Name:_____ **Date:** _____

Sensors and Scatterplots Activity – Excel® Worksheet

Directions

Using our class datasheets, we will analyze additional scatterplots, using Microsoft Excel® to make those plots.

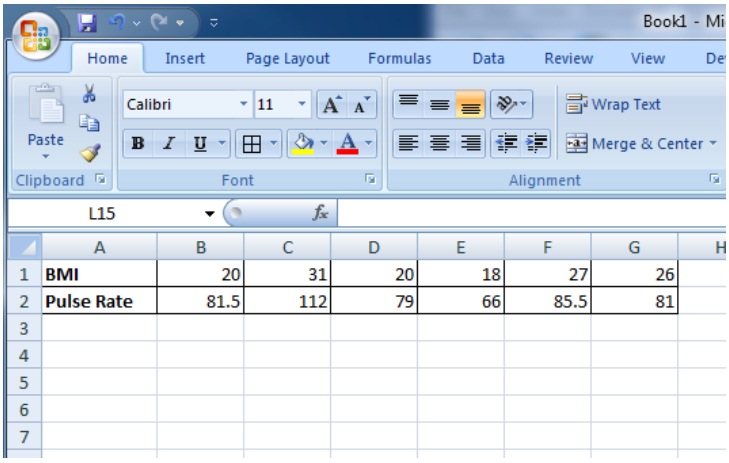
To get started, please launch the Excel program, and follow the steps described below.

Scatterplot Questions

A. Is there a relationship between BMI and pulse rate? ***(Follow the steps below to find the answer.)***

STEP 1: Enter Data

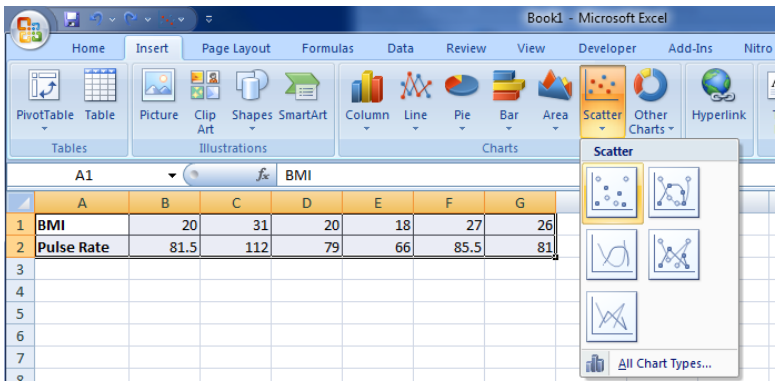
1. Type 'BMI' in Cell A1.
2. Type 'Pulse Rate' in Cell A2.
3. Enter all BMI values from your class data sheet in Row 1.
4. Enter the pulse rate values from your class data sheet in Row 2.



	A	B	C	D	E	F	G
1	BMI	20	31	20	18	27	26
2	Pulse Rate	81.5	112	79	66	85.5	81
3							
4							
5							
6							
7							

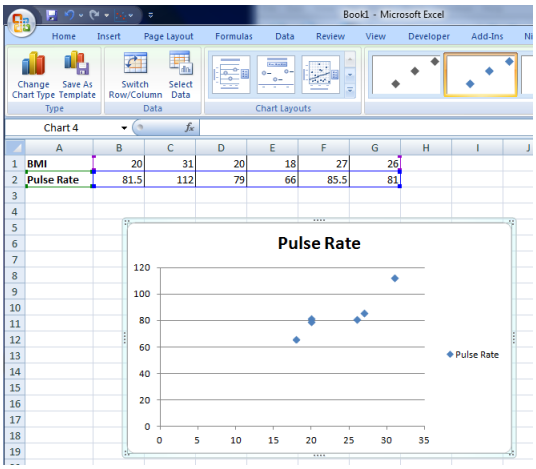
STEP 2: Create Scatterplot

1. Select the data in both rows.
2. Select **Insert** from the top menu and then **Scatter** from the **Charts** submenu.
3. Select and click on **Scatter with Only Markers** option.



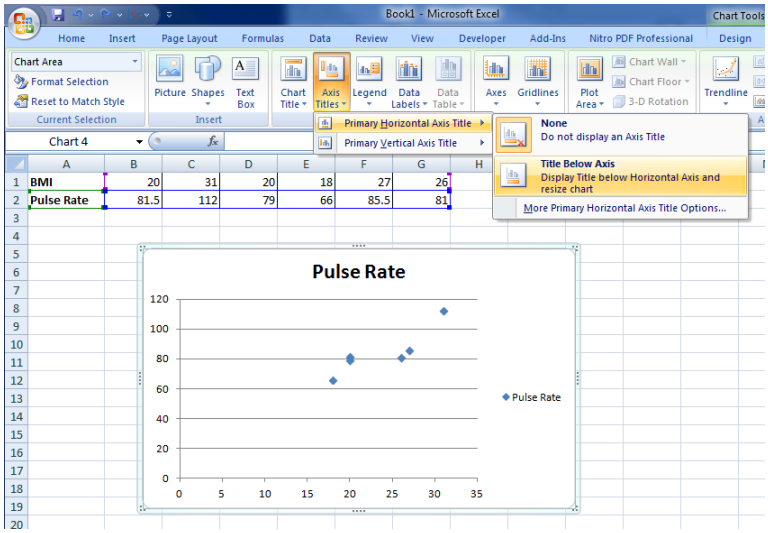
	A	B	C	D	E	F	G
1	BMI	20	31	20	18	27	26
2	Pulse Rate	81.5	112	79	66	85.5	81
3							
4							
5							
6							
7							

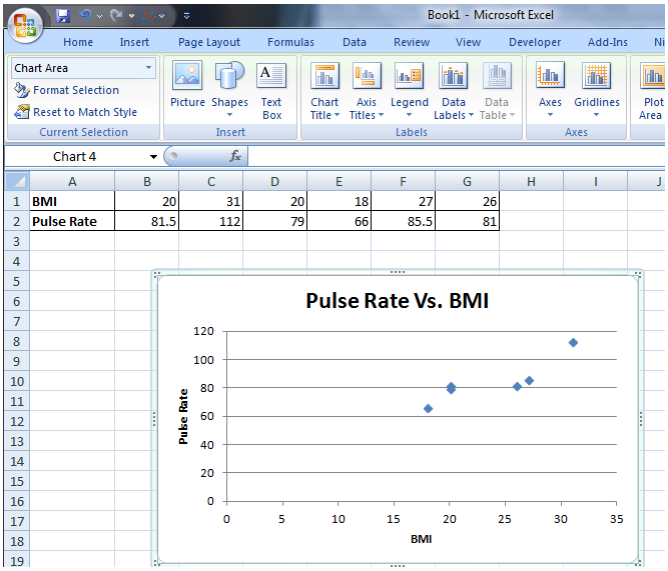
A scatterplot as shown to the right below will be generated.



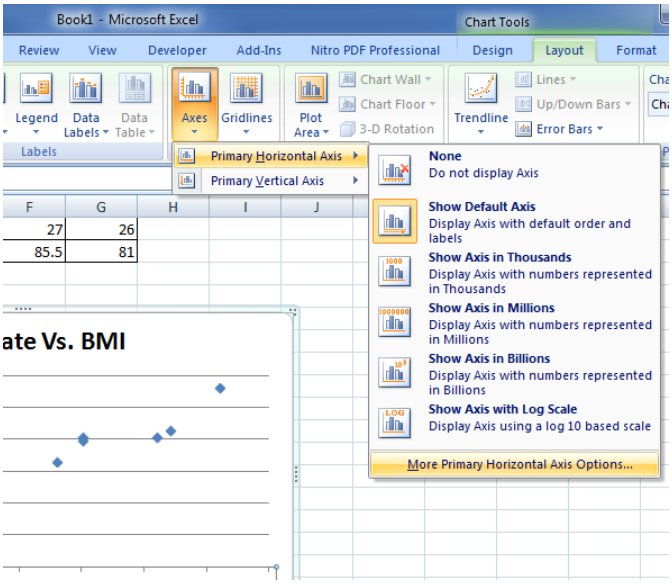
STEP 3: Edit Scatterplot

1. Edit the axis titles and plot title by completing the following:
    a. Select **Layout** from top menu, then **Axis Titles** from the **Labels** submenu.
    b. For the *horizontal axis*, select **Primary Horizontal Axis Title** and then **Title Below Axis,** as illustrated below
    c. Edit (change) the *horizontal axis title* to your own title.
    d. To edit the *vertical axis title*, select **Primary Vertical Axis Title** and then **Rotated Title.**
    e. Edit (change) the *vertical axis title* to your own title.
    f. To edit the *chart title*, select **Chart Title** under the **Labels** submenu and then selecting **Above Chart.**
    g. Edit (change) the *chart title* to your own title.
    h. To delete the legend, select **Legend** under the **Labels** submenu and select **None.**





2. Set the *Min-Value* and *Max-Value* for the x-axis and y-axis.



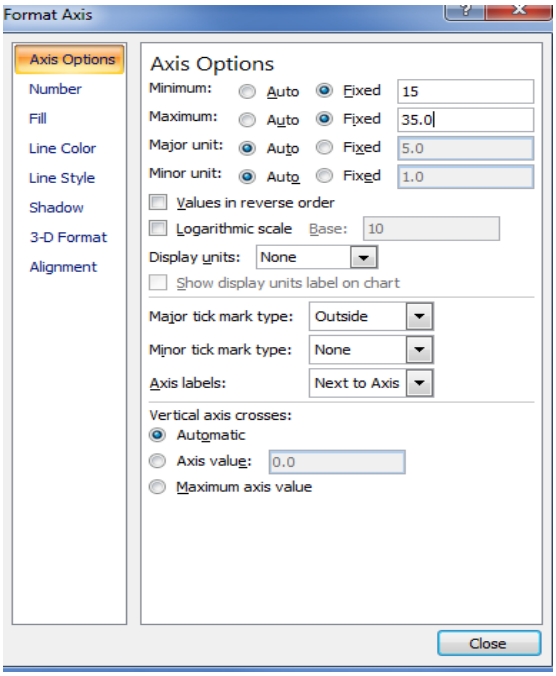
For the *x-axis* –

a. Under **Layout** on the top menu, select **Axes** under the submenu, then select **Primary Horizontal Axis,** followed by **More Primary Horizontal Axis Options** (bottom of the sub-menu panel).

b. On the *Format Axis* window and under **Axis Options,** Select **Fixed** for **Minimum** and **Maximum** values; enter the desired minimum and maximum values.

For the y-axis –

a. Repeat steps a-b above, as completed for the x-axis.



STEP 4: Review Scatterplot

1. Check your scatterplot for accuracy.
2. If you need to make corrections, go back to the previous steps.

STEP 5: Analyze Your Scatterplot

Write an explanation of the relationship between BMI and pulse rate.

_____

_____

_____

B. Is there a difference between male/female data in the relationship BMI and systolic blood pressure?

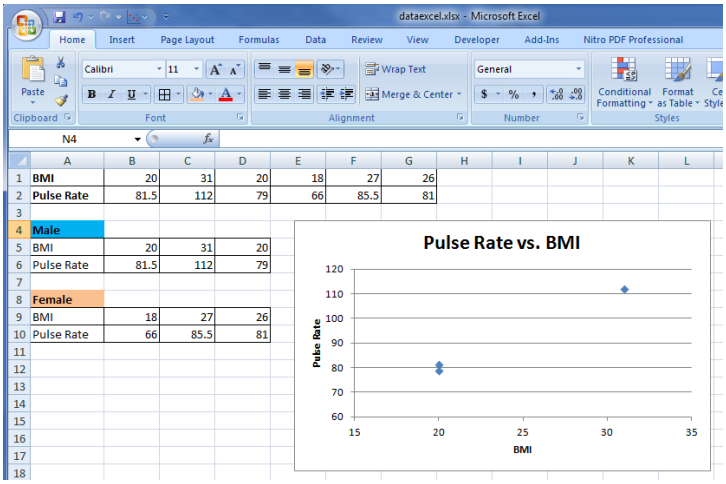
(Note: The following illustrations assume that the class data in Section A was organized such that the first three data represent male data and the last three data represent female data.)

STEP 1: Enter Data

1. Type 'Male' in Cell A4 and 'Female' in Cell A8.
2. Type 'BMI' in Cell A5 and in Cell A9.
3. Type 'Pulse Rate' in Cell A6 and Cell A10.
4. Enter all BMI values for the males in the class in Row 5, and the BMI values for the females in the Class in Row 9.
5. Enter the pulse rate values for the males in the class in Row 6, and the pulse rate values for the females in Row 10.

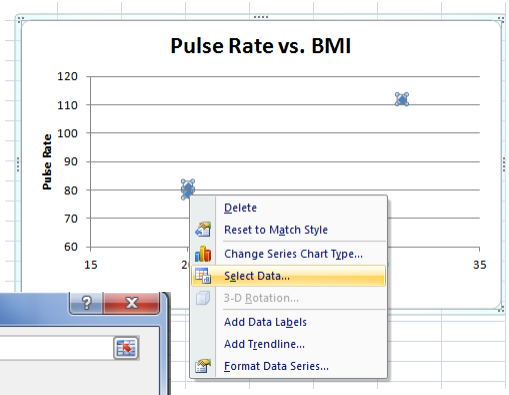
STEP 2: Create Scatterplot for Male Data

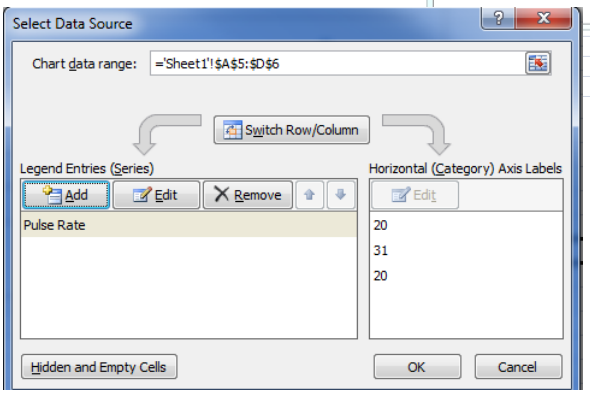
1. Create the scatterplot for the male data by following all steps under Question A.



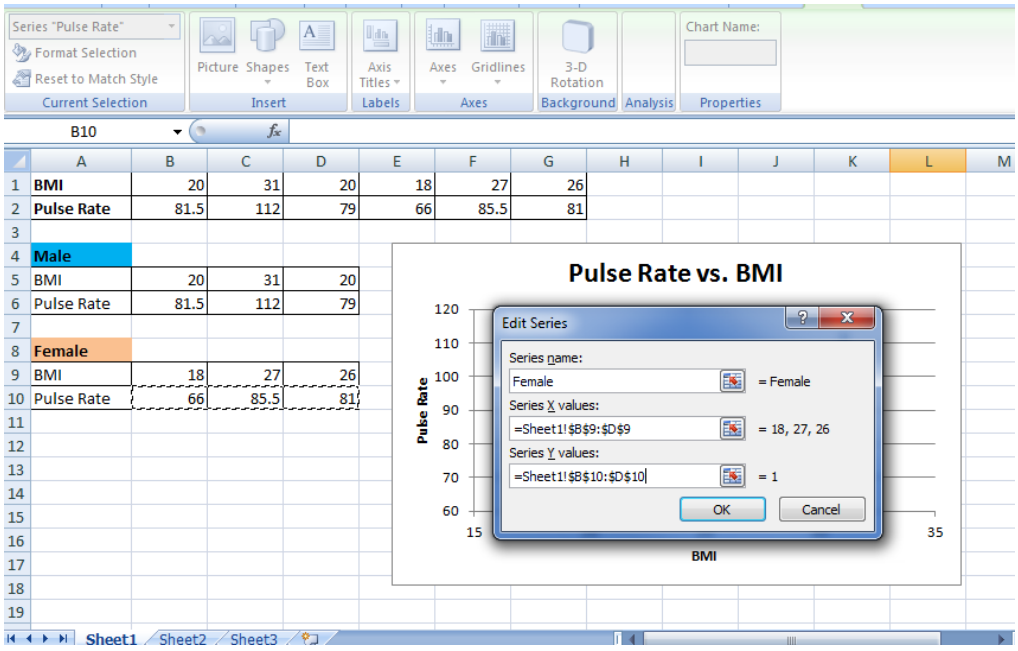
STEP 3: Add Female Data to Scatterplot

1. Select the **Scatterplot** by left clicking the mouse.
2. Select the male data points by right clicking on the mouse and **Select Data.**

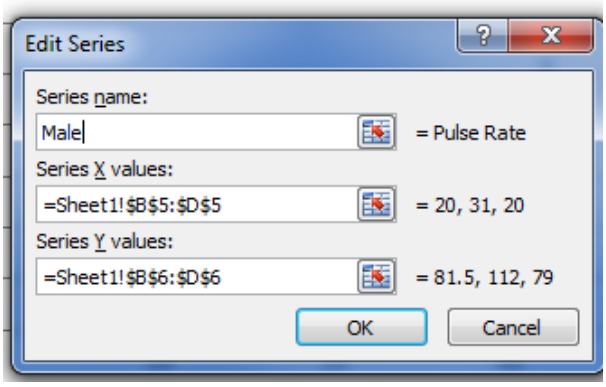




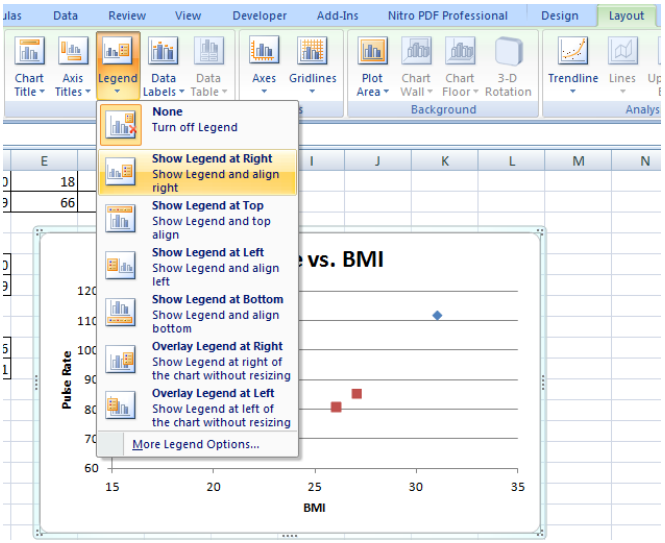
3. In the **Select Data Source** window, click on **Add.**
4. In the *Edit Series* window, type 'Female' in the *Series name* field.
5. Place the cursor in *the Series X values* and type: '=Sheet1!$B$9:$D$9' *(Note: Change D to the last column letter of your data.)*
6. Place the cursor in *the Series Y values* and type: '=Sheet1!B$10:$D$10' *(Note: Change D to the last column letter of your data.)*
7. Click **Ok.**



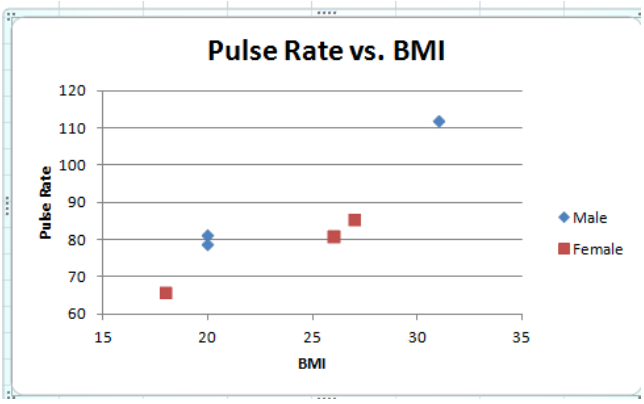
8. Edit the *title* of the data series for Male data, by selecting **Pulse Rate** and then clicking on **Edit.**
9. In the *Edit Series Window*, type 'Male' in the *Series name* field. Click **Ok**.



10. Add a Male and Female Legend
    a. Under *Layout* in the top menu, select **Legend** in the *Labels* submenu, then select **Show Legend at Right.**



11. The legend Male and Female will be added to the scatterplot (as shown at right).



STEP 4: Review Scatterplot

1. Check your scatterplot for accuracy.
2. If you need to make corrections, go back to the previous steps.

STEP 5: Analyze Your Scatterplot

Write an explanation of the relationship between BMI and pulse rate.