Module 04 Lesson 03
VoiceThread: Types of graphs
Transcript

Today's Biol Daily Times provides a graphical snapshot of the world news, ranging from Arctic sea ice declines to linkages between lung cancer and smoking.

[Visual: Image of a newspaper titled "The Biol Daily Times" with the headlines reading "A Graphical Snapshot of the World News."]

Now graphs should not be intimidating at all. When looking at a graph it is always good to get an idea about the context. Ask yourself; "Why was this graph created?" "What is the bigger picture behind this graph?" Asking these questions should help you interpret the story that they are trying to portray.

Line graph

There are many different types of graphs but one that you may be familiar with is the line graph. A line graph is commonly used to track changes over time.

[Visual: Image of the annual frequency of North Atlantic tropical storms.]

In the wake of hurricane Katrina, let's take a look at this line graph that shows the annual frequency of North Atlantic tropical storms. The title below tells you the context; the X-axis contains a time series of years from 1930 to 2000; and the Y-axis shows the average number of named storms. So in this case, Year is the independent variable as it is impossible to change the year, but the average number of named storms can change from year to year and it is therefore the independent variable on the Y-axis.

So just by looking at this graph with it's complete annotations, you should be able to read the story that it is trying to tell you. The graph is showing a trend in storm frequency over time (from 1930 to 2000), and you can see that there was increased storm frequency from 1930 to 1935, and then it decreased again towards 1940. This oscillation continued over time until 1990, after which there is an exponential increase in the number of named storms in the North Atlantic.

Bar graph

Another type of graph that you are no doubt familiar with is a bar graph. Bar graphs are generally used to compare things between different groups, such as in the example presented here.

[Visual: Image of a bar graph displaying the tons of carbon dioxide per capita emitted by the 10 worst emitting countries in 2002]

The graph shows the tons of carbon dioxide per capita emitted by the 10 worst emitting countries in 2002. As you can see, the United States was leading the bunch with 20 tons of carbon dioxide per capita, followed by Saudi Arabia, Australia in third place, and Japan being the best of this bad bunch.

Pie chart

A further type of graph that is commonly used are pie charts. Pie charts are best used when trying to compare parts of a whole, for example if you are using percentages.

[Visual: Image of a pie chart displaying sources of energy consumed in the US in 2007.]

While pie charts are the only type of graphs that do not have X- and Y-axes, this graph does have a title and it is labeled and therefore provides all the necessary information to get the context and thus to read the story. So in 2007, petroleum was clearly the most commonly used energy source in the US, followed by natural gas and coal, with nuclear and renewable sources making up only a very small percentage.

X-Y plot

A final type of graph that you may see are X-Y plots, which are used to determine relationships between two different things. What an X-Y plot is showing is that the X-axis is used to measure one variable and the Y-axis is used to measure another variable. If both variables increase at the same time, they have a positive relationship. On the other hand, if one variable increases but at the same time the other variable decreases, they have a negative relationship. Sometimes the variables do not show any form of a pattern and therefore there is no relationship between the two variables.

If we recap the four common types of graphs that we have had a look at:

[Visual: Image describing the four types of graphs.]

Each of which are used depending on what story you are trying to tell based on the data that you have.