MATH 124 – Creating Scatterplots
bolstad_math124@bmbolstad.com
http://math124sfsu.bmbolstad.com

The purpose of this document is to guide you through the steps needed to create scatterplots using Excel. For this document we will use the data from exercise 2.11 in the text book. However, you should be able to follow the same methods on the body data for the assignment. For your reference the datafile in both tab delimited text and Excel 2000 formats is on the webpage.

Making a simple scatterplot

1. Load the data file using the previous instructions. After loading the data your screen should look like the following:
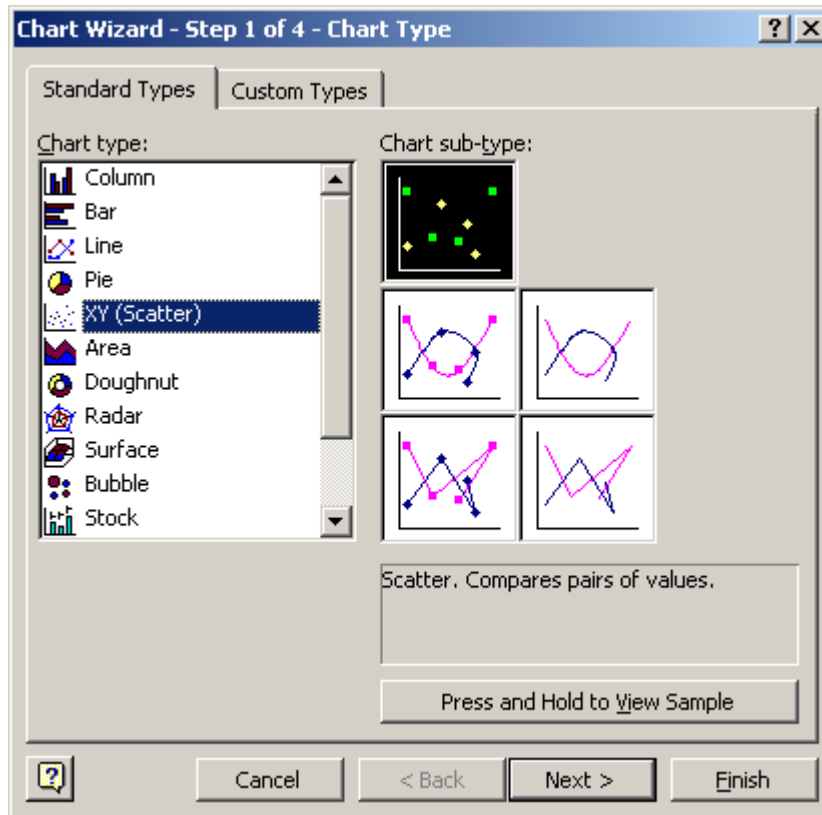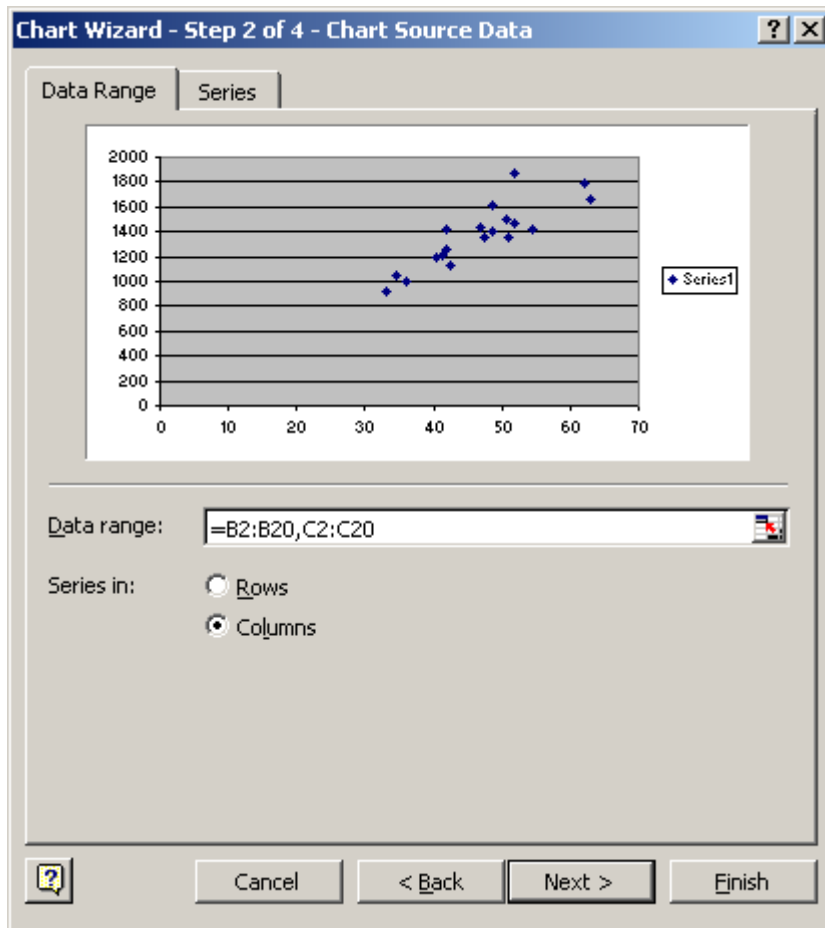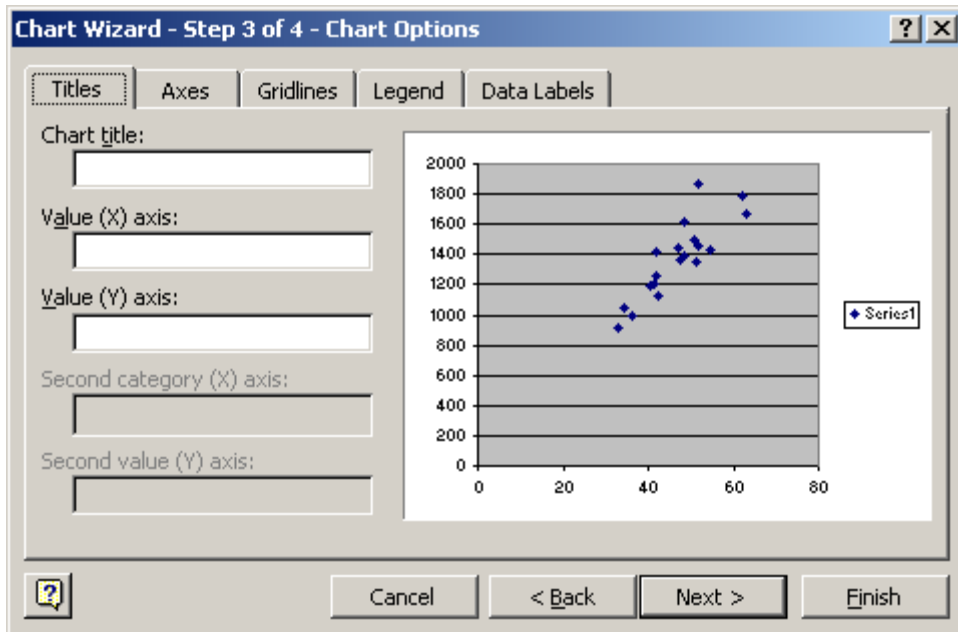
2. Next we will make a scatterplot of Rate (on the y axis) versus Mass (on the x axis). Click on the "Chart wizard" (the icon on the tool bar that looks like a histogram). This should bring up a dialog box that looks like the following:
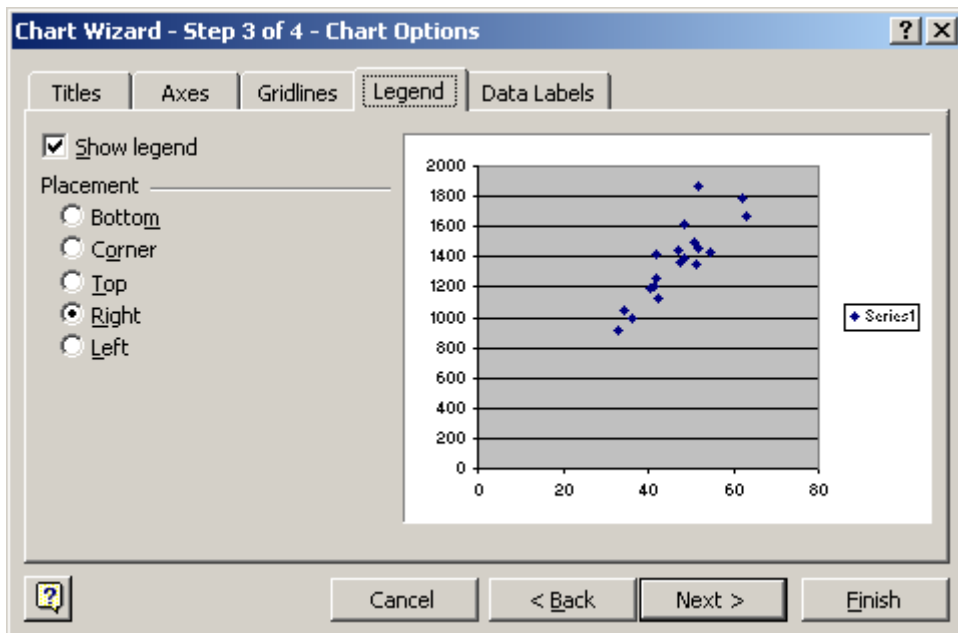

3. Make sure that you click on Chart type: "XY (Scatter)". Also click on the scatterplot chart sub-type that does not have the points joined in any manner. Then click on *next*. This should bring up the following dialog box.
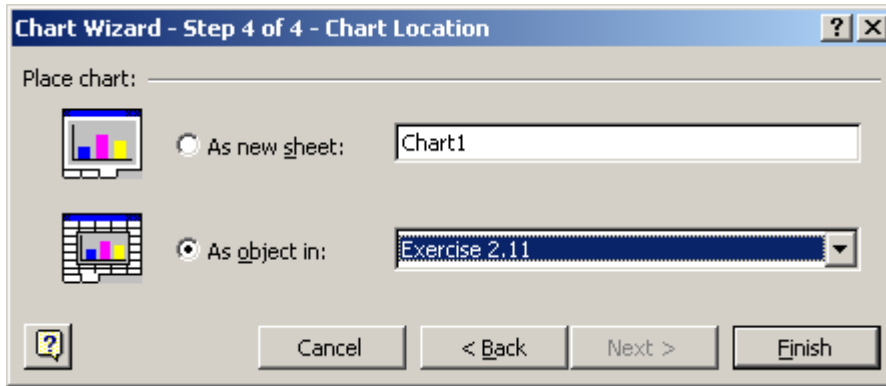
Chart Wizard - Step 2 of 4 - Chart Source Data

Data Range | Series

Data range: =B2:B20,C2:C20

Series in:
- Rows
- Columns

Cancel | < Back | Next > | Finish

4. Next where it says *Data range* type in "=B2:B20,C2:C20". Note that the first range (B2:B20) specifies the data to fall on the X axis and the second range (C2:C20) specifies the data to fall on the Y axis (the two ranges are separated by a comma). Make sure that *Series in* is "Columns". The click next.

5. Now the Chart wizard gives you the opportunity to put names on the plot. In *Chart title* type "Rate versus Mass for 2.11". For the X axis label you should type "Mass" and for the Yaxis label you should type "Rate".
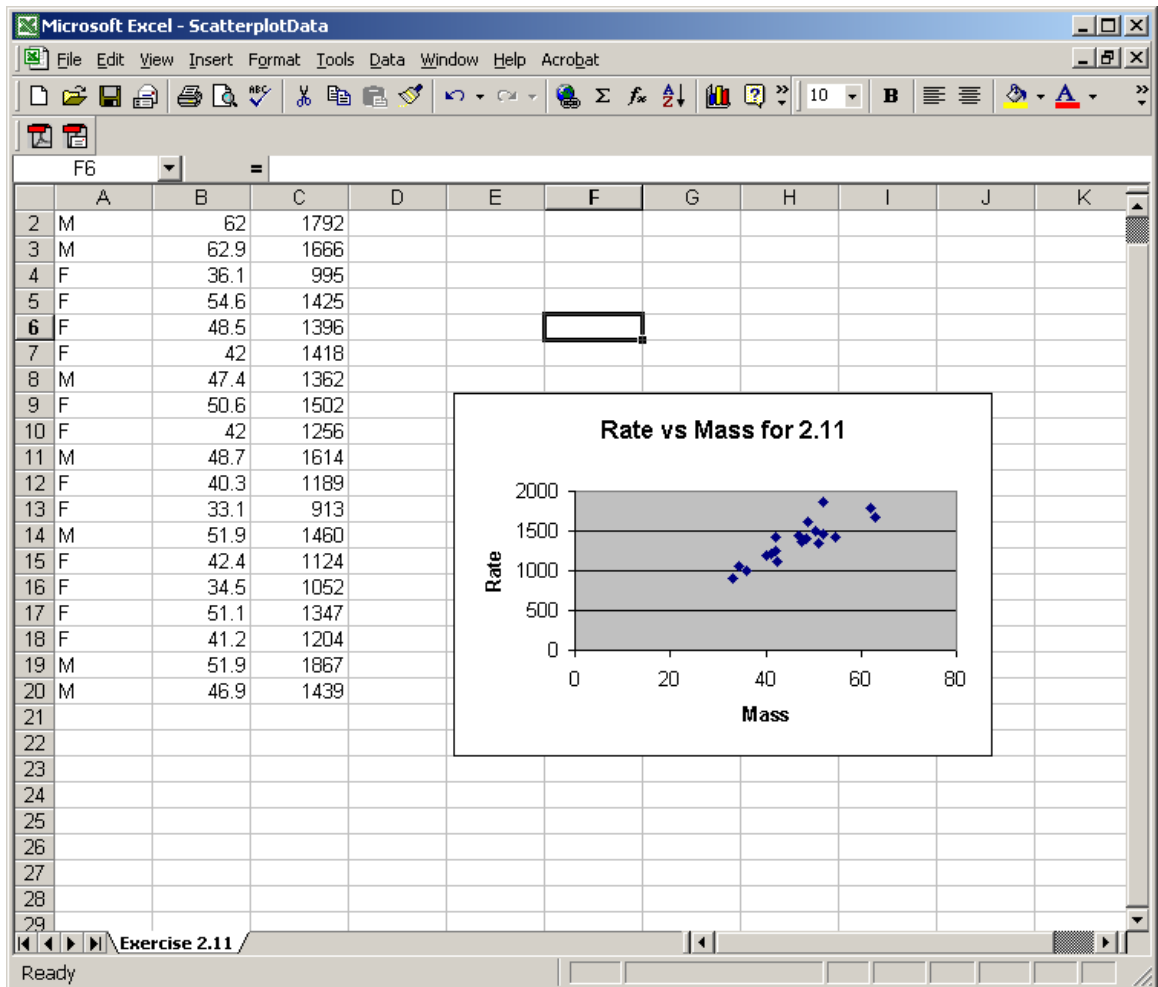
6. This plot does not require a legend since only one symbol type is being used. Click on the legend tab. Make sure that the Show legend check box is not checked. Then click *Next*

7. Finally excel will want to know where to place the final plot. Just press *Finish* here.
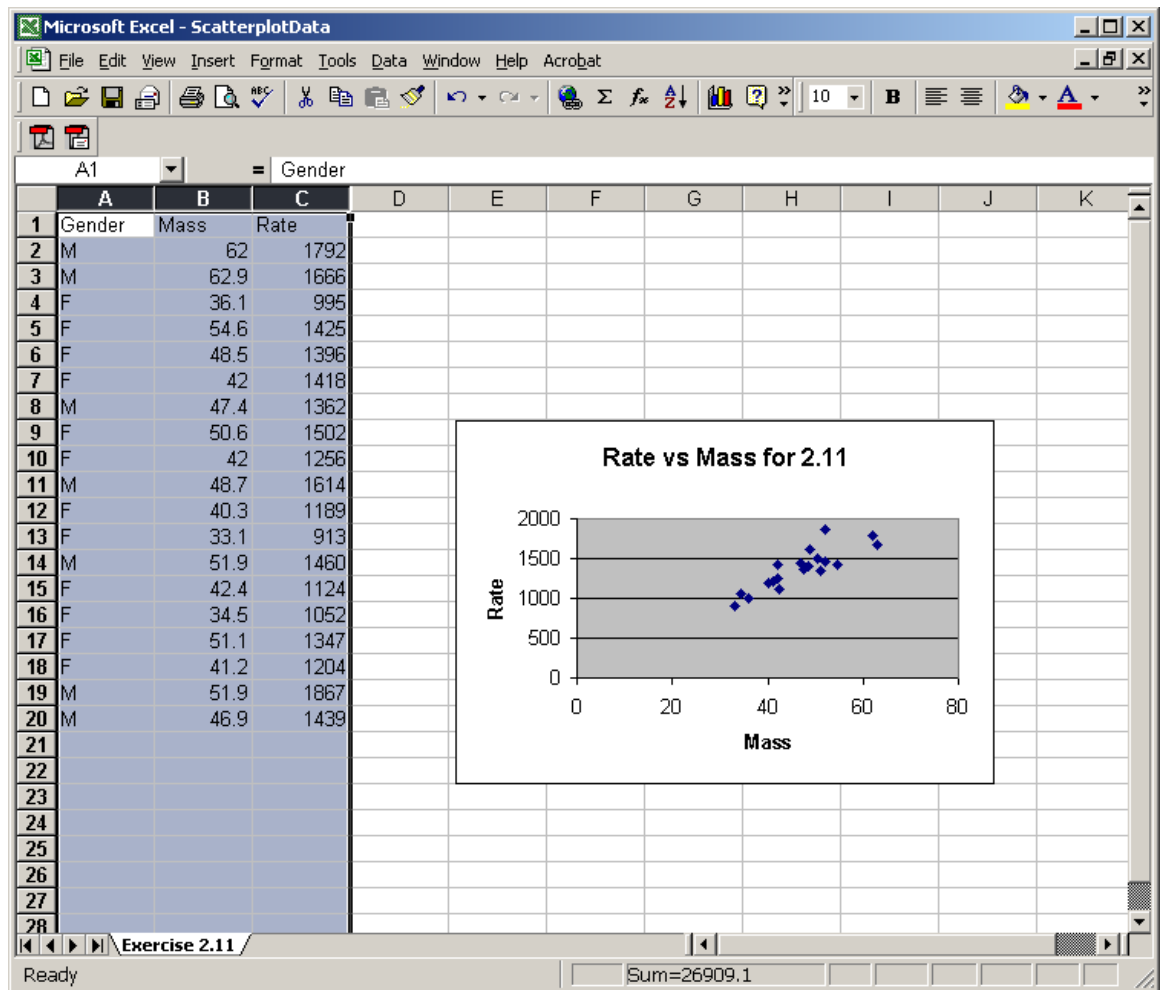
Chart Wizard - Step 4 of 4 - Chart Location

Place chart:

○ As new sheet: `Chart1`

● As object in: `Exercise 2.11`

[Cancel] [< Back] [Next >] [**Finish**]

8. Your scatterplot is now complete. The excel worksheet should look something like this.

Microsoft Excel - ScatterplotData

File Edit View Insert Format Tools Data Window Help Acrobat

F6 =

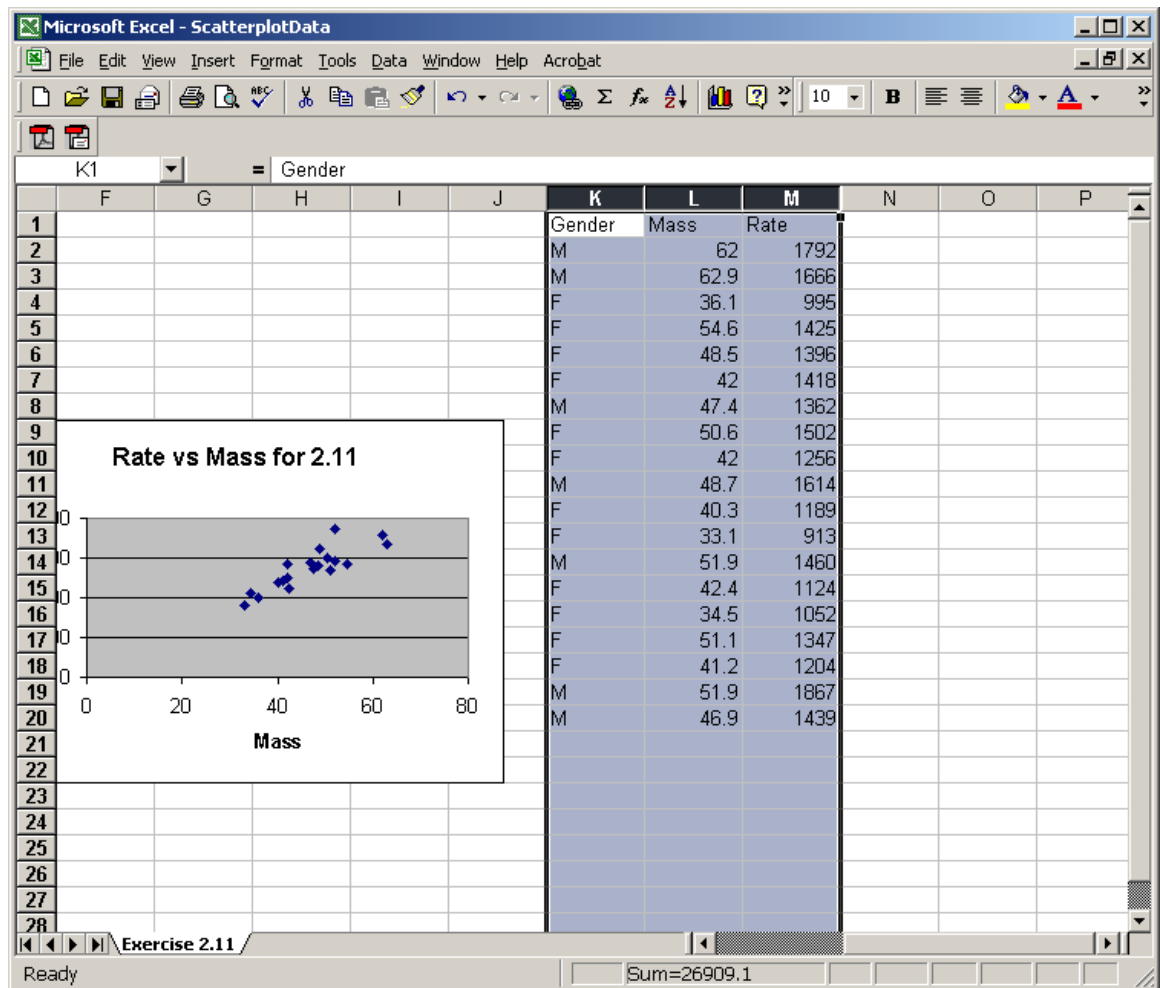|	A	B	C
2	M	62	1792
3	M	62.9	1666
4	F	36.1	995
5	F	54.6	1425
6	F	48.5	1396
7	F	42	1418
8	M	47.4	1362
9	F	50.6	1502
10	F	42	1256
11	M	48.7	1614
12	F	40.3	1189
13	F	33.1	913
14	M	51.9	1460
15	F	42.4	1124
16	F	34.5	1052
17	F	51.1	1347
18	F	41.2	1204
19	M	51.9	1867
20	M	46.9	1439

Rate vs Mass for 2.11

Ready

Making a scatterplot with different symbols

1. In class we talked about using different symbols on a scatterplot to represent different levels of a categorical variable. Excel allows us to do this, but it is a little bit harder than the simple plot we did before.

2. The first step is to sort the data so that all the female measurements are together and the male measurements are together. I recommend that you copy and paste the data columns into another location on the spreadsheet, so that the original data is not affected. To do this select the three data columns and select copy from the edit menu.
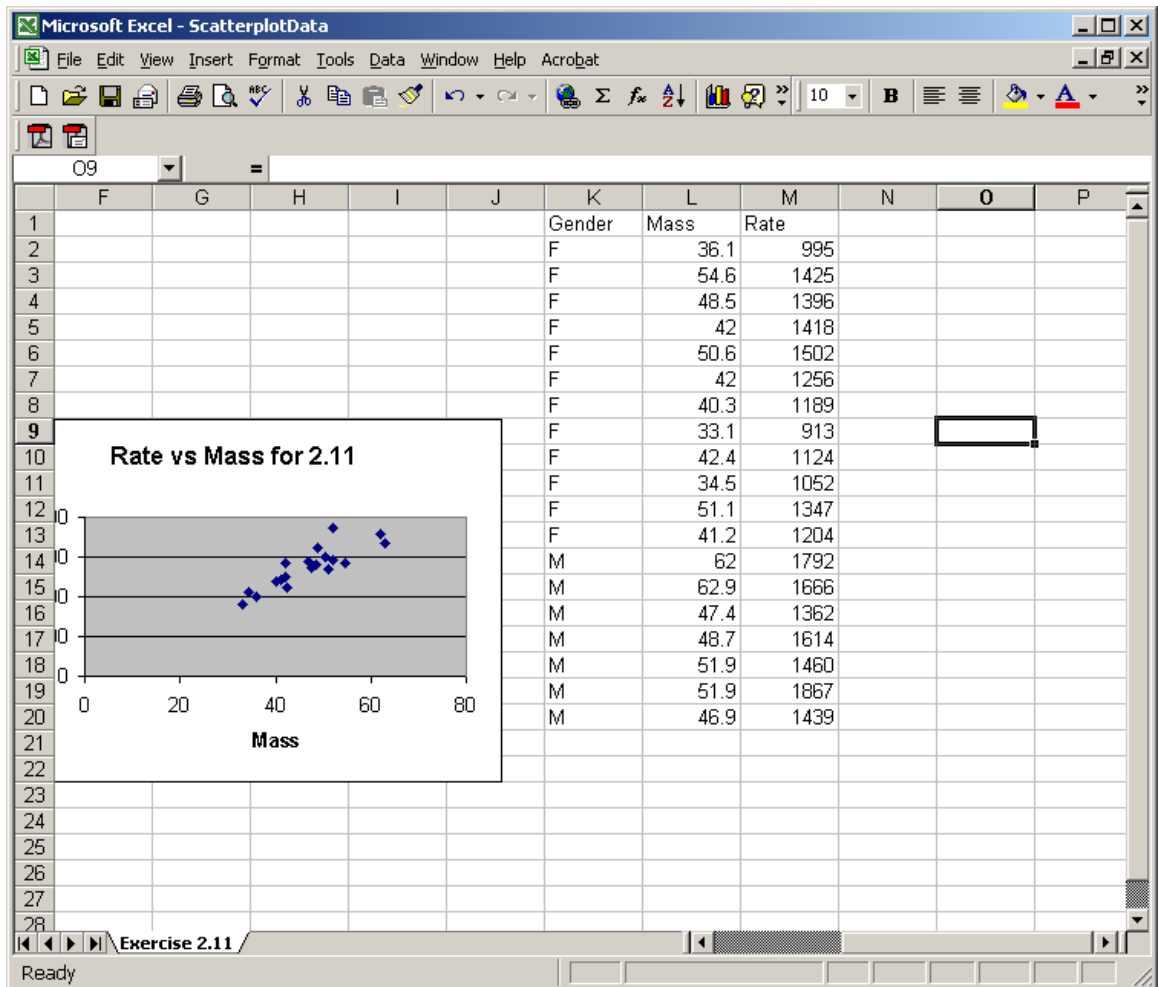
3. Now move over to an empty part of the spreadsheet (say column K). Click on cell
    K1 and then choose paste from the edit menu. Your spreadsheet should now look
    something like this

4. Now we will sort the data. Select the data in the new columns (ie K, L, M) and
    then select Sort from the Data menu. In this sort dialog box make sure that
    Gender is in the Sort by drop down menu. Also make sure that the *My list has
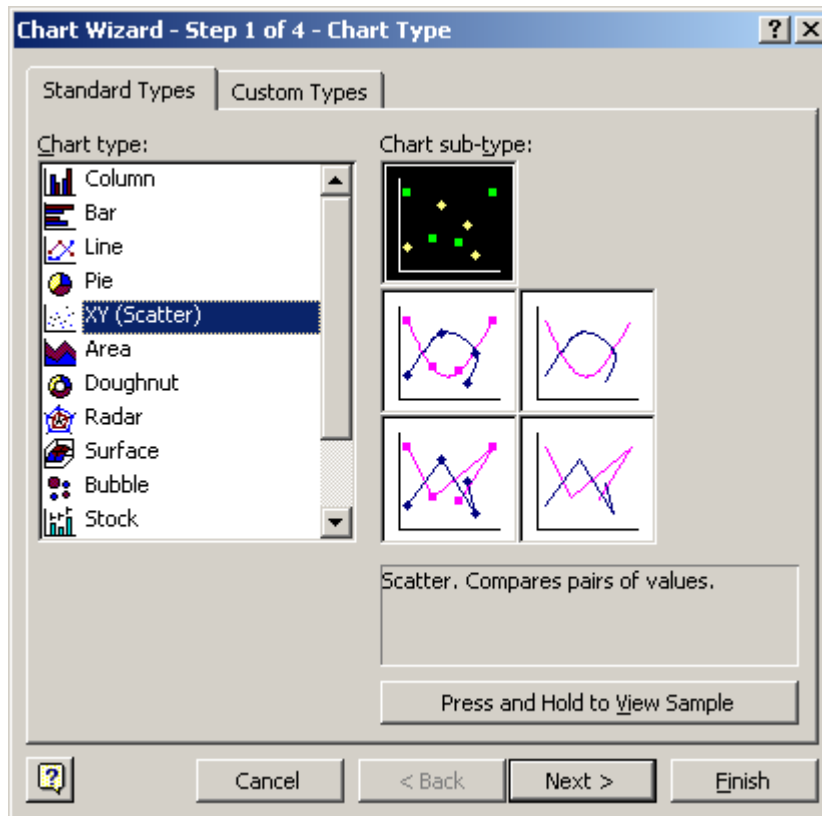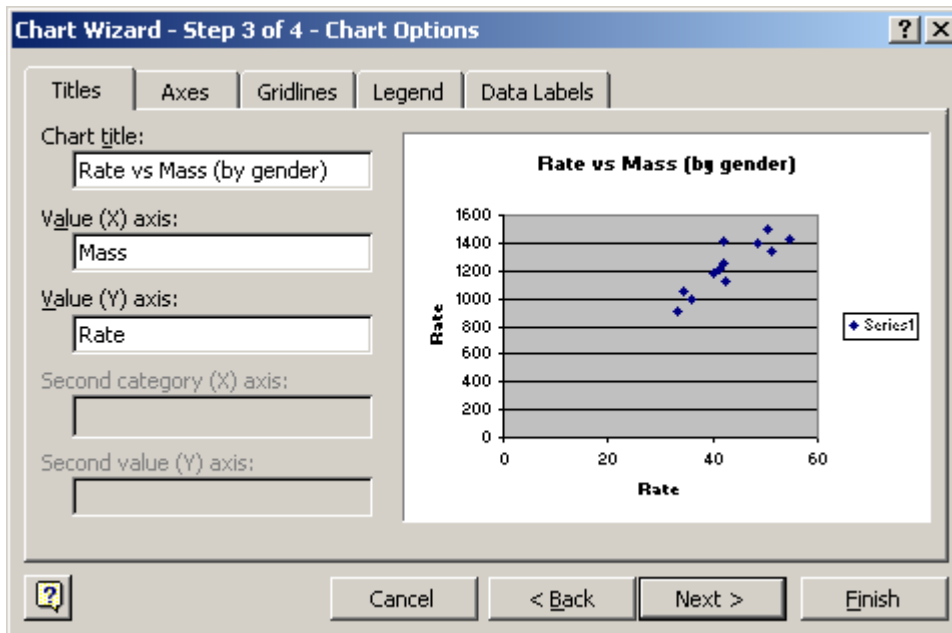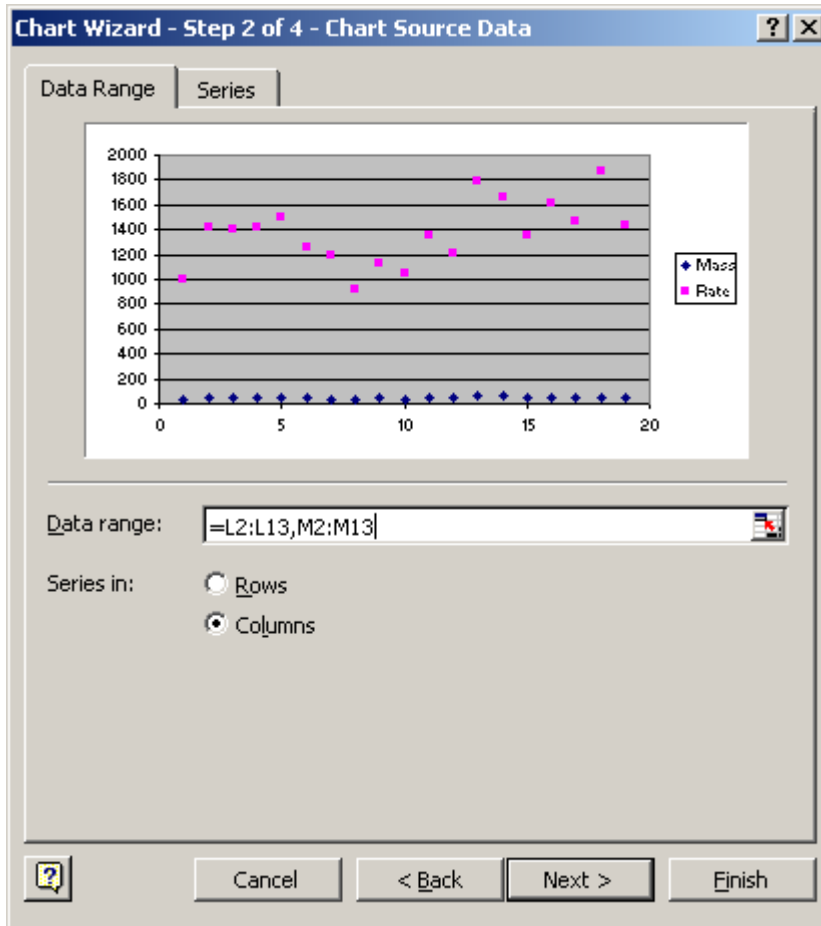   header row* check box is checked. To finish this dialog box click ok.

Sort ? X

Sort by
Gender ▼ ⦿ Ascending
           ○ Descending

Then by
_____ ▼ ⦿ Ascending
           ○ Descending

Then by
_____ ▼ ⦿ Ascending
           ○ Descending

My list has
⦿ Header row   ○ No header row

[Options...] [OK] [Cancel]

5. The data should now be sorted by gender. Your spreadsheet window would look like this:

Microsoft Excel - ScatterplotData

File Edit View Insert Format Tools Data Window Help Acrobat

O9

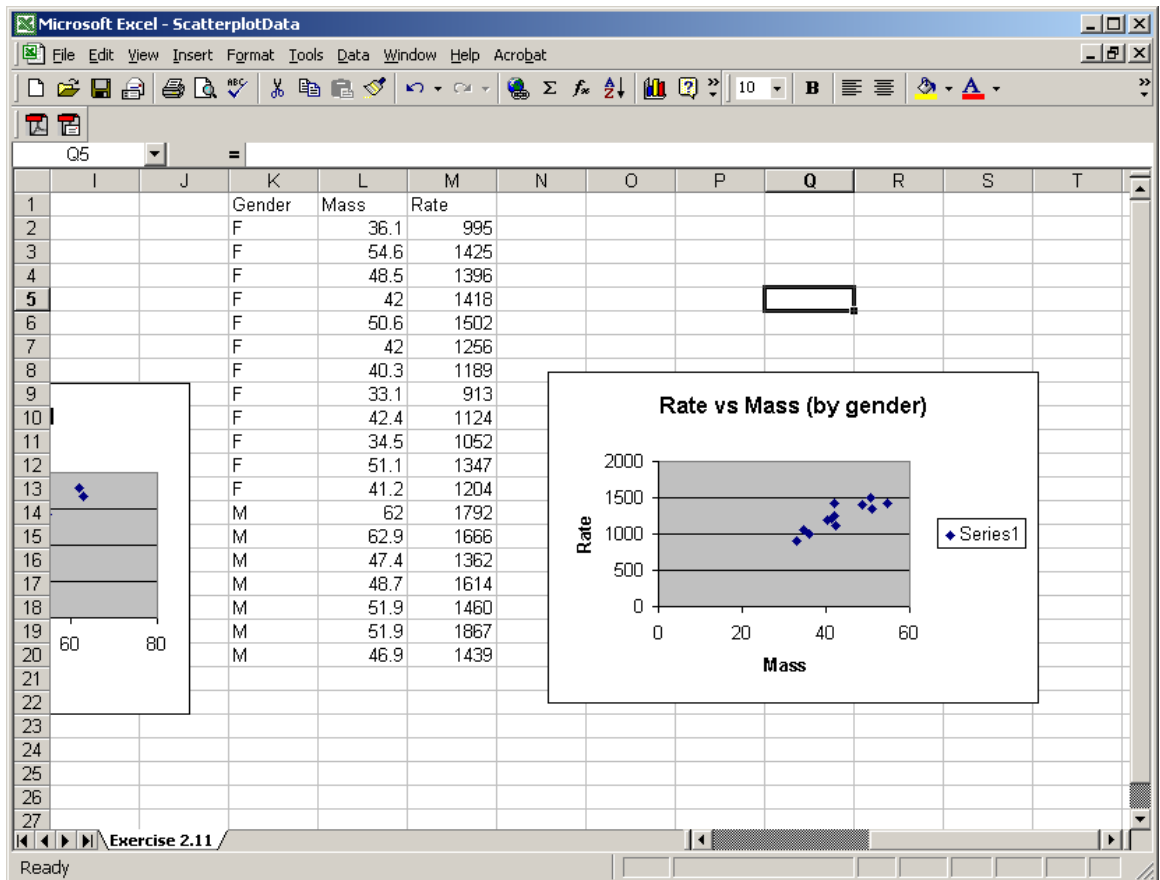|	K	L	M
1	Gender	Mass	Rate
2	F	36.1	995
3	F	54.6	1425
4	F	48.5	1396
5	F	42	1418
6	F	50.6	1502
7	F	42	1256
8	F	40.3	1189
9	F	33.1	913
10	F	42.4	1124
11	F	34.5	1052
12	F	51.1	1347
13	F	41.2	1204
14	M	62	1792
15	M	62.9	1666
16	M	47.4	1362
17	M	48.7	1614
18	M	51.9	1460
19	M	51.9	1867
20	M	46.9	1439

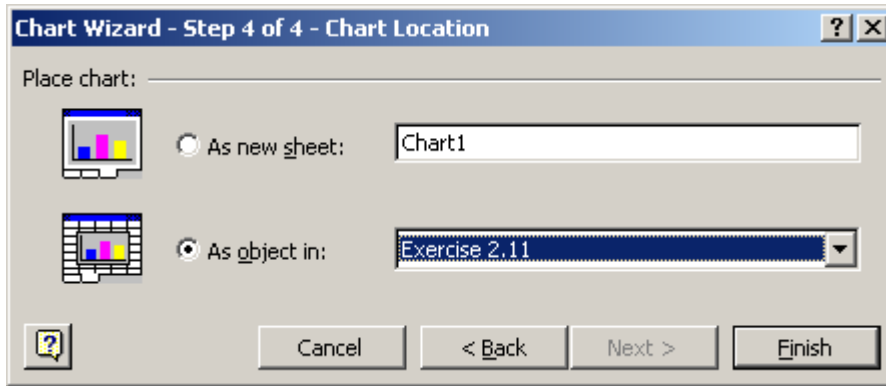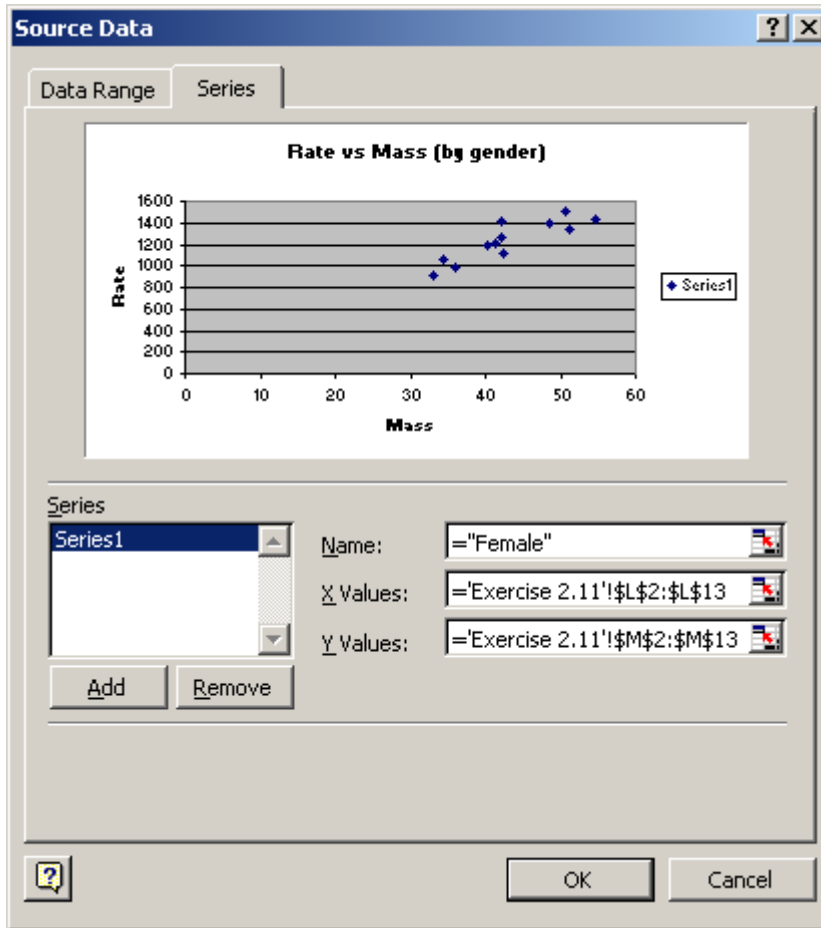Rate vs Mass for 2.11

Mass

Exercise 2.11

Ready

6. Next it is time to draw the scatterplot. First you should draw a scatterplot using only the female observations. You can do this following the steps given for making a simple scatterplot above (the major differences are that you leave the legend on the plot and that the ranges are a little different). The following pictures should guide you along

Chart Wizard - Step 2 of 4 - Chart Source Data

Data Range | Series

Data range: =L2:L13,M2:M13

Series in: ○ Rows ● Columns

Cancel < Back Next > Finish

Chart Wizard - Step 3 of 4 - Chart Options

Titles | Axes | Gridlines | Legend | Data Labels

Chart title:
Rate vs Mass (by gender)

Value (X) axis:
Mass

Value (Y) axis:
Rate

Second category (X) axis:

Second value (Y) axis:

Rate vs Mass (by gender)

Cancel < Back Next > Finish

Place chart:

○ As new sheet:　Chart1

● As object in:　Exercise 2.11

Cancel　　< Back　　Next >　　Finish

Microsoft Excel - ScatterplotData

File Edit View Insert Format Tools Data Window Help Acrobat

Q5　=

	I	J	K	L	M	N	O	P	Q	R	S	T
1			Gender	Mass	Rate							
2			F	36.1	995							
3			F	54.6	1425							
4			F	48.5	1396							
5			F	42	1418							
6			F	50.6	1502							
7			F	42	1256							
8			F	40.3	1189							
9			F	33.1	913							
10			F	42.4	1124							
11			F	34.5	1052							
12			F	51.1	1347							
13			F	41.2	1204							
14			M	62	1792							
15			M	62.9	1666							
16			M	47.4	1362							
17			M	48.7	1614							
18			M	51.9	1460							
19			M	51.9	1867							
20			M	46.9	1439							
21												
22												
23												
24												
25												
26												
27												

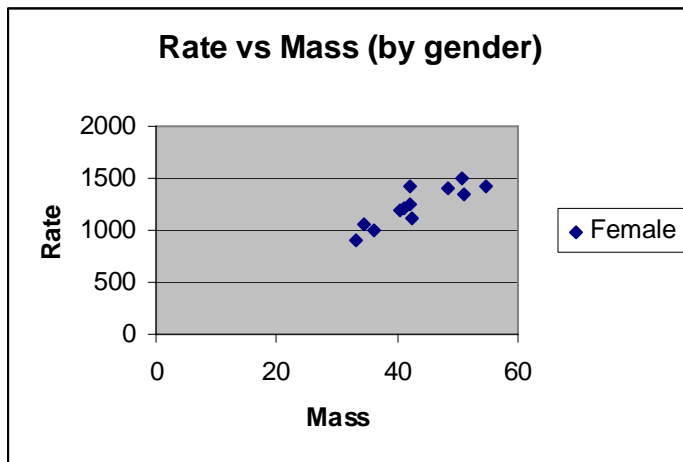Rate vs Mass (by gender)

◆ Series1

Mass

Exercise 2.11

Ready

7.　At this point you now have a scatterplot of the rate versus mass values for the females. The next thing you need to do is change the legend text so that it says females. To do this right click on the scatterplot and select *Source Data*. Next click on the *Series* tab. Then type '="female"' into the Name: text field.
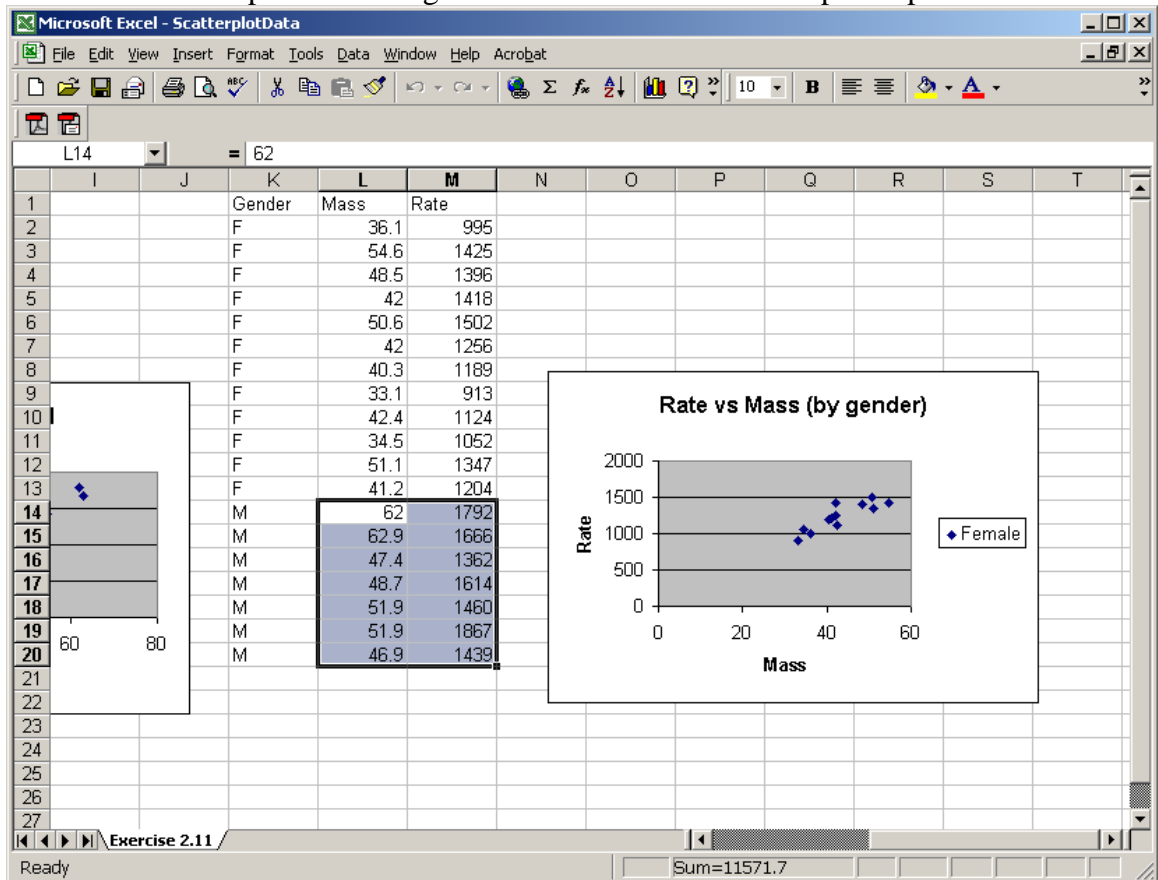
8. At this point you should now have a plot that looks something like this
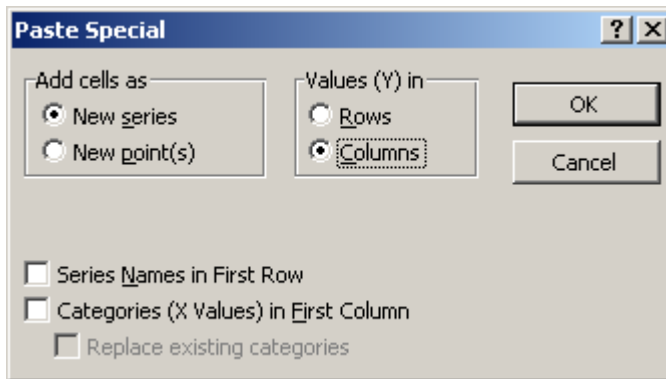

9. The next step is to add the male measurements to the plot. To do this select the male measurements in cells L14:M20 and select copy from the edit menu. Next
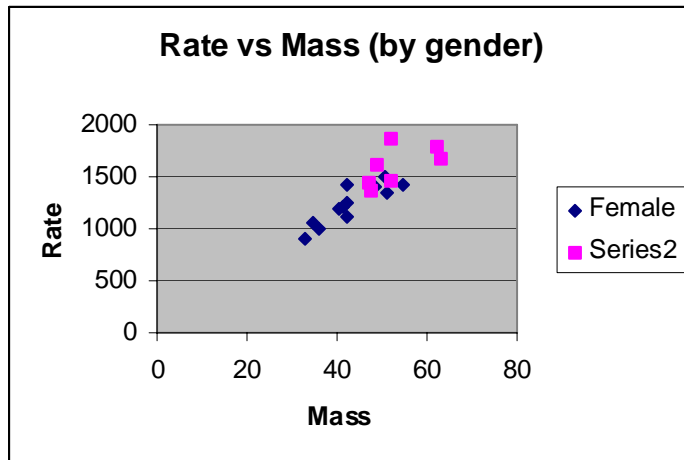
click on the scatterplot and then go to the edit menu and select paste special
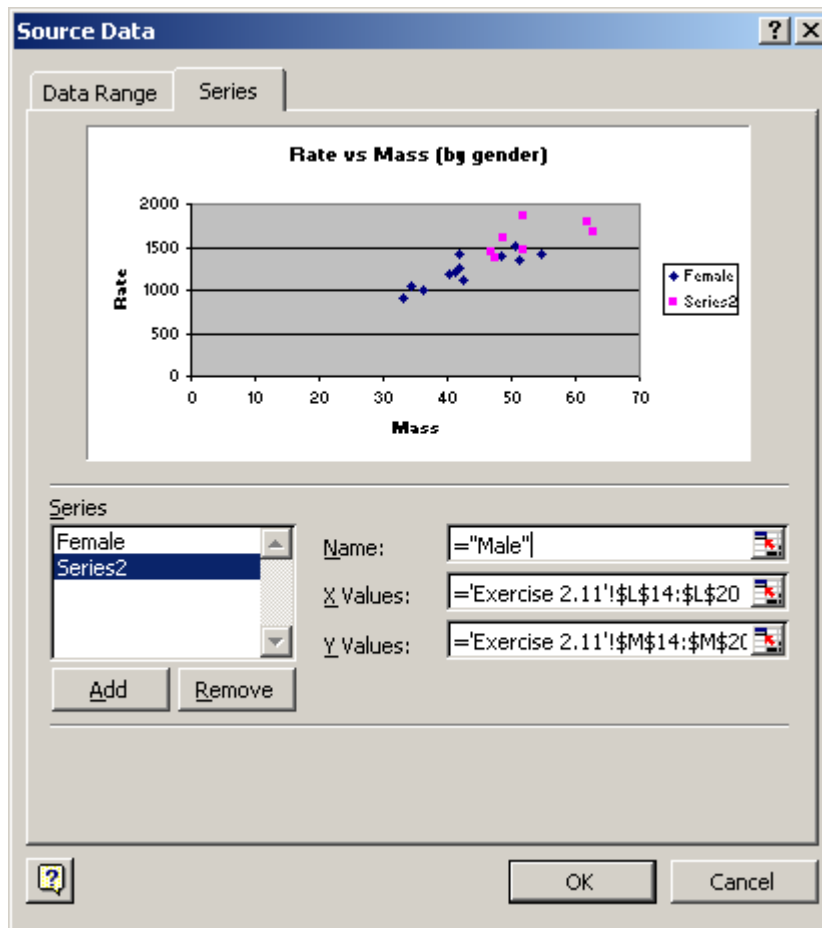

10. That should bring up the following dialog box. Make sure you have things checked in the same manner as below. Close the dialog box and click ok.

11. Your plot should now look like the following:

12. The last thing to do is to change "Series2" to "Male". Basically you right click on the plot. Choose Source Data, go to the series tab and type in '="Male"' into the name field for series 2.

13. Finally click ok. Your plot is finished. It should look like this:

Rate vs Mass (by gender)