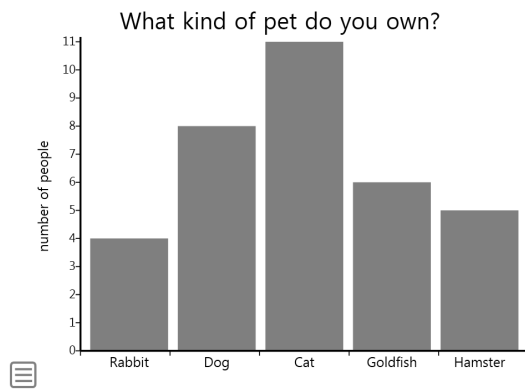


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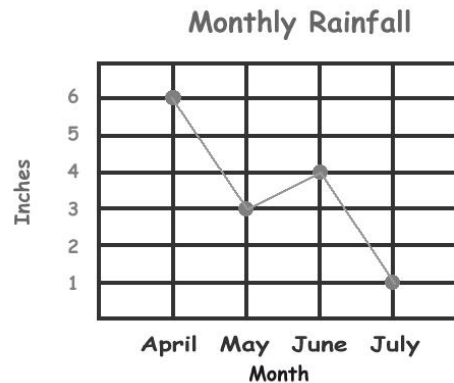
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Instructions:

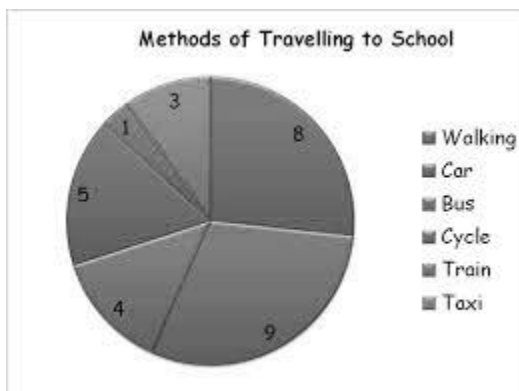
Data, collection of information, is at the heart of any scientific experiment. Scientists in different fields collect data in many different forms, from the magnitude and location of earthquakes, to the length of finch beaks and so on. Visual representations of scientific data have been used for centuries. One way to visually represent data is graphs. Graphs make data easy to understand. There are many types of graphs and listed below are a few types of graphs and what they look like.



Bar Graph



Line Graph



Pie Chart

Deciding what chart or graph to use to show the data you collect in an experiment is important. If you have data, with similar numbers (example: 45, 44, 46, 43) you would not want to use a pie chart since it would be hard to see what your results are since they would all take about $\frac{1}{4}$ th of the pie in the chart.

Labeling your graph or chart is also important. If you label your graph well, people who are reading your graph will know what you are explaining or showing with data. If you do not label your graph, readers will have no idea what you are trying to show with the information collected from your experiment.

Many scientific ideas, inventions, or explanations come about because of something we are curious about or want to make better. To carry out any experiment successfully we must follow some guidelines. We call these guidelines the scientific method.

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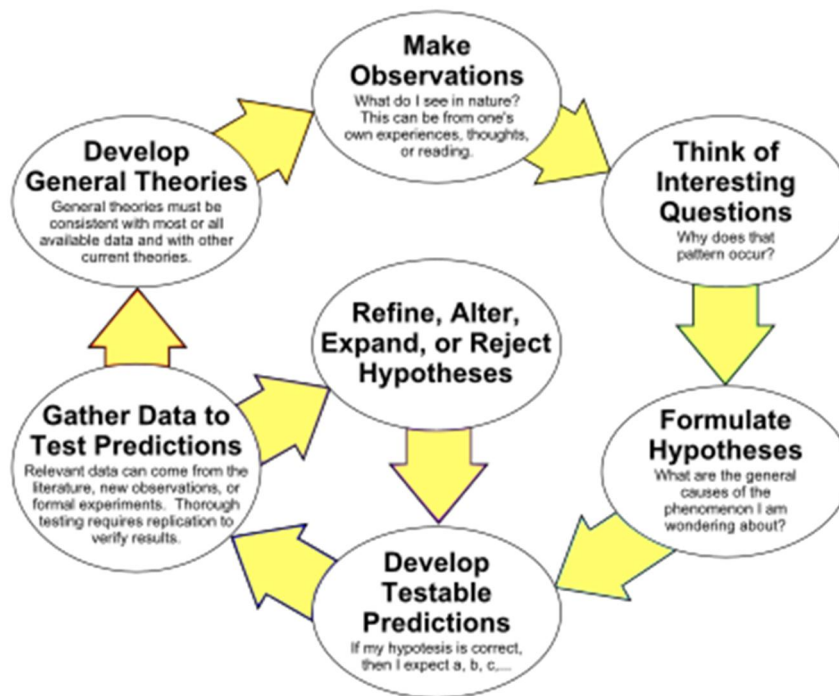
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The scientific method is usually described as being made up of these steps:

1. Question
2. Hypothesis
3. Experiment
4. Observation
5. Analysis
6. Conclusion

But it really happens more like the chart below:

The Scientific Method as an Ongoing Process



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Part A: Matching

Match each term in the word bank with its correct definition. Each word will be used only once.

- | | | | |
|------------|---------------|-----------------|-------------|
| A. data | B. hypothesis | C. observations | D. variable |
| E. control | F. question | G. conclusion | H. research |

_____ 1. The reason you started an experiment is because you had a _____.

_____ 2. The process of finding information about a topic or experiment.

_____ 3. Using tools, taking measurements, and recording information is called gathering_____.

_____ 4. A summary of the experiment and the last step in the Scientific method.

_____ 5. Using the five senses to gather information about the experiment.

_____ 6. A proposed explanation to the experiment question, why you think something happened or what you think will happen in your experiment.

_____ 7. The experiment performed without the variable to provide a comparison.

_____ 8. The factor being tested in the experiment

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Create a Chart graph

Using the information you learned above about graphs and charts, collect the following data and make a bar, pie, or line graph in the area below. Your graph may be drawn by hand. You may want to use a ruler to make the left and bottom line if you decide to make a bar or line graph. If you choose to make a pie chart, use a circle in your home such as a lid to draw the outline of the chart.

Directions:

Pick 15 family members or friends

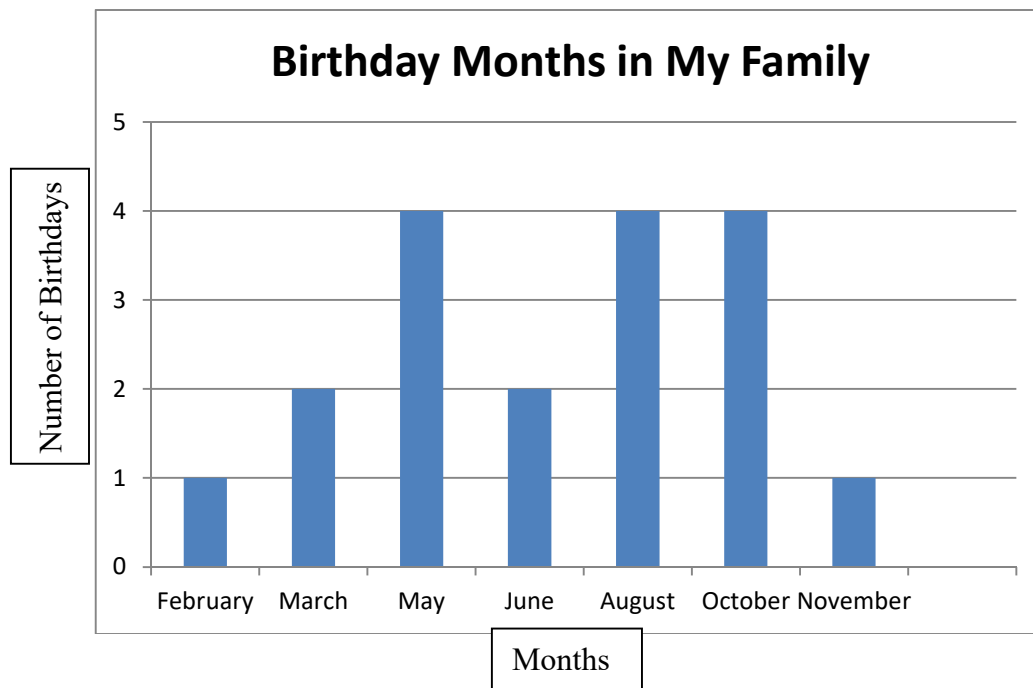
Ask them what month their birthday is.

Make a chart with that information.

Make sure to:

1. Label the months
2. Label the number of people that have birthdays in the months listed
3. Label your graph or chart with a title

Example:





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Your Chart or Graph: