

Making Science Graphs and Interpreting Data

<http://staff.tuhsd.k12.az.us/gfoster/standard/bgraph2.htm>

1. Scientific Graphs:

1. Explain what a **best-fit line** is.
2. Which graph, Best-fit line #1 or Best-fit line #2 is the correct one? _____

2. Graphs are make using ... complete the chart on the back of this paper

3. Practice Interpreting Data:

For each question on the web page, answer it on this paper.

1. a. _____ b. _____ c. _____
2. a. _____ b. _____ c. _____
d. _____ e. _____
f. _____
3. a. _____ b. _____ c. _____
4. a. _____ b. _____ c. _____
d. _____ e. _____ f. _____
5. a. _____ b. _____ c. _____
6. a. _____ b. _____ c. _____ d. _____
7. a. _____ b. _____ c. _____ d. _____ e. _____
8. a. _____ b. _____ c. _____ d. _____
9. a. _____ b. _____
c. _____ d. _____ e. _____
10. a. _____ b. _____ c. _____
d. _____ e. _____ f. _____
g. _____

4. Graphing problems:

Go back up toward the top of the web page. Choose one of the Graphing problems and make a graph. Make sure you identify which problem you choose on your graph.

Making Science Graphs and Interpreting Data

How To Construct a Line Graph On Paper

(These principles apply to Excel graphs too, actually any graph you make)

Step	What To Do	How To Do It
1	Identify the _____	a. b.
2	Determine the variable _____.	a. b.
3	Determine the _____ of the graph.	a. b.
4	_____ & _____ each axis.	
5	_____ the data points.	a. b.
6	Draw the _____.	a. b.
7	_____ the graph.	a. b.

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Line graphs are used to display data or information that _____. Line graphs allow us to see overall _____ such as an increase or decrease in data over time.

Scatter graphs are also used to look for _____ among variables. They look similar to line graphs, without the _____.

Bar graphs are used to _____. The bars provide a visual display for comparing quantities in different _____. Bar graphs help us to see relationships quickly. However, bar graphs can be difficult to read accurately. A change in the scale in a bar graph may alter one's visual perception of the data.

Circle Graphs are used to _____. Circle graphs show _____ of data, comparing a _____ to the _____. You must first find each part of the whole through several calculations and then use a protractor to draw each angle. This leaves a lot of room for human error if done by hand. Circle graphs are best used for displaying data when there are no more than five or six sectors, and when the values of each sector are different. Otherwise they can be difficult to read and understand.

Problem #1 The table below shows the number of sneakers sold by brand for this month. Which graph best demonstrates the sales of each brand?

It is easy to make a bar graph of this data, but to make a circle graph some calculations have to be done.

Sneakers Sold This Month	
Brand	Number Sold
Adidas	25
New Balance	18
Nike	32
Reebok	15
Other	10

- We have to order the data from _____ so that the sectors of the circle are drawn from largest to smallest, in a clockwise direction.
- Find the _____ of each brand from the total amount of sneakers sold. To get the % of each brand, _____ up all the sneakers sold and then _____ each brand by that total.
- To put the data into a circle graph so it reflects each amount properly, change each data point into a _____. To do this, divide each brand's % by 100.
- To translate this amount into a portion of the circle _____ the decimal number by 360° .
- This angle measure is how big you will make each piece of pie.

Sneakers Sold This Month				
Brand	Number Sold	Percent	Decimal	Angle Measure
Nike	32	32	0.32	$0.32 \times 360^\circ = 115.2^\circ$
Adidas	25	25	0.25	$0.25 \times 360^\circ = 90^\circ$
New Balance	18	18	0.18	$0.18 \times 360^\circ = 64.8^\circ$
Reebok	15	15	0.15	$0.15 \times 360^\circ = 54^\circ$
Other	10	10	0.10	$0.10 \times 360^\circ = 36^\circ$
Total	100	100%	1.00 = 1	360°

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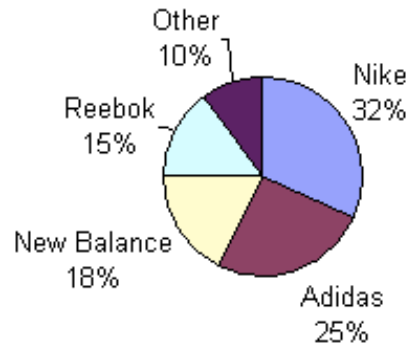
Which graph best demonstrates the sales of each brand?

Bar Graph



Circle Graph

Sneakers Sold This Month



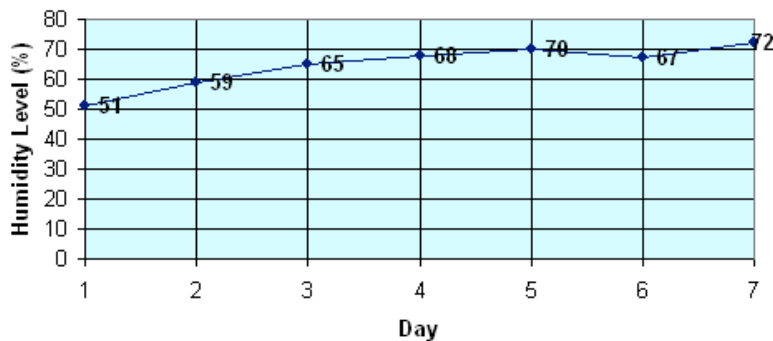
Problem #2 The table shows the humidity level, recorded in Small Town, NY for seven days. Construct a graph which best demonstrates the humidity level for each day.

Are there any parts in relation to a whole indicated in the data?

Is there a change over time?

Day	Humidity Level (%)
1	51
2	59
3	65
4	68
5	70
6	67
7	72

Humidity Levels in Small Town, NY



Problem #3 The ages of 7 trumpet players in a band are 13, 12, 11, 12, 11, 10 and 12. What type of graph would be appropriate for comparing the ages of these trumpet players?

Problem #4 The federal hourly minimum wage was recorded each year from 1990 to 2007. What type of graph would best show the changes in the minimum wage during this period?

Problem #5 When asked if “anitdesestablishmentariuanism” has 28 letters, 50 people said *yes*, 35 people said *no* and 15 people said *I don't know*. What type of graph would best compare these responses to each other and with the total?

Problem #6 In a city, the rainfall was recorded in inches each month for 12 months. What type of graph would best display the change in rainfall?