# How to Create a Data Table and Line Graph in Microsoft Excel

First, make sure that a line graph is the correct type of graph for your data. **Line graphs are best used for depicting change over time**, such as how the cost of an item changes over many years, how much a child's weight or height changes over the first 10 years of life, or how much battery life a device has each hour from morning until evening.

Log on and **add the Color Printer** to your computer by following the directions posted in the room

A. Create the Data Table

1. Open Microsoft Excel and enter your two headings for your data table:
   - In **cell A1** type in what kind of date or time that you are measuring that data. This is your independent variable that will show up on the X-axis.
     *examples – *Hour, Day, Year*
   - In **cell B1** type in what the data is that you are measuring, including your units of measure. This is your dependent variable that will show up on the Y- axis.
     *examples – *Height (in inches)*, *Cost (in $)*, *Weight (in pounds)*

2. Resize Column A:
   - Place your pointer in the gray area in between Column A and Column B until a line with an arrow through it appears
   - Drag Column A to the right until it is the size you want

3. If necessary, resize Column B too

4. In Column A, underneath your independent variable header (in cell A1), type all of your data times/dates when you recorded your data. *examples – *9am, 10am, 11am, 12pm*, etc. or *Monday, Tuesday, Wednesday,* etc. or *1970, 1980, 1990, 2000*, etc.

5. In Column B, underneath your dependent variable header (in cell B1), type in all of your recorded data measurements for *each* of your data times/dates. *examples – *5, 10, 15, etc.* or *200, 250, 300, etc.* Do not type in the units of measure, just the actual values.

6. Highlight (select) all of your data in Column A and B:
   - select the **Home** tab
   - select the drop down arrow next to the **Borders** button
   - choose **All Borders**
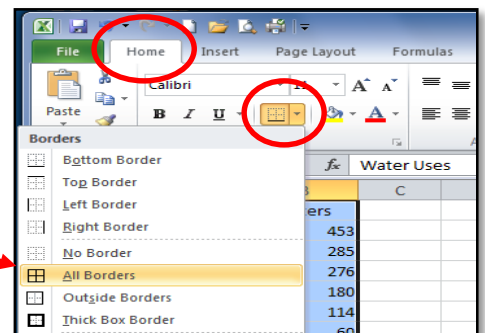
7. **SAVE** and **NAME** the file in the appropriate class folder in your H drive: select the **File** tab **> Save As**. Select **Browse** and navigate to your **H drive**, **current grade**, **current class folder**, type the project name in the **File name** box, select **Save**

B. Create the Line Graph (Scatter Chart)

1. Highlight all of your data in Column A and B

2. Select the **Insert** tab, then from the **CHARTS** section, choose **Scatter** and select either the **Smooth Lines with Markers** or the **Straight Lines with Markers** type

> Do not choose the Line graph option, unless you have two separate types of lines you are graphing.

> Your line graph will appear on your worksheet
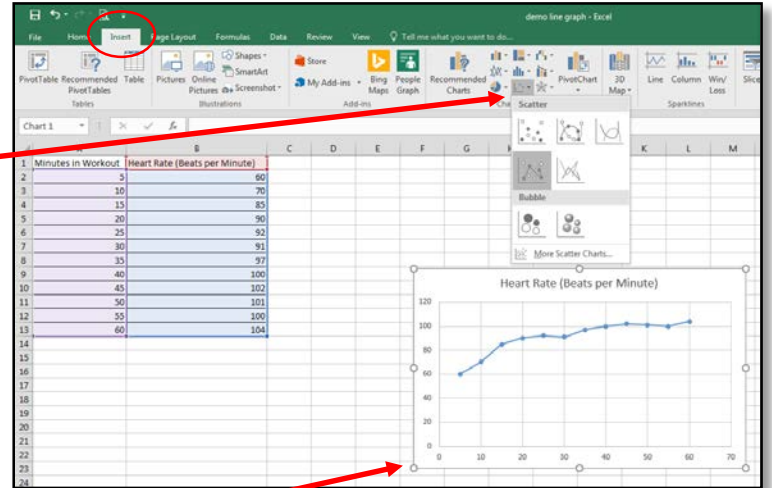
3. Select the Design tab, then click on the **Move Chart Location** button from the top right of the screen.

4. Check the button next to **New sheet**, then select **OK**

5. Your chart will then appear in a new sheet

> You can move between your data table and line graph (scatter chart) by selecting either the "Chart 1" tab (for your line graph) or the "Sheet 1" tab (for your data table).
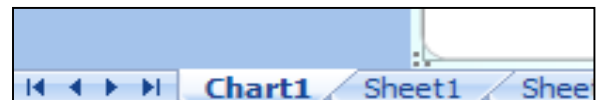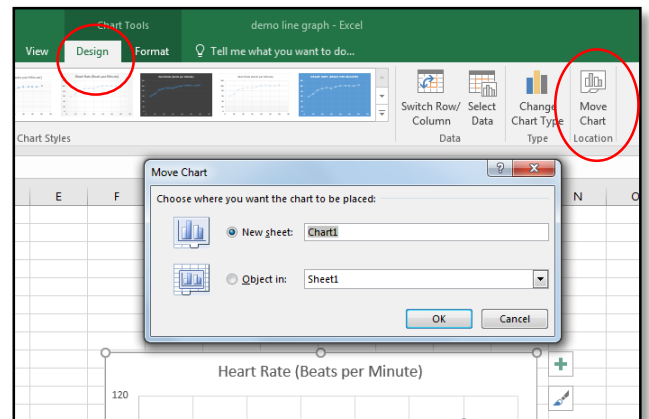
6. Select your chart by clicking in the white space just outside of your plot area. Little white boxes will appear around the edges of the box around the chart. These are called handles.

7. With your chart selected, choose the **Design** tab > **Quick Layout** > **Layout 1**

> You'll now have a graph with a chart title, an x-axis title, a y-axis title and a legend
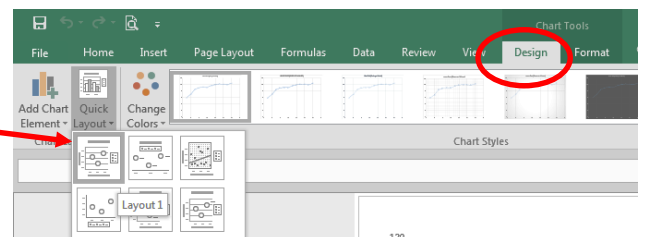
C. Format the Line Graph (Scatter Chart)

1. **DELETE** the legend: Since you are only graphing one line of data, you don't need a legend. Click on the legend box, press **DELETE** on your keyboard.

2. Select your Chart Title, highlight the text, and rename it to an appropriate name
   *example - *Jen Vilenski's Running Exercise Heart Rates* or *Cost of iPhones in past 10 years*

3. Change your title to font size 24: RIGHT CLICK on your chart title, select **Font**, choose **Size 24**, select **OK**

4. Repeat steps 2 and 3 to appropriately rename your x-axis title (example – *Minutes of Exercise*, or *Years*), then resize the x-axis title to font **Size 14** or **Size 16**

5. **ROTATE the y-axis title** so it's easier to change the title name:
   - Select the **y-axis title**, then select the **HOME** tab
   - From the **ALIGNMENT** section on the top menu ribbon, select the **ORIENTATION** button. It has an ab with an arrow under it, as shown at right
   - Click on the **ANGLE COUNTERCLOCKWISE** option two times, until the y-axis title reads straight across, like the x-axis title
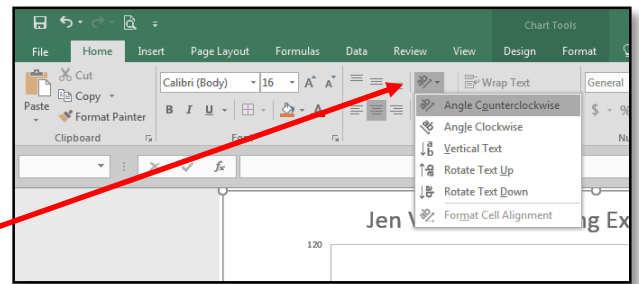
6. Repeat steps 2 and 3 to appropriately rename your y-axis title (example – *Heart Rate,in BPM* or *Cost, in dollars*), then resize the y-axis title to font **Size 14** or **Size 16**

7. Repeat step 5 to **ROTATE your y-axis title back** so it is going vertically up (**ROTATE TEXT UP**). This orientation will take up less title space, and leave more room for your graph.

8. **RIGHT CLICK** on your line graph, then select **FORMAT DATA SERIES**. You'll see a FORMAT DATA SERIES menu appear on the right side of the chart.

9. Select the **FILL AND LINE button** (paint bucket), then change the LINE options (color, width, type) and MARKER options (type, color, width, size, border) as desired.

D. Preview, Assess, Print and Save the Line Graph (Scatter chart)

1. BEFORE you print your chart, complete the self-assessment for this project to ensure you did everything correctly

2. **PRINT** your file: select the **File tab > Print ,** make sure that the correct printer shows up in the **Printer** box, **PREVIEW** the chart on the right side of the screen to ensure it looks ok, then select the **Print** button

3. **SAVE** the document to your **H drive** as you did in step A7. You're all done!

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