Math 107

Excel statistical graphs (version Excel 2010)

NOTE – THESE INSTRUCTIONS ARE FOR 2010 Excel

Excel can easily make many types of statistical graphs quite easily.

Bar Graphs and Pie Charts in Excel:

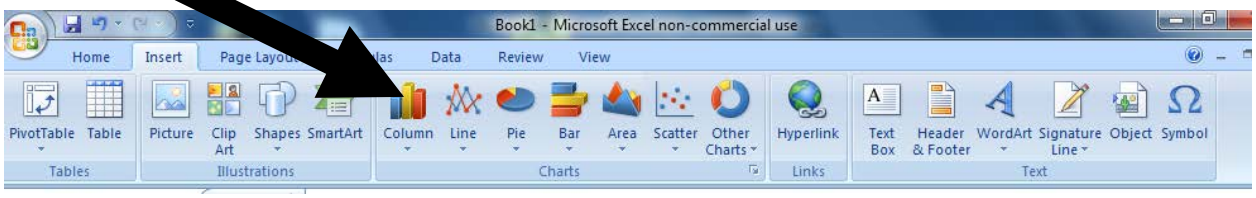
1) Create a Frequency Table in Excel. Suppose you want to include the following frequency table in Excel which represents favorite ice creams flavors from list of five flavors:

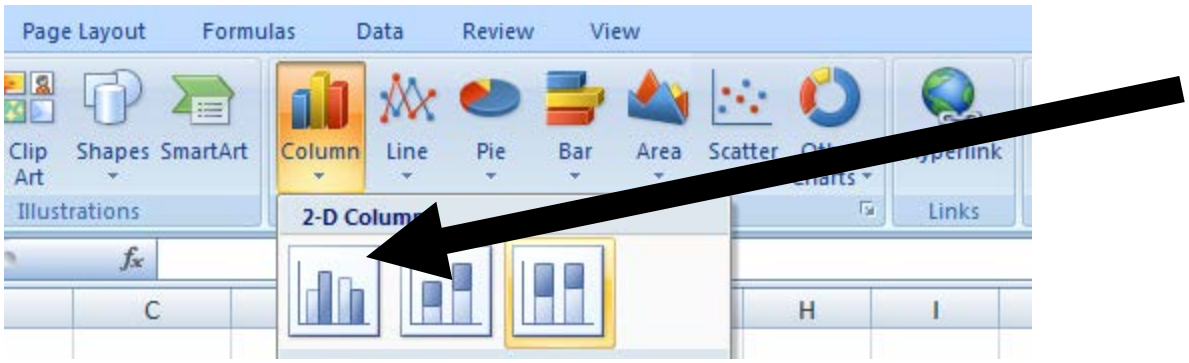
Ice Cream Flavor	Frequency
Vanilla	8
Chocolate	22
Strawberry	15
Pistachio	5
Rocky Road	10

Just type this in Excel in Adjacent cells – you might have something as follows when you finish

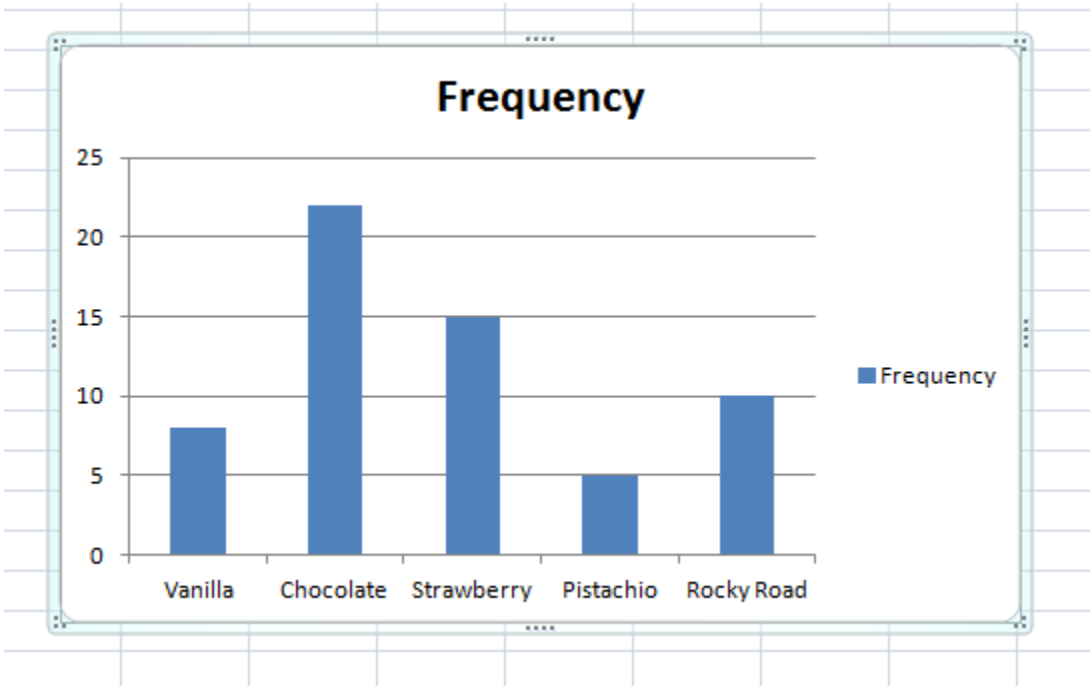
	A	B	C	D	E
1					
2		Ice Cream Flavor	Frequency		
3		Vanilla	8		
4		Chocolate	22		
5		Strawberry	15		
6		Pistachio	5		
7		Rocky Road	10		
8					
9					
10					
11					

Now that you have entered the data, highlight the data and select the type of graph you want – select the insert tab at the top and choose your desired graph. In our case for a bar graph the appropriate type is a 2D column chart.



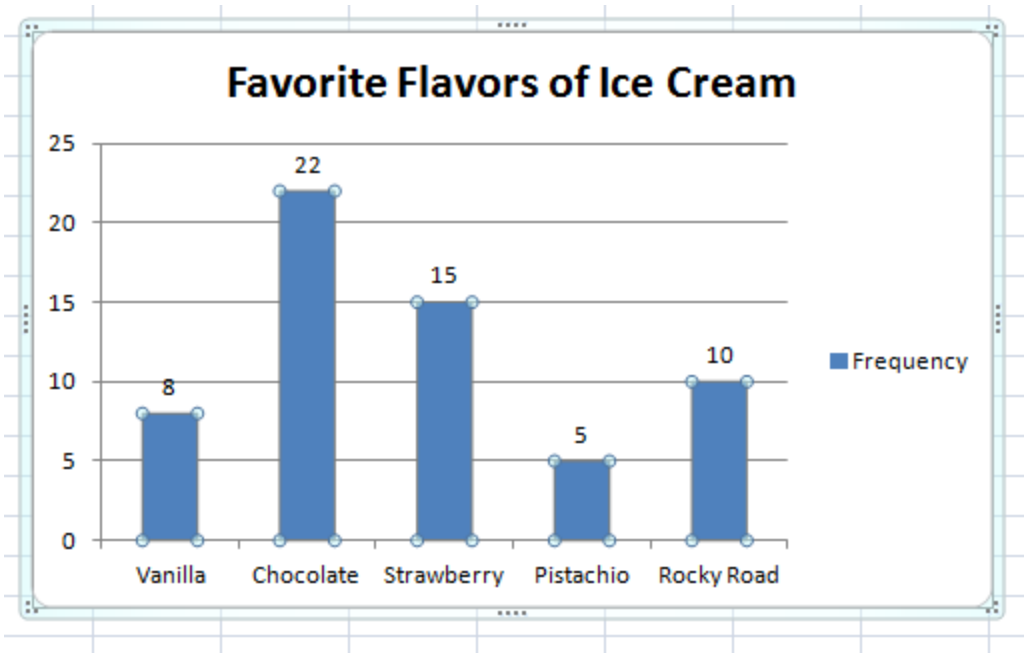


Here is the graph that appears



You can change items by choosing Chart tools/layout or directly changing things on the chart. For example we might in the chart

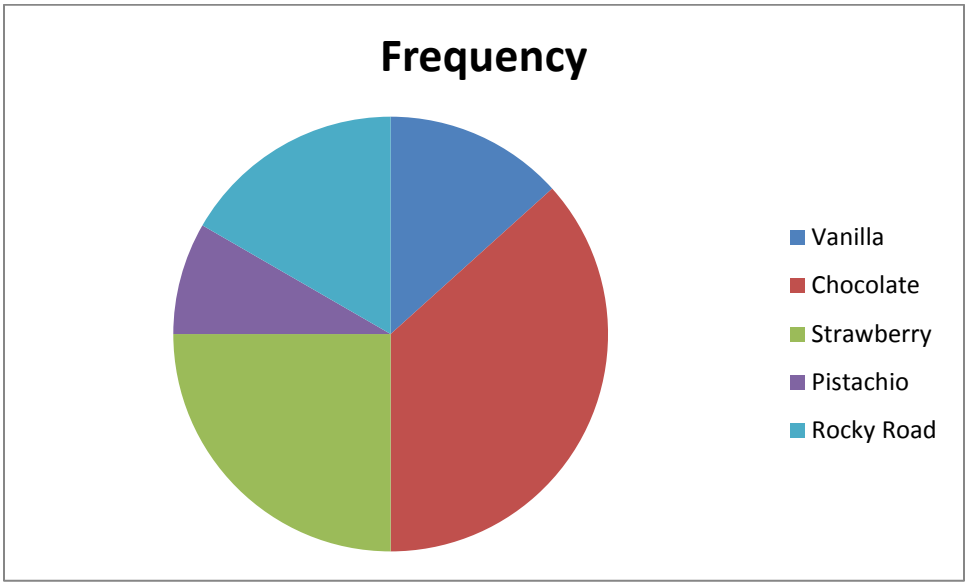
1) Click on the title and give it a more appropriate name
2) Add axes labels
3) Add the Frequency count to the bars (these are called data labels)
4) Remove the legend



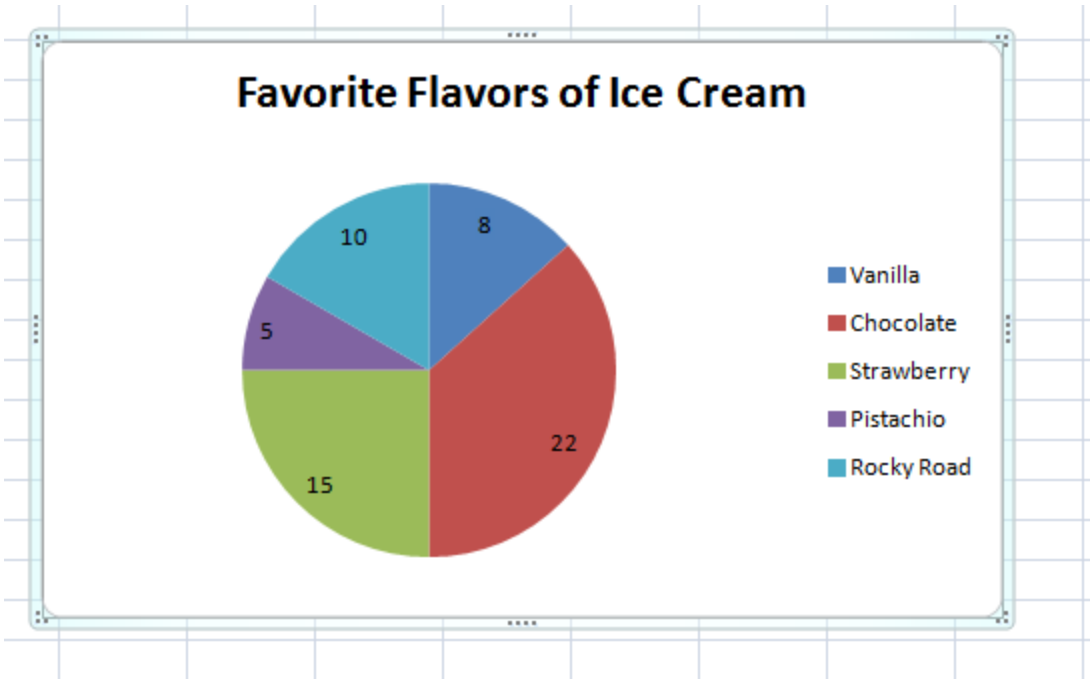
Note you can always resize your chart by dragging one of the corners

Pie (circle) Chart

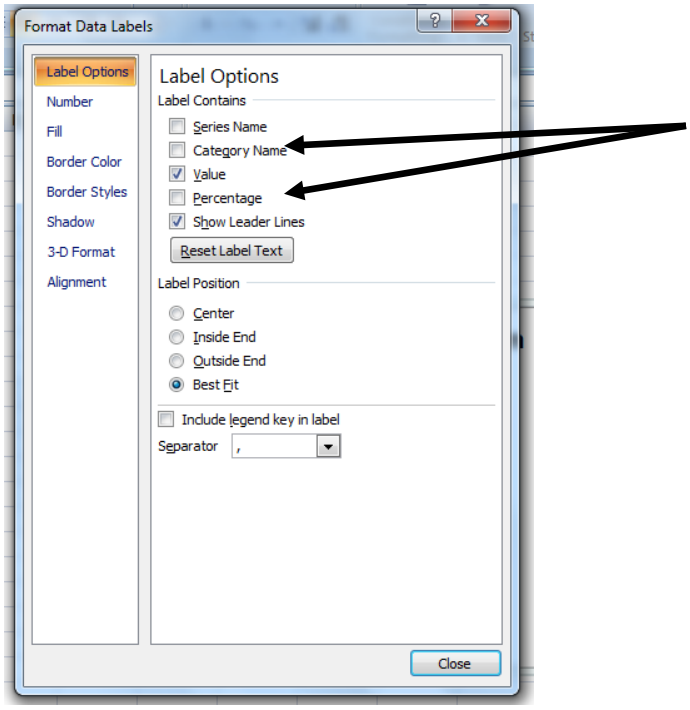
Creating a Pie Chart is a very similar process to creating a bar graph. Here we highlight the data and select 2D pie



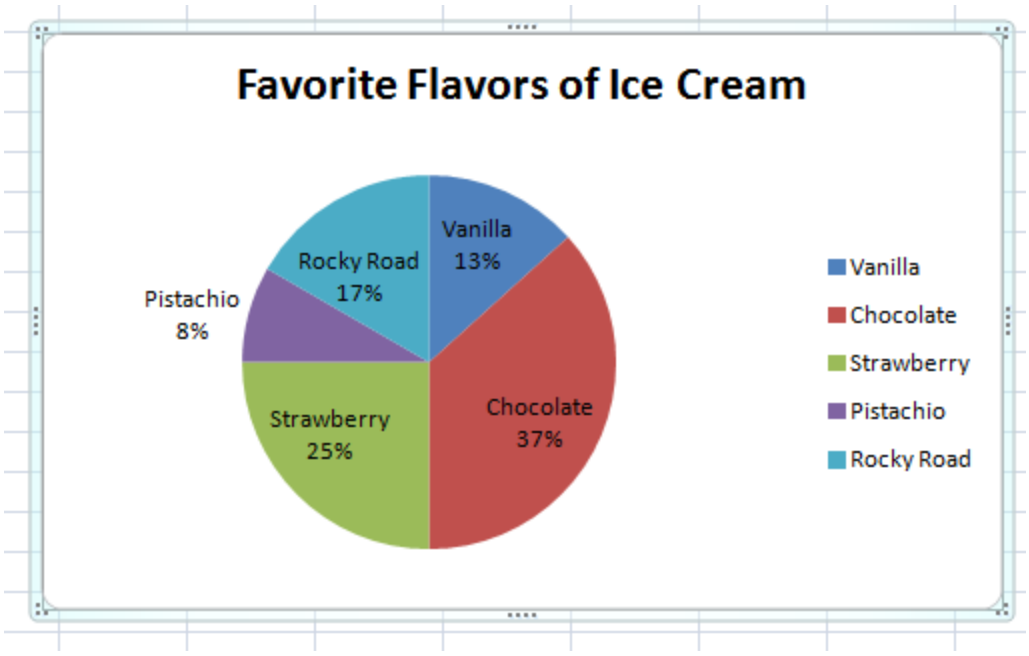
This very nice, but we should give this a nicer title and I like my pie charts to have section labels (most of the time) and either a data value in the label or a percentage. You can change the title as you did with the bar graph. To change the options on the pie chart, you can use chart layout again or directly change them on the chart.



Suppose you want to change to a percentage and add some more labels. Select more chart options from the chart layout menu . The following dialog box will appear. You can select the items you want



Here is the final graph



Histograms

The easiest way to deal with a histograms is to have the "analysis tool pack" installed in your version of Excel. There are still ways to do this without this – but it is easier if this is installed. I can show you how to install this if you need me to do so

Suppose I give a test and receive the following scores:

72	98	85	67
54	76	70	83
91	65	50	42
95	85	83	71
70	66	54	90

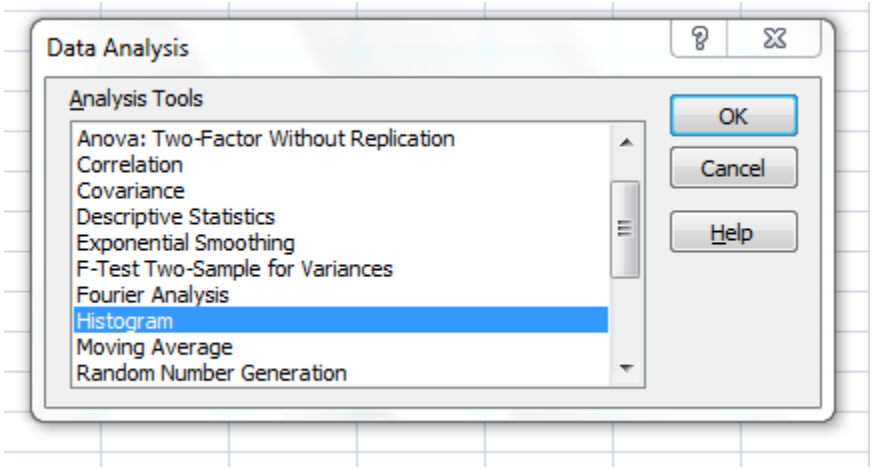
I would like to draw a histogram with bins from 40-49,50-59,60-69, 70-79, 80-89, 90+

1) Enter the data in Excel – enter it in one column
2) Now place the upper values of the bin ranges in the next column (here this would be 49,59,69,79,89,99)

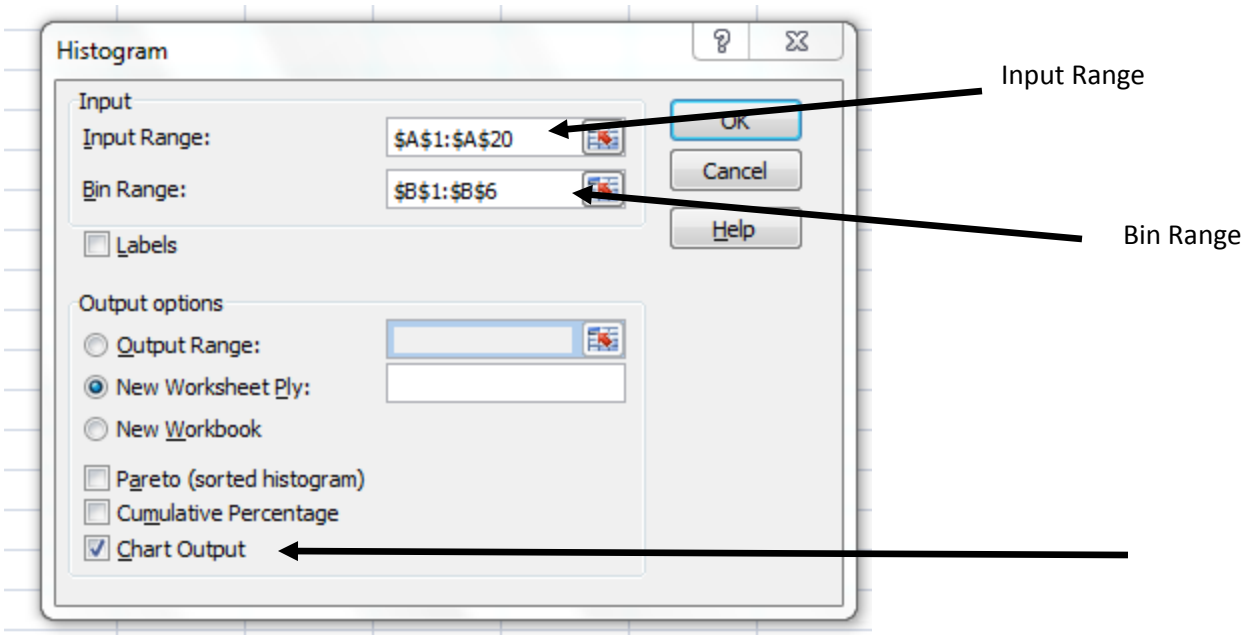
Here is what this might look like:

	A	B
1	72	49
2	54	59
3	91	69
4	95	79
5	70	89
6	98	99
7	76	
8	65	
9	85	
10	66	
11	85	
12	70	
13	50	
14	83	
15	54	
16	67	
17	83	
18	42	
19	71	
20	90	

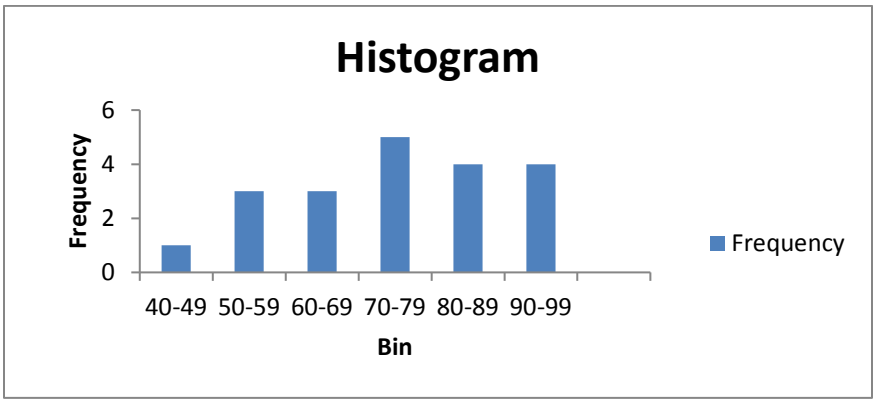
Now go to the data tab and select data analysis. You will see a dialog box show up where you can select histogram.



Now another dialog box will appear and you can select the data range and bin range. (In our case A1:A20, and B1:B6) and make sure chart output is selected. You can either put he chart in a new workbook or the same sheet



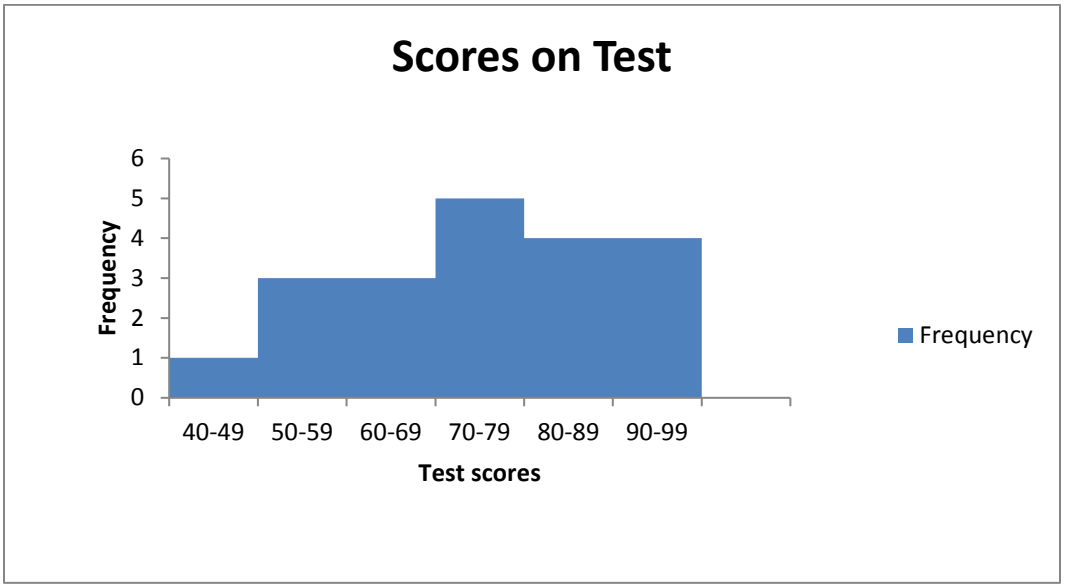
Here is the resulting histogram (it also creates a binned frequency table)



Once again you can change the axes labels and titles (and you should). You also can make the bars touch (as they should) by right clicking one of the bars and selecting format data series and reducing the gap to zero. . You can also alter the frequency table (see below) and this gives the range given above

Bin	*Frequency*
40-49	1
50-59	3
60-69	3
70-79	5
80-89	4
90-99	4

Here is the final result



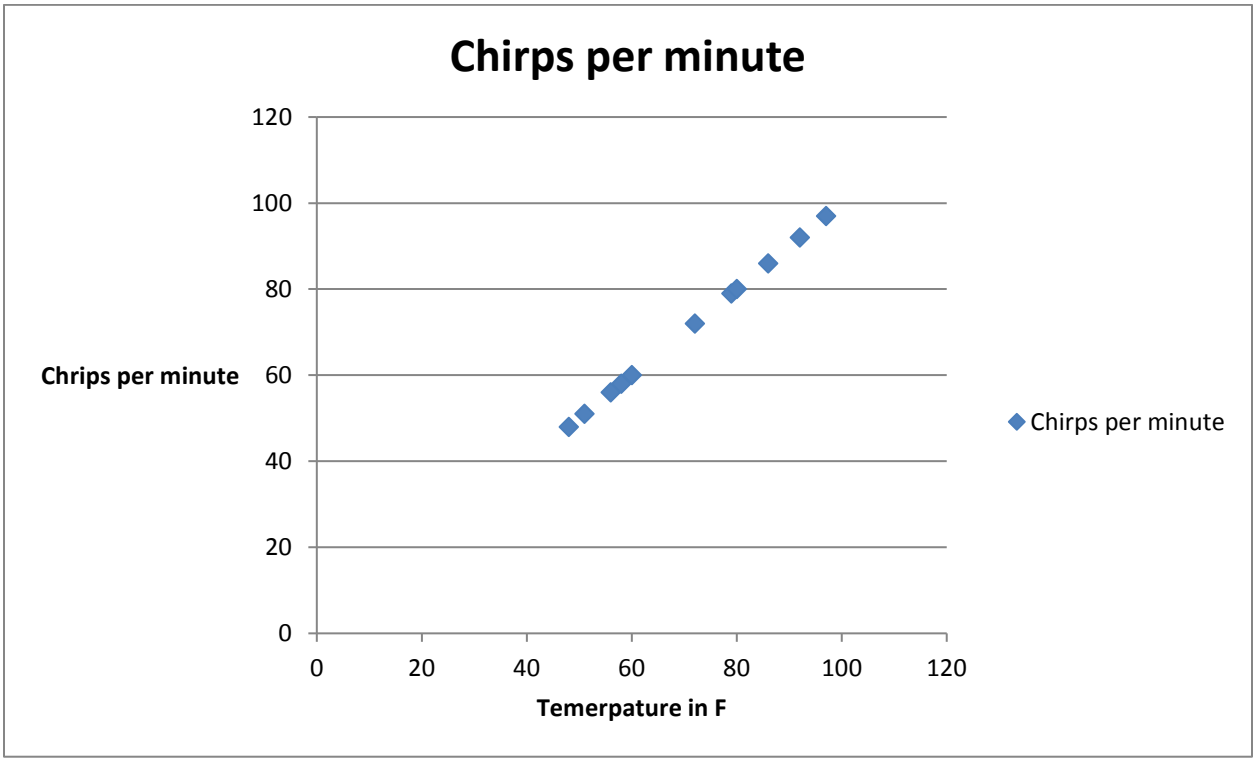
SCATTER DIAGRAMS

A scatter diagram shows the relationship bewtweem two data sets – we saw them earlier in the linear growth part of the course. First you need some bi-variate data. This dataset represents the temperature and the number of chirps per minute of the Rocky Mountain field cricket

Temperature	Chirps per minute
48	48
56	56
72	72
60	60
97	97
51	51
79	79
86	86
92	92
58	58
80	80

1) Highlight both columns of data
2) Select the data chart – Scatter – you will have many options – use just the dot option
3) As before you can change chart titles, axes labels, etc.. using the chart layout options and sometimes directly on the chart
4) If you want a trendline – remember this is an option too and you have the option of displaying it on the chart using the trendline options

Here is your final graph



NOTE YOU CAN'T BREAK EXCEL – Experiment with it and you can always delete what you have and try again