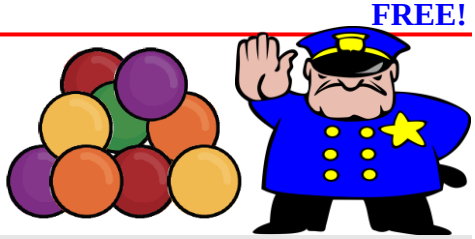
Computer Times

Your Newsletter About Trends in Technology

Mr. Breitsprecher's Edition **December 2016** **FREE!**

Skittles & The Law of Large Numbers



When we accumulate data, as the numbers get bigger, the patterns in our data become clearer and more accurate. We can see this by analyzing the content of bags of skittles.

In today's spreadsheet, we will analyze the colors of Skittles candies in a small bag. Please carefully create the spreadsheet you see on the right entering the formulas/ functions exactly as shown.

By default, all **cell references** are **relative references**. When copied across multiple **cells**, they change based on the **relative** position of rows and columns. For example, if you copy the formula =A1+B1 from row 1 to row 2, the formula will become =A2+B2.

When you use a cell reference with a letter and number (i.e B3), when that address is used in a formula or function and is copied or filled, MS Excel adjusts the cell address – this is a RELATIVE cell address. Using dollar signs (i.e. B3/$B$9) is an ABSOLUTE CELL ADDRESS and it will not change when it is filled or copied.

We will create spreadsheets of individual bags of Skittles and then add the results from 2 more bags of Skittles. Next week, we will add all of our data and compare graphs of our results across the class.

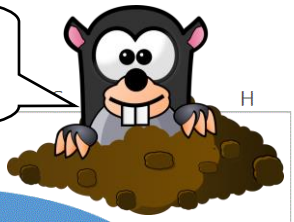
	A	B	C	D
1	Skittles Analysis, by YOUR NAME			
2	Type of Skittle	Bag #1	Bag #2	Bag #3
3	Grape	8	data	data
4	Orange	12	data	data
5	Strawberry	10	data	data
6	Lemon	11	data	data
7	Green Apple	9	data	data
8	Totals	=SUM(B3:B7)	=SUM(C3:C7)	=SUM(D3:D7)
9				
10	Percent of Each Bag			
11	% of Grape	=(B3/$B$8)*100	=(C3/$C$8)*100	=(D3/$D$8)*100
12	% of Orange	Fill Down	Fill Down	Fill Down
13	% of Strawberry	Fill Down	Fill Down	Fill Down
14	% of Lemon	Fill Down	Fill Down	Fill Down
15	% of Green Apple	Fill Down	Fill Down	Fill Down
16	Totals	=SUM(B11:B15)	=SUM(C11:C15)	=SUM(D11:D15)

skittlesBag Chart1

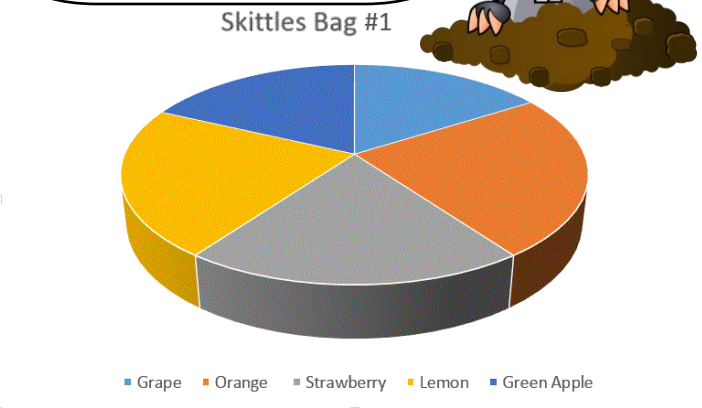
When you have completed the data entry and analysis of your bag of Skittles, then please check with 2 classmates and get the data for 2 other bags of Skittles to add to your spreadsheet.

Highlight these columns for BAG #1

Be sure to cut & paste each chart into a new worksheet titled “charts”.

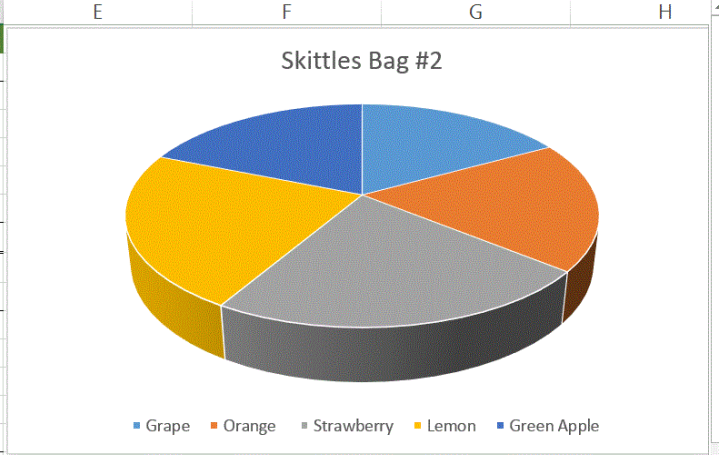


	A	B	C	D
1	Skittles Analysis, by YOUR NAME			
2	Type of Skittle	Bag #1	Bag #2	Bag #3
3	Grape	8	data	data
4	Orange	12	data	data
5	Strawberry	10	data	data
6	Lemon	11	data	data
7	Green Apple	9	data	data
8	Totals	=SUM(B3:B7)	=SUM(C3:C7)	=SUM(D3:D7)
9				
10	Percent of Each Bag			
11	% of Grape	=(B3/$B$8)*100	=(C3/$C$8)*100	=(D3/$D$8)*100
12	% of Orange	Fill Down	Fill Down	Fill Down
13	% of Strawberry	Fill Down	Fill Down	Fill Down
14	% of Lemon	Fill Down	Fill Down	Fill Down
15	% of Green Apple	Fill Down	Fill Down	Fill Down
16	Totals	=SUM(B11:B15)	=SUM(C11:C15)	=SUM(D11:D15)



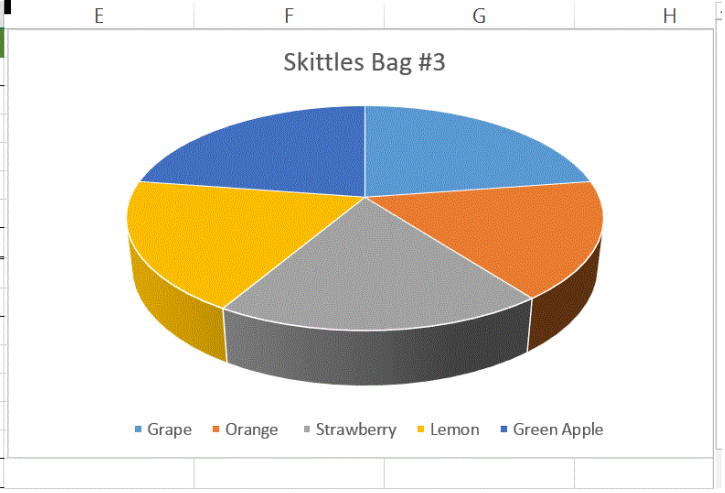
Highlight these columns for BAG #2 CHART

	A	B	C	D
1	Skittles Analysis, by YOUR NAME			
2	Type of Skittle	Bag #1	Bag #2	Bag #3
3	Grape	8	9	12
4	Orange	12	10	9
5	Strawberry	10	12	10
6	Lemon	11	12	10
7	Green Apple	9	10	12
8	Totals	=SUM(B3:B7)	=SUM(C3:C7)	=SUM(D3:D7)
9				
10	Percent of Each Bag			
11	% of Grape	=(B3/$B$8)*100	=(C3/$C$8)*100	=(D3/$D$8)*100
12	% of Orange	Fill Down	Fill Down	Fill Down
13	% of Strawberry	Fill Down	Fill Down	Fill Down
14	% of Lemon	Fill Down	Fill Down	Fill Down
15	% of Green Apple	Fill Down	Fill Down	Fill Down



Highlight these columns for BAG #3 CHART

	A	B	C	D
1	Skittles Analysis, by YOUR NAME			
2	Type of Skittle	Bag #1	Bag #2	Bag #3
3	Grape	8	9	12
4	Orange	12	10	9
5	Strawberry	10	12	10
6	Lemon	11	12	10
7	Green Apple	9	10	12
8	Totals	=SUM(B3:B7)	=SUM(C3:C7)	=SUM(D3:D7)
9				
10	Percent of Each Bag			
11	% of Grape	=(B3/$B$8)*100	=(C3/$C$8)*100	=(D3/$D$8)*100
12	% of Orange	Fill Down	Fill Down	Fill Down
13	% of Strawberry	Fill Down	Fill Down	Fill Down
14	% of Lemon	Fill Down	Fill Down	Fill Down
15	% of Green Apple	Fill Down	Fill Down	Fill Down
16	Totals	=SUM(B11:B15)	=SUM(C11:C15)	=SUM(D11:D15)



Remember, select non-contiguous columns by highlighting the first one you need with the mouse. Then hold the CNTRL key and highlight the next range of cells you need to select to create a graph. Based on your data, does it look like Skittles tries to balance the flavors in each bag?

Next week, we will chart combined data for 20+ bags of Skittles and we will see. It’s the Law of Large Numbers!