

How To Create a Histogram in Excel

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

First, we will create our Histogram Bins. A Histogram 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 Histogram Bins, we start by entering the Column Header "Histogram 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 Histogram Bins column.

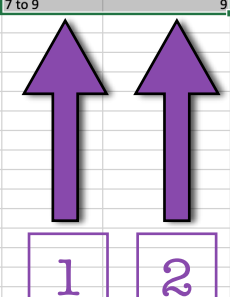
J	K
Histogram Bins	Absolute Frequency
1 to 3	1
4 to 6	8
7 to 9	9

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

Once we've created our two new columns for our Histogram Bins and our Absolute Frequency, we are ready to make our Histogram.

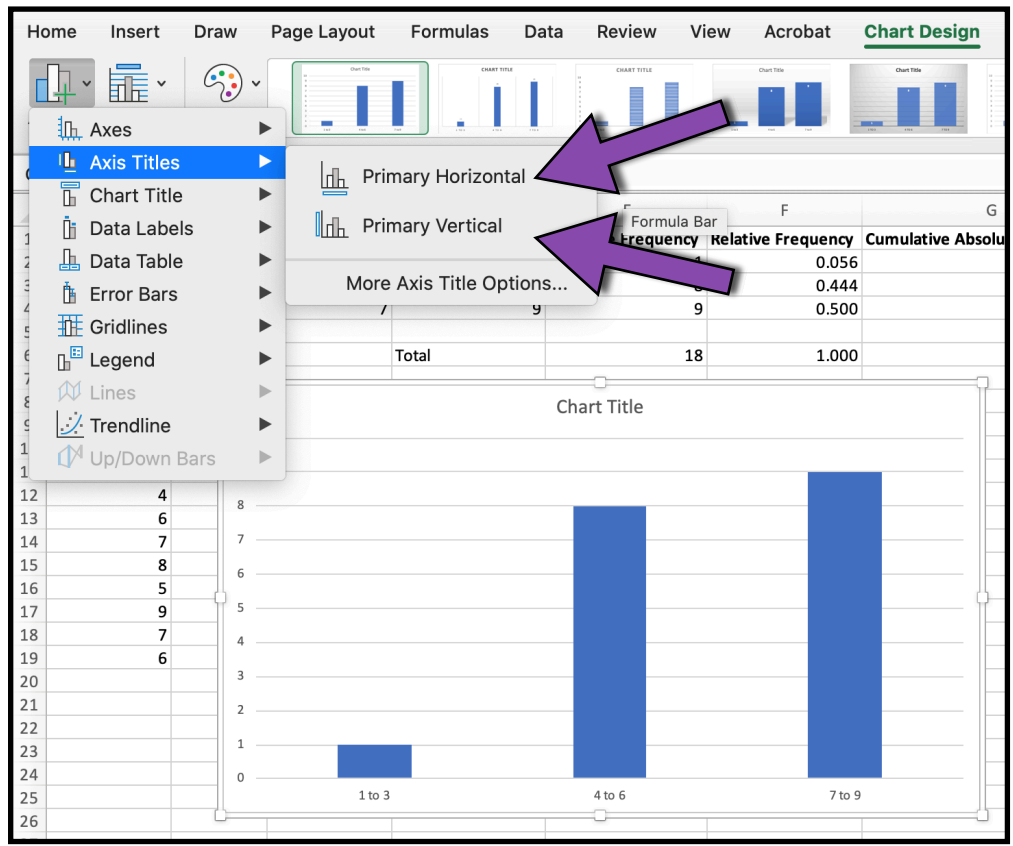
To create a Histogram, we begin by selecting the data in our "Categories" column and the data in our "Absolute Frequency" column. These data are highlighted in grey in the figure below. We want to be sure to select only the data, not the Column Headings.

	A	B	C	D	E	F	G	H	I	J	K
1	Sleep (in hours)		Min	Max	Absolute Frequency	Relative Frequency	Cumulative Absolute Frequency	Cumulative Relative Frequency		Histogram Bins	Absolute Frequency
2		4		1	3	1	0.056	1	0.056	1 to 3	1
3		7		4	6	8	0.444	9	0.500	4 to 6	8
4		5		7	9	9	0.500	18	1.000	7 to 9	9
5		8									
6		3		Total		18	1.000				
7		9									
8		7									
9		6									
10		5									
11		8									
12		4									
13		6									
14		7									
15		8									
16		5									
17		9									
18		7									
19		6									



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

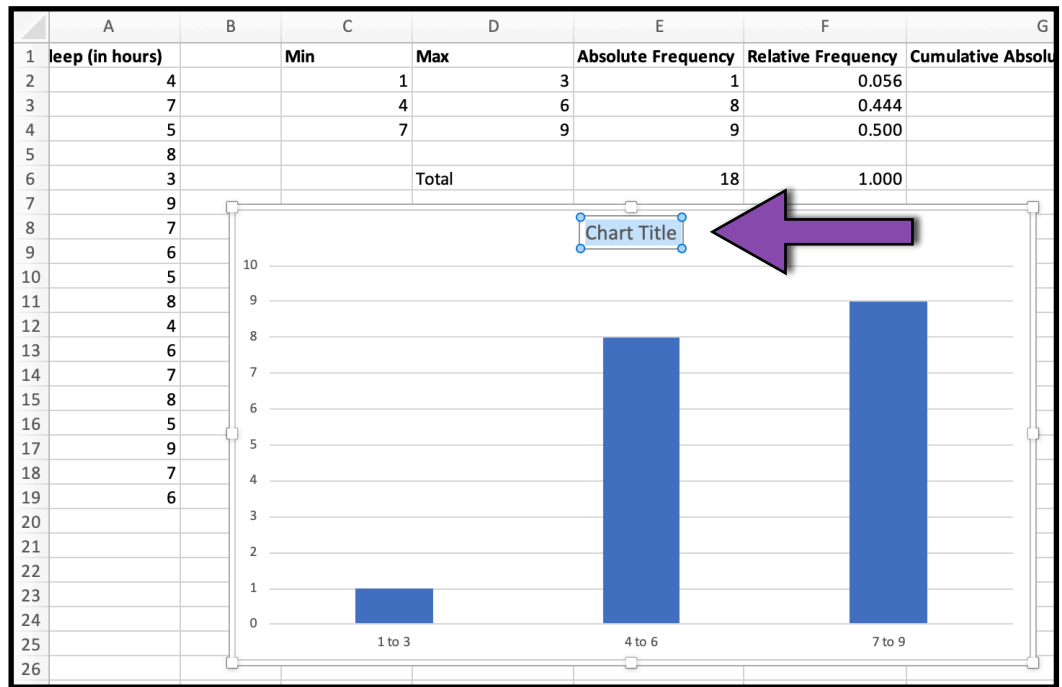
After adding the placeholder for our horizontal axis label, we need to again select “Add Chart Element,” and from the dropdown menu, again select “Axis Titles,” and now select “Primary Vertical,” which will add a placeholder vertical axis (y-axis) label to our Histogram.



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.

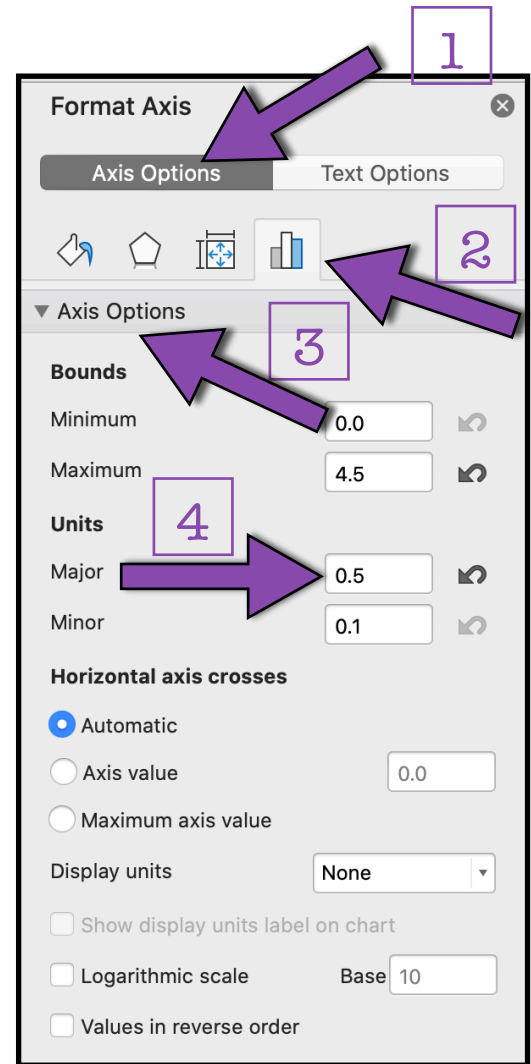


Once we've added our informative Graph Title and Axis Labels, we need to look at the Graph Units (the units of information presented on our axes).

For our hours of sleep data, Excel has automatically created our y-axis Graph Units in increments of 1 (e.g., 1, 2, 3). Because we measured our Absolute Frequency in whole numbers, increments of 1 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.



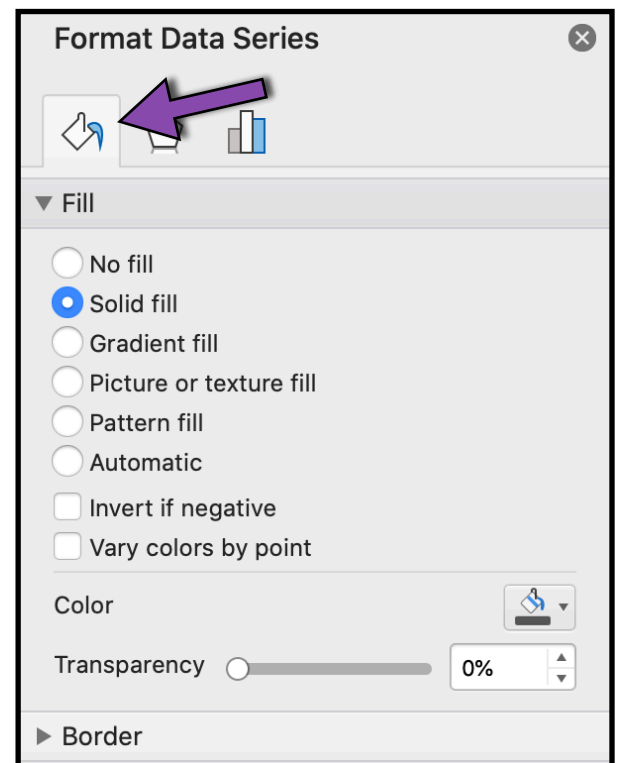
Finally, we may want to adjust the color or pattern of the data bars in our Histogram.

To change the color or pattern of our data bars, we first select the data bars by clicking once on any of the bars.

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 "Fill" dropdown menu we can select the way we would like to fill our bars.

There are endless options for customizing the color and pattern of our bars! 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 Histogram in Excel!