Graphs that Excel – Microsoft Excel
Microsoft Excel is a spreadsheet application that allows you enter data, make calculations and transform data into a column, bar graph, pie chart and more. There’s no Registration! Just click on the Microsoft Excel icon on your desktop or from the start menu.

The spreadsheet is divided into columns (A - ...) and rows (1 - ...) called cells. To make a graph, you must enter the data in the cells.

I. Column Graph (Vertical Bar Graph)
Column graphs are used to compare values across different categories. The following example will show the favorite household pets of 11 students. The category, types of animals is entered in Column A. The number of students who voted for each animal is entered in Column B.

a. Turn data into a graph
   - Highlight data starting from A1 and ending with B4 or whichever cells you used to for your data. Although, the first word in cell A1 appears white, it is still highlighted.
   - Click on Insert tab at the top

   - Click on Column and select a column graph option in the first column of graph styles. The 2-D Column is the simplest.
Select the first 2-D graph and it will appear on your spreadsheet.

Now that students have the graph, this is a great time to teach/reteach the necessary parts of a graph. Ask the students what’s missing. If they need prompting, remind them that chart needs a title and each axis needs to be labeled. When labeling axes, you can begin with the x- or y-axis.

b. **Add the title**
Similar to a storybook, the graph needs a title. Have the students think of an appropriate title based on the initial question and reason for conducting the experiment or collecting the data. For example, here we wanted to know which household pets are the students’ favorites. So an appropriate title is ‘Favorite Pets.’

Click once on the graph, so that it is highlighted. Clicking on the graph makes the **Chart Tools** options available in the task bar at the top. Then, click the **Layout** tab. Note: The layout tab WILL NOT appear if the graph is not highlighted.

- Click on **Chart Title** and select **Above Chart**. The title will appear above your graph. Click on the words **Chart Title** to change the title.
c. **Label the x-axis (horizontal axis)**
The axis title should also appropriately reflect the collected data. In this example, types of animals are the independent variable.

- Click once on the graph, so that it is highlighted. Then, click **Layout** at the top under Chart Tools. Remember, the layout tab WILL NOT appear if the graph is not highlighted.

- **Click Axis Titles** → **Primary Horizontal Axis Title** → **Title Below Axis**. Change horizontal axis title.

![Chart Tools](chart_tools.png)

d. **Label the y-axis (vertical axis)**
Follow the same format as you did with the graph title and x-axis title. The dependent variable is how many students voted for each pet; so an appropriate title is ‘**Number of Students**.’

- Click once on the graph, so that it is highlighted. Then, click **Layout** at the top. Remember, the layout tab WILL NOT appear if the graph is not highlighted.

- **Click Axis Titles** → **Primary Vertical Axis Title** → **Rotated Title**. Change vertical axis title. Click on the **Series 1** box, and delete it if you do not require students to have a legend on their graphs.

![Chart Tools](chart_tools_vertical.png)

![Favorite Pets](favorite_pets.png)

e. **Edit your graph**
Use the **Design** tab in **Chart Tools** to change the colors of the bars in the graph.
II. Line Graph
Line graphs are used to show trends over time. The following example will show weight loss being tracked over four months. Note: more than one graph can be added to a single spreadsheet. For example, this line graph can be created on the same spreadsheet as the column graph.

a. Enter your data
Enter the months in **Column A** and the pounds lost in **Column B**. Highlight all the data from **A6 to B9** (or whichever cells you used for your data).

![Excel spreadsheet showing line graph data](image)

b. Turn data into a line graph
   - Click on the **Insert** tab at the top.
   - Select **Line** as the chart type. Again, a **2-D Line** graph is the simplest and will work fine for most of the graphs you will create with students.

![Excel chart showing line graph](image)

c. Add the Title
   - Click once on the graph, so that it highlights. Then, click **Layout** at the top. Remember, the layout tab **WILL NOT** appear if the graph is not highlighted.
• Click on Chart Title and select Above Chart. Click on the words Chart Title to change the title.

![Chart Title](image)

**Weight Loss in the Spring**

![Graph](image)

Jan Feb Mar Apr

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Apr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Weight Loss in the Spring**

Jan Feb Mar Apr

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Apr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

d. **Label the x-axis (horizontal axis)**

• Click once on the graph, so that it highlights. Then, click Layout at the top. The layout tab WILL NOT appear if the graph is not highlighted.

• Click Axis Titles → Primary Horizontal Axis Title → Title Below Axis. Change horizontal axis title.

![Graph](image)

**Weight Loss in the Spring**

Jan Feb Mar Apr

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Apr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Graph](image)

**Weight Loss in the Spring**

Jan Feb Mar Apr

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Apr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

e. **Label the y-axis (vertical axis)**

• Click Layout at the top. The layout tab WILL NOT appear if the graph is not highlighted.

• Click Axis Titles → Primary Vertical Axis Title → Rotated Title. Change axis title.

![Graph](image)

**Weight Loss in the Spring**

Jan Feb Mar Apr

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Apr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Graph](image)

**Weight Loss in the Spring**

Jan Feb Mar Apr

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan</td>
<td>Feb</td>
<td>Mar</td>
<td>Apr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

• Click on the Series 1 box, and delete it if you do not require students to have a legend on their graphs.

III. **Pie Chart**

Pie charts show contribution of separate values to a total. For example, we can show percentage of animals in a pet store (to the total population, which is 100%).
a. **Enter your data**

Enter type of animal in **Column A** and the percentage in **Column B**. Highlight all the data from **A11** to **B14** (or whichever cells you chose to enter your data).

![Excel spreadsheet screenshot](image)

b. **Turn data into a line graph**

- Click on **Insert** tab in the menu bar at the top.

- Select **Pie** as the chart type. The first option under the **2-D Pie** is the simplest and will work fine for most of the graphs you will create with students.

![Excel pie chart screenshot](image)

c. **Add the title**

Pie graphs have no axes, so you only need to add a title.

- Click once on the graph, so that it is highlighted. Then, click the **Layout** tab at the top under the **Chart Tools**. Remember, the layout tab WILL NOT appear if the graph is not highlighted.
- Click on **Chart Title** and select **Above Chart**. Click on the words **Chart Title** to change the title.

Notice that the pie graph shows us there are more dogs and cats in the pet store, but we do not see the exact percentage.

d. **To add data label values**

- Click on **Layout** tab in **Chart Tools**.

- Click on **Data Labels** and select **Best Fit** and the percent values will be added to the pie graph.