

How To Create a Line Graph in Excel

Let's imagine that after we've created a Cumulative Distribution Table for the data we collected on the number of hours of sleep college students get each night, we want to create a Line Graph to visually represent our data.

First, we will create our Line Graph Bins. A Line Graph Bin is an interval that is entered into only one cell of our spreadsheet. For example, when we created our Absolute Frequency Table, we entered the minimum and maximum of each interval into two separate columns (Min and Max). Now, we want our interval to be together in one cell, under one Column Heading.

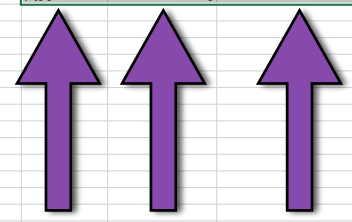
To create our Line Graph Bins, we start by entering the Column Header "Line Graph Bins" into a blank column in our spreadsheet. In the first cell of this column we enter our first bin value (our first interval). In this example our first bin value is 1 to 3. We then continue to enter the rest of our intervals into the Line Graph Bins column.

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Line Graph Bins	Absolute Frequency	Cumulative Absolute Frequency
1 to 3	1	1
4 to 6	8	9
7 to 9	9	18

Second, in the column to the right of the Line Graph Bins column, we enter the Column Header "Absolute Frequency." In this column, we enter our Absolute Frequency values from Column E for each interval. In this example, they are 1, 8, and 9.

Third, to the right of the Absolute Frequency column, we enter the Column Header "Cumulative Absolute Frequency." In this column, we enter our Cumulative Absolute Frequency values from Column G for each interval. In this example, they are 1, 9, and 18.

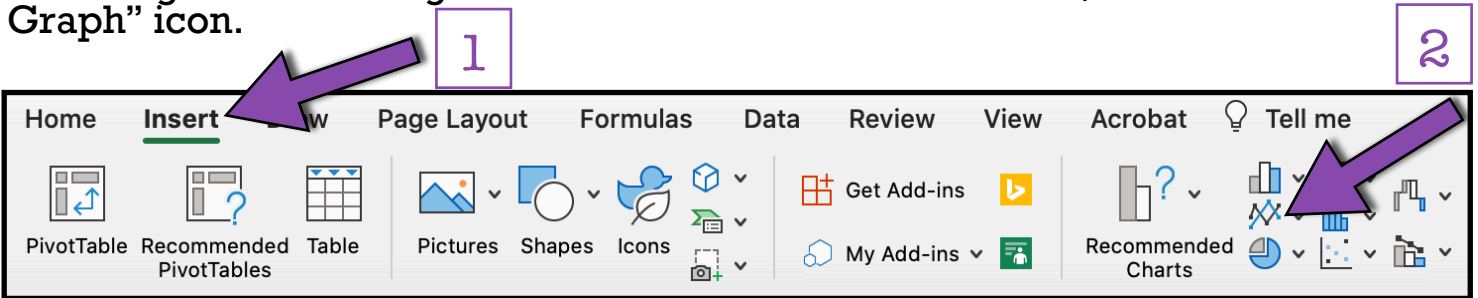
A	B	C	D	E	F	G	H	I	J	K	L
Sleep (in hours)		Min	Max	Absolute Frequency	Relative Frequency	Cumulative Absolute Frequency	Cumulative Relative Frequency		Line Graph Bins	Absolute Frequency	Cumulative Absolute Frequency
4		1	3	1	0.056	1	0.056		1 to 3	1	1
7		4	6	8	0.444	9	0.500		4 to 6	8	9
5		7	9	9	0.500	18	1.000		7 to 9	9	18
3		Total		18	1.000						



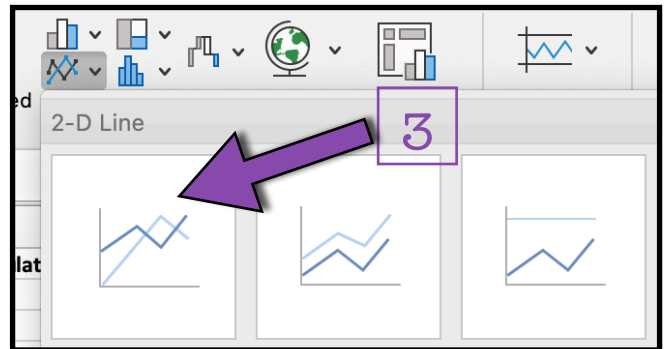
Once we've created our three new columns for our Line Graph Bins, our Absolute Frequency, and our Cumulative Absolute Frequency we are ready to begin making our Line Graph.

To create a Line Graph, we begin by selecting the data and heading for our "Line Graph Bins" column, our "Absolute Frequency" column, and our "Cumulative Absolute Frequency" column. These data are highlighted in grey in the figure above. We want to be sure to select **both** the data and the Column Headings.

Then, first select "Insert" from the ribbon at the top of the Excel window. Selecting "Insert" will give us a new ribbon menu. From it, click on the "Line Graph" icon.



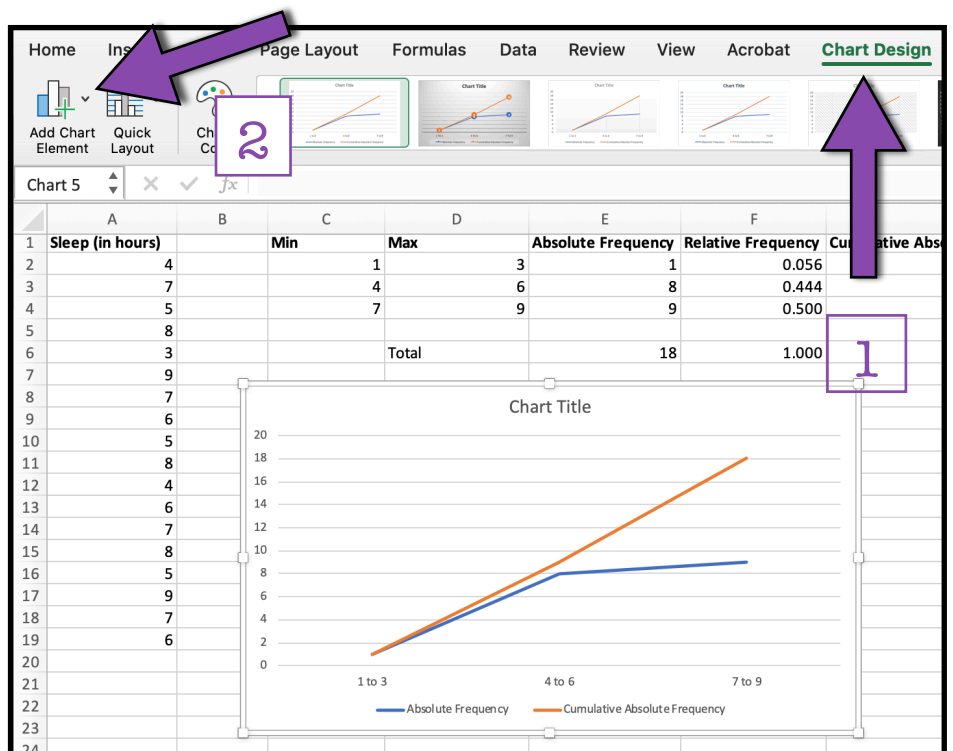
Third, from the Line Graph dropdown menu, select the the first chart option under the heading "2-D Line." This first option is called a "Clustered Column" Graph.



Clicking on that option will cause a Line Graph to appear!

However, this Line Graph is missing some of the major components of a graph. Therefore, we need to add a few more things to our Line Graph before it is complete. One of the missing components in this graph is its Axis Labels.

To add Axis Labels, we select our graph by clicking anywhere on the graph. From the ribbon at the top of the Excel window, first select "Chart Design" and second click on "Add Chart Element."



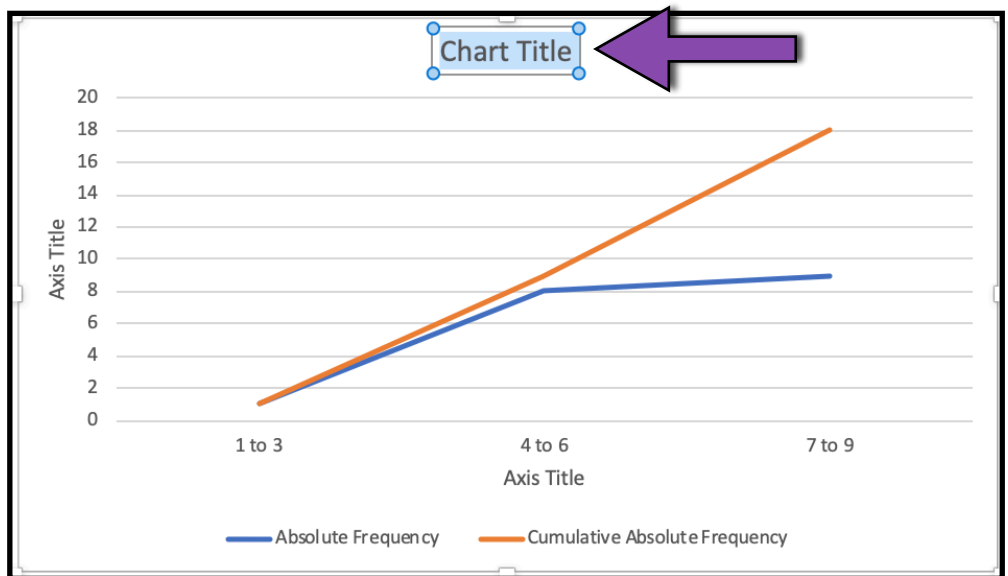
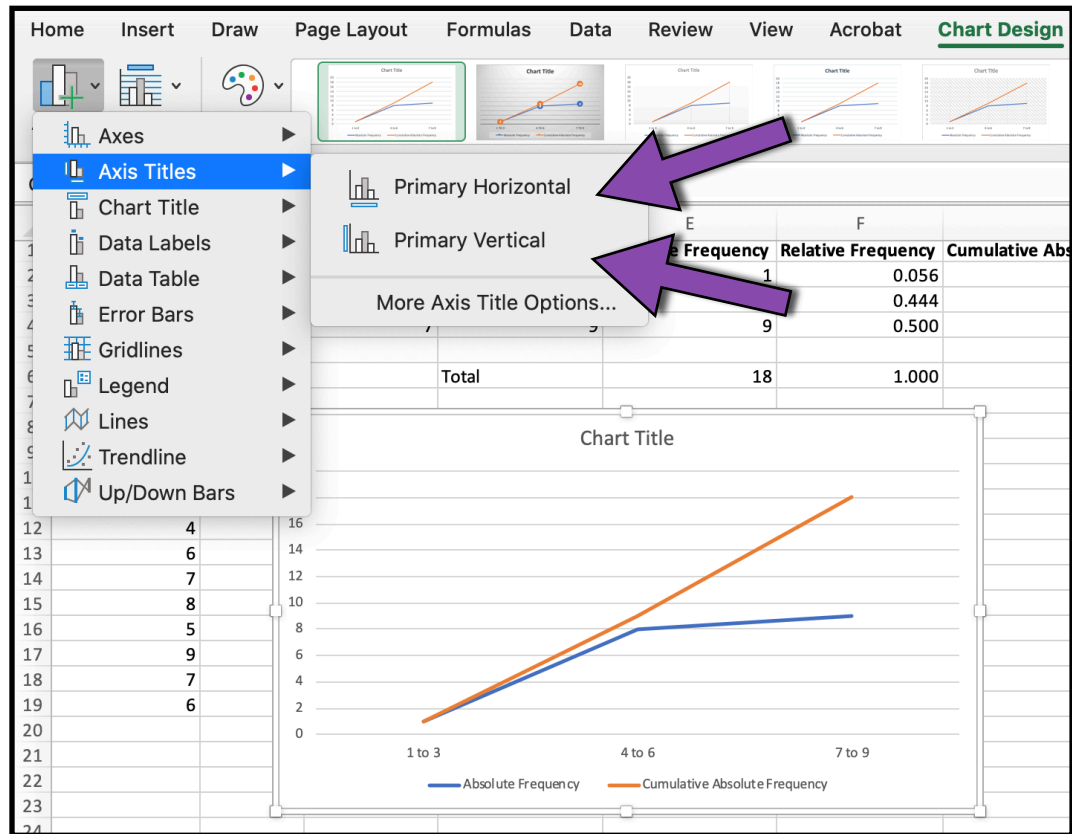
From the “Add Chart Element” dropdown menu, select “Axis Titles” and then select “Primary Horizontal” which will add a placeholder horizontal axis (x-axis) label to our Line Graph. In Excel, this placeholder axis label is called “Axis Title.”

After adding the placeholder for our horizontal axis label, we need to again select “Add Chart Element,” and from the dropdown menu, again select “Axis Titles,” and now select “Primary Vertical,” which will add a placeholder vertical axis (y-axis) label to our Line Graph.

In Excel, this placeholder axis label is called “Axis Title.”

Now we need to make our placeholder axis labels and graph title more informative. “Axis Title” and “Chart Title” don’t give us enough information!

To change the text of either our Graph Title or our Axis Labels, we can simply double-click on the text of the label, highlight the existing text, and replace the existing text with our new label.



Once we've added our informative Graph Title and Axis Labels, we need to look at the Graph Units (the units of information presented on our axes).

For our hours of sleep data, Excel has automatically created our y-axis Graph Units in increments of 2 (e.g., 2, 4, 6, 8). Because we measured our Absolute Frequency in whole numbers, increments of 2 are ok. However, in other instances we may want to change our y-axis Graph Units.

To change our y-axis Graph Units, first we double click in our Line Graph on our y-axis Graph Units, which will open a "Format Axis" toolbar on the right side of the screen.

From the Format Axis tool bar: First, make sure Axis Options are chosen at the top. Second, select the icon that looks like a bar graph. Third, click the down arrow for "Axis Options." Fourth, under "Units," we can change the Major Units.

Finally, we may want to adjust the color or dash type of the lines in our Line Graph.

To change the color or dash type of our line, we first select the lines by clicking once on either of the lines.

A "Format Data Series" toolbar will open on the right side of our screen. Next, we select the icon that looks like a paint bucket.

Then, under the "Line" dropdown menu we can select the way we would like our line to look.

There are endless options for customizing the color and dash type of our lines! However, we must be sure to keep the principles of designing good graphs in mind when choosing our color or pattern.

We've now created a Line Graph in Excel!

