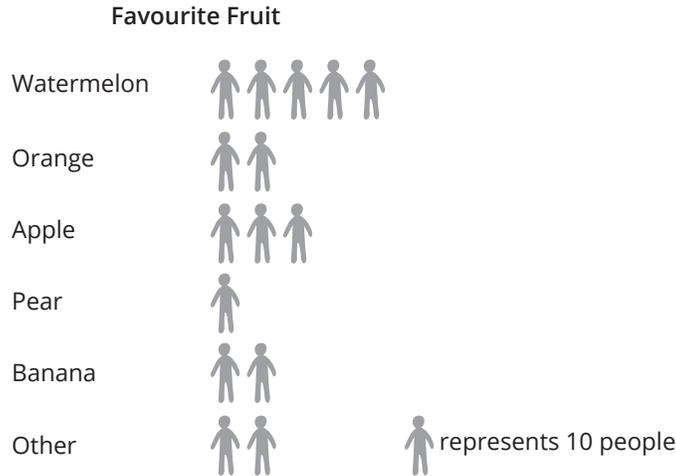


A double bar graph helps you compare data based on the same categories from two different groups, or populations. For example, this double bar graph shows the numbers of right-handed students and left-handed students in Grade 5 and Grade 6.



### Pictographs

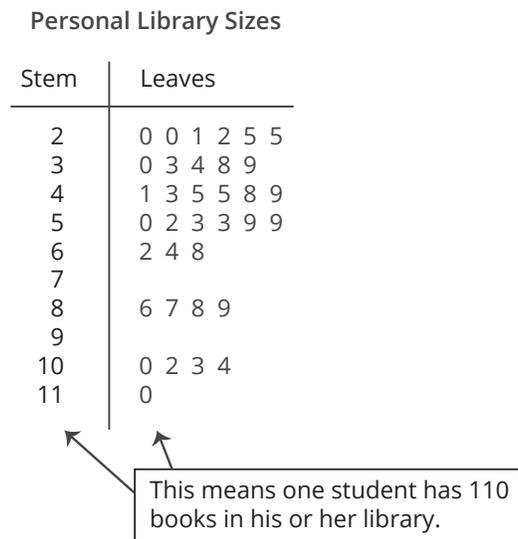
Pictographs show similar information to bar graphs, but they show the data pictorially instead of using bars. For example, this pictograph shows people’s favourite fruits.



### Stem-and-Leaf Plots

Stem-and-leaf plots can be used to display numerical data organized by place value, for example, all the numbers in the 20s together, all the numbers in the 30s together, and so on.

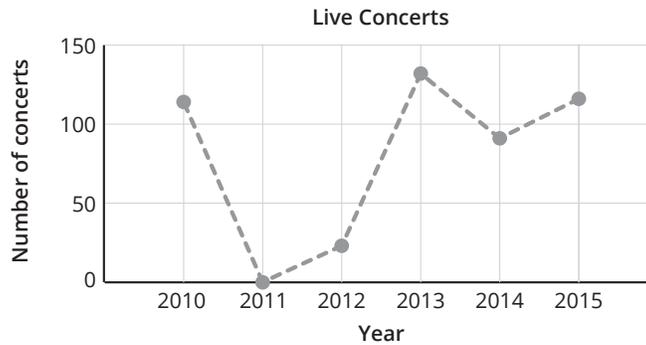
This stem-and-leaf plot shows the number of books several students have in their personal libraries. Notice that the stem is made of the first digit (or digits) of the data values, and the leaves are the ones digits of the data values, arranged in numerical order.



## Broken-Line Graphs

Broken-line graphs can be used to show changes over time or to show a relationship between two sets of data.

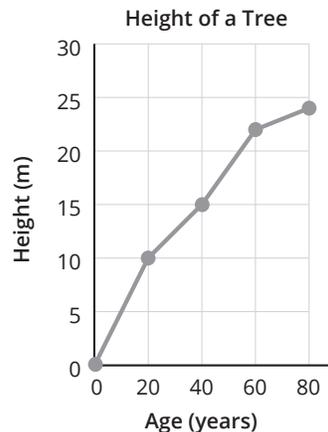
To create a broken-line graph, you plot specific data values and then connect those values with dotted line segments to make it easier to see a trend. For example, this broken-line graph shows the number of live concerts a singer performed in different years.



On a broken-line graph, one set of data is discrete. The other set of data can be continuous. In this case, both the number of concerts and the years are discrete. The number of concerts has to be a whole number, and it's not reasonable to have a concert between the years 2010 and 2011.

## Continuous Line Graphs

Continuous line graphs show relationships between two continuous sets of data. These relationships are often, but not always, trends over time. For example, you could use a continuous line graph to show the change in the height of a tree over time, since the height changes continuously, and so does time.



## How Do You Choose?

The kind of data you have affects the kind of graph you can use. For example:

- A stem-and-leaf plot makes sense only if the data values are numerical, if they have 2 or more digits, and if you can organize them in place-value groupings. In most cases, a stem-and-leaf plot is useful only if there are about 15 to 20 pieces of data.
- Bar graphs and pictographs are interchangeable; you can choose one or the other based on your preference or based on which type of graph you think your audience will find most useful. Bar graphs and pictographs can be horizontal or vertical.
- A double bar graph makes sense only if you want to compare two populations of data and the data values for each population are organized in the same way.
- Broken-line graphs and continuous line graphs show changes or trends. Because a continuous line graph is created from continuous data, you can use it to determine data values between the points you plotted.

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## Notes

Students will encounter other kinds of graphs later, but they are not introduced in Grade 6. For example, the circle (or proportion) graph, which divides a whole into the proportions in different categories, will be introduced in Grade 7.

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## Definitions

**bar graph:** a graph that uses horizontal or vertical bars to display discrete categories of data

**broken-line graph:** a graph created by plotting points and joining them with dotted line segments; one axis represents discrete data, such as grade at school, and the other axis can represent continuous data, such as the time spent doing homework

## Definitions (continued)

**continuous data:** data with values that can be represented on a number line or a graph axis; continuous data are usually measured rather than counted; for example, children's heights are continuous but the grades children are in at school are not

**continuous line graph:** a graph created by plotting points and joining them with a line; both axes represent continuous data, such as time and distance

**discrete data:** data that can have only certain fixed values; discrete data are usually counted rather than measured, for example, the grade children are in at school is discrete, but the children's heights are not

**double bar graph:** a type of bar graph used to compare two sets of data that have been organized into the same categories

**pictograph:** a graph that uses a symbol to show the number of items in each category

**population:** the entire group you want to learn about by collecting data; for example, if you want to know how the students at a school would like to celebrate a special day, the population is all the students at that school

**stem-and-leaf plot:** a data display where all the numbers in a set of data are placed in order and organized by place value