Misleading Graphing Notes

Misleading Graphs

It is important to closely scrutinize information when it is put in front of you. Is it information you can trust? What is the source of the information? What is the motivation of the author?

If the information includes data and or graphs, how reliable is the data? Who collected it? For what reason?

Was the data collected in a fair and unbiased way?

Maybe the information passed along to you is being used for a specific purpose?

Maybe it's being used to try to sway your opinion on some important matter?

Maybe it's being used to try to get the author’s point across.

Maybe it's being used to try to sell you a product or service?

Or is it simply being used to pass along information in a fair and unbiased way?

Whenever you are presented with a graph or a table of data in an article from the newspaper, a magazine, or an internet page, look at it very closely.

Was the data collected using a fair and random process without bias? Or was the data carefully chosen out of a larger group of data to support the author’s point? It’s often difficult to know this.

What about the graph itself. Is the data presented accurately. It is possible to present the same data on a graph in different ways that can result in a totally different interpretations.

Example: The two graphs below have the same information.

Graph A:

Graph B:
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Which graph is misleading?  
Why?  
Who do you think may use the misleading graph to their advantage?  
Is this false advertising?

Which graph is misleading?  the second one  
Why?  it uses a ‘graph break’ where the y axis skips from 0 to 14  
Who do you think may use the misleading graph to their advantage?  
A company that sells snow shovels or snow blowers  
Is this false advertising?  
sort of, but not illegal as the data given is true, it's just displayed in a misleading way

What is misleading about this graph?  

What is misleading about this graph?  
It looks like there are double the Chevys on the road compared to Toyotas, but actually only 1.5% more. Again, the y axis doesn't start at 0.

Why would Chevy run this advertisement?  
At a glance, it seems like there are many more Chevys on the road than other brands. If people don't look closely, they may get the idea that Chevys are much more dependable than other cars.
What makes this graph misleading?

Not only is the basketball taller than the baseball (which is okay), but it is much wider, which suggests a much bigger price difference than what it actually is.

Who might benefit from using the previous graph?

Baseball Teams. Owners of teams could run the ad to show how much cheaper it is to go to a baseball game than a basketball game, thus increasing attendance.

What is misleading about this graph?

How width can affect perception.
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What is misleading about this graph?
- Width of each gaming system, as well the y axis doesn't start at 0.

What company may display the previous graph as part of an advertisement?
- Play Station 3 - It seems like, at a glance, that many people like Play Station 3 over XBox 360, when in fact it's only 3% more.

What is misleading about this graph?
- No axes
- Isn't clear how many medals each picture of a medal represents
- Pictures of medals are inaccurate compared to actual totals

Who may use this graph?
- Summer Olympic Medal Count (Up to August 2004)

What is misleading about this graph?
- US Unemployment Rate

Who may use this graph?
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What is misleading about this graph?

- **y axis doesn't start at zero. There is actually very little difference in unemployment rates.**

Who may use this graph?

- Republicans may use this to make it look like they have a much lower unemployment rate while they are in office.

Twice the suction of any other vacuum.

What makes this graph misleading?

- **width & size of vacuum**

What is misleading about this graph?

- The size of each picture that represents the same about of vehicles is different. This creates bars that are not proportionate to the total number of vehicles.
What is misleading about this graph?

The pictures on the top of each bar make Android look equal to Apple.

What is misleading about this graph?

The last bar is 5 years combined, while all of the other bars are just one year.

Make a summary of different characteristics that can cause graphs to be misleading:

Assignment:
- complete the Misleading Graphs worksheet