

# Spreadsheets in the Classroom

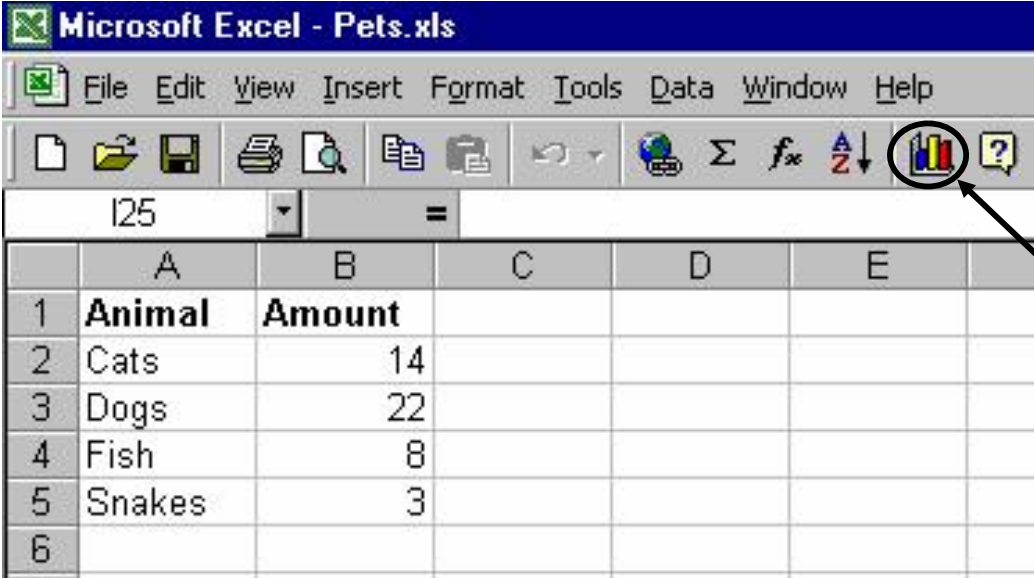
## Using Excel

### Simple Charts from Data

Get students to see data represented in graphs often. Present survey information in various graph forms and discuss what it shows.

Start Excel – go to **Start** pull to **Programs** and click on **Microsoft Excel**.

Type similar information into column A and survey the class and put the numeric amounts in column B.



The screenshot shows the Microsoft Excel interface with a spreadsheet titled "Pets.xls". The spreadsheet has two columns: "Animal" and "Amount". The data is as follows:

	A	B	C	D	E
1	<b>Animal</b>	<b>Amount</b>			
2	Cats	14			
3	Dogs	22			
4	Fish	8			
5	Snakes	3			
6					

An arrow points from the text "Chart Wizard" to the Chart Wizard icon in the Excel toolbar, which is a small bar chart with blue, yellow, and red bars.

**Highlight the cells that has the information you want to chart**, in the example above you would highlight cells starting from A1 down to B5.

**Click on Chart Wizard** – it looks like a bar chart with blue, yellow, and red bars.

A dialog wizard box will appear.

**Click** on the **Chart type** and **Sub Type** you would like to use.

**Click** on the **Next** button to move to the next dialog box.

**Check** to make sure the selected range is correct (the \$ in front of each column letter and row number indicates that these are absolute references).

**Click** the **Next** button to move to the next dialog box.

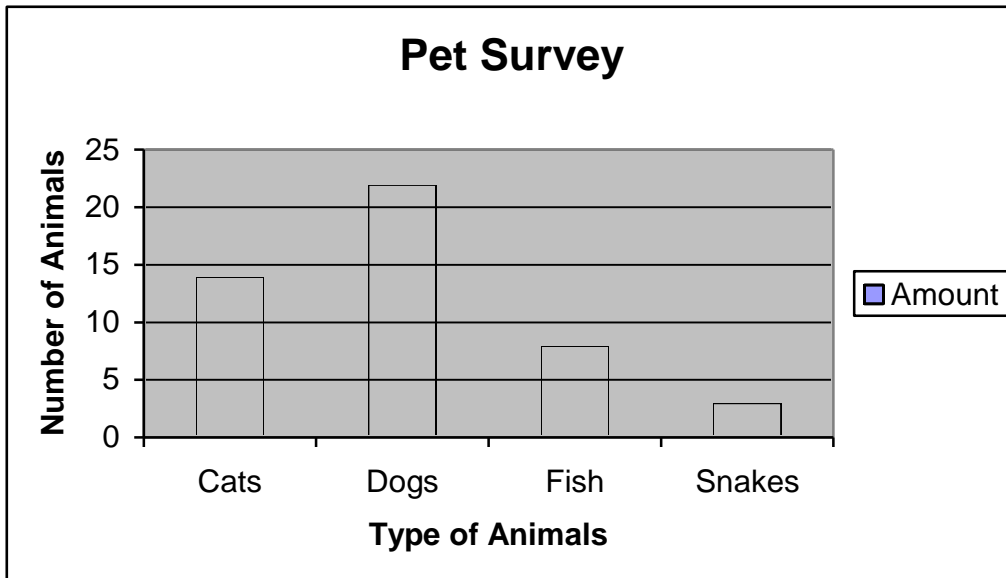
**Check** to make sure your charted data looks the way you want it (make changes as needed).

**Click** on the **Next** button to move to the next dialog box.

Decide if you want the chart to be on the same sheet as the data or on a separate sheet.

**Click Finish.**

You will receive a survey like this that you can display on an Averkey or copy and paste in another document. Have discussions about information displayed in the graph.



### Changing the Chart Type

It is useful for students to see that the same information can be displayed in various ways and that some charts display specific information in a more meaningful manner.

To change a chart type, do the following:

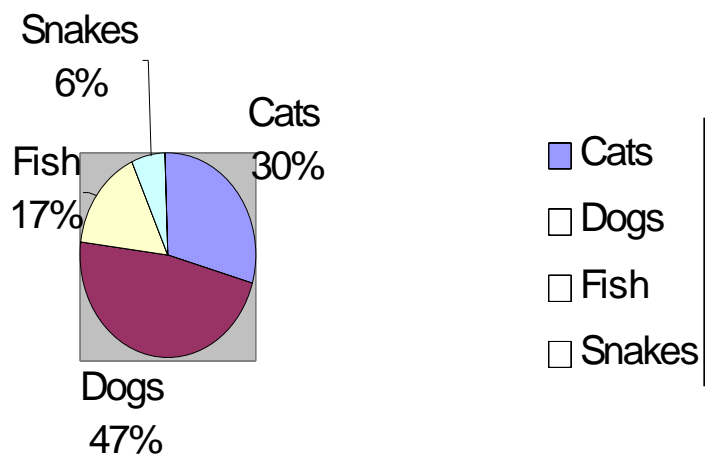
**Right Click on the Chart** (you must truly be in the middle of the chart)

Left Click on **Chart Type**.

Click on the **Chart Type and/or Sub Type** you want.

Click **OK**.

We could show the same data in a Pie Chart but it changes the interpretation of the data because some children had cats and dogs and some didn't have any animals; this data should not be added and divided into parts. It is not true that 30% of the students in the class had cats. The class had 32 students in it and 14 had cats which is approximately 44%.



### **Putting Values and Labels on your Chart**

When you are at step 3 in the chart wizard you see the following tabs:

Data Series—Values the chart represents.

Series Labels—Labels identifying the charted values. These labels appear in the legend that identifies each data series in the chart.

Category Titles—Describe the information on the X and Y-axis.

Size Handles—little boxes that appear when the chart is selected so that you can size or move the chart.

Data Labels—will show the values in your chart.

**Select Data Labels** and click in the appropriate box (ie. show value, show label, show percentage etc.)

**If you did not select it when you created the graph, do the following:**

**Right click** on the **graph**.

**Left Click** on **Format Data Series**.

Click on the **Data Labels tab** and select the appropriate box.

Click **OK**.

List below all of the things that you and your students could graph, think of things that you do in science, social studies, language arts, math, PE, music, art, and other classes.

### Changing Font sizes and Colors in Graphs and Charts

There are times that you will want to change the size of a font or the color of part of a graph. Activate the chart by clicking on it.

Select the part of the chart you want to change (be sure that just the part you want to change is selected).

Double Click on the chart element to get the formatting dialog box.

Make the changes you want in the dialog boxes.

Click **OK**.

### Changing the Scale for the Gridlines

You may want to change the scale that a graph has created.

Double Click on a line in the graph, you should receive the **Format Gridlines** dialog box.

Select the **Scale** tab.

Change the amount for minimum, maximum, or the major or minor unit.

Click **OK**.

### Changing the thickness of a line in a graph

Click on the line you want to change (make sure all of the points are selected)

Double click on the line (Not on the axis line).

Click on the **Patterns** tab.

Under the Line category, use the pull down menu under **Weight** to get a thicker line.

You can also change the symbol used at the points by going to the **Marker** category and change the **Style**.

### Putting Borders in your Spreadsheet

Highlight the cells you would like to put a border around.

Click on the Border tool in the tool bar and pull down to the border you would like.

If you want to change the thickness of the lines,

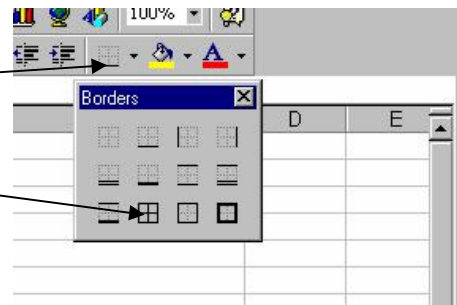
Highlight the cells.

Go to **Format** and pull to **Cells**.

Click on the **Border** tab.

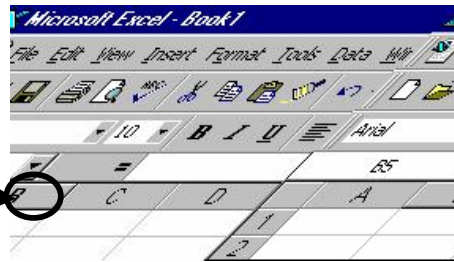
Click on the lines you want to change and click on the Line **Style** and/or **Color**.

Click **OK**.



**Making Graph Paper**

To make a worksheet appear like graph paper so that students can fill in shapes, do the following:  
 Select all of the cells by clicking in the space above Row 1 and to the left of column A.

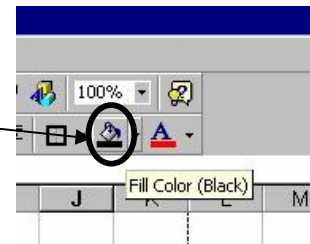


Go to **Format**, pull to **Column**, and pull to **Width**.  
 Type a 2 and click **OK**.

If you want larger squares, select all of the cells as above and make the font size 24 and the cell width 6.

**To Fill a Cell**

Click in the cell you want to fill or highlight the cells you want to fill.  
 Click the Fill bucket or pull to the desired color.

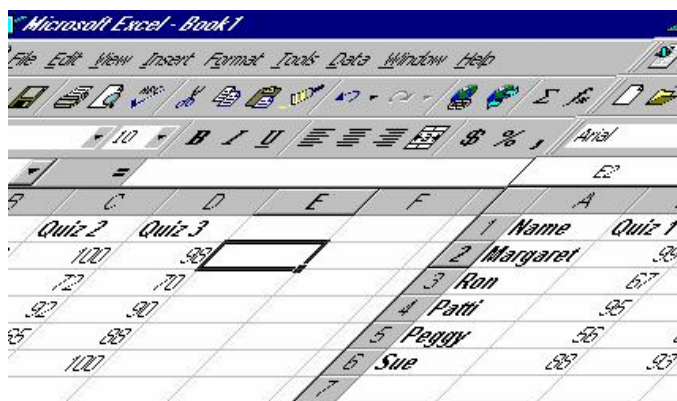


**Doing Simple Math using Formulas and Functions**

There are several ways that you can make a spreadsheet perform numerical functions.

**Using the Equal (=) sign**

If you click in a cell and type = followed by the cell names and the mathematical operations you want to perform and press the enter key, it will do the math. For example, typing = b2 +c2 in cell d2 will add the contents of what is in cell b2 with the contents of cell c2 and put the answer in cell d2. The example below will give a concrete example.



If you would like to get the total for Margaret’s quizzes, you would click in Cell E2 and type =b2+c2+d2.

And after pressing the enter key it would display 297.

If you wanted to get the totals for Ron’s quizzes, in cell e3 you would type =b3+c3+d3

In what cell would you type the formula to get Patti’s scores? \_\_\_\_\_

What would you type? \_\_\_\_\_

In what cell would you type the formula to get Sue’s scores? \_\_\_\_\_

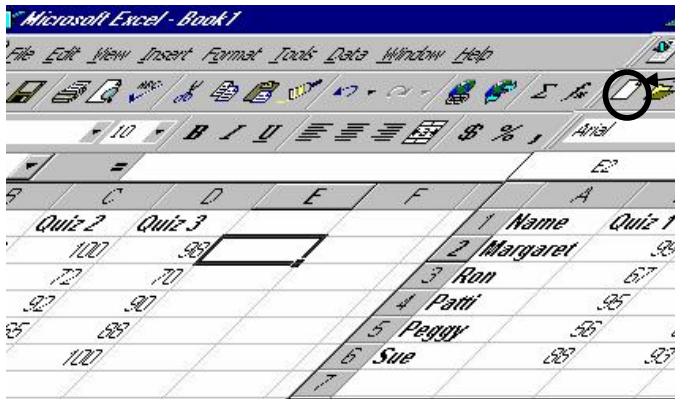
What would you type? \_\_\_\_\_

In what cell would you type the formula to get Peggy’s scores? \_\_\_\_\_

What would you type? \_\_\_\_\_

### Using the AutoSum Function (Σ)

If you truly want to add a row or column, using the autosum function is more efficient than typing =b2+c2+d2+e2+f2+g2 etc. Simply click on the Σ key on your tool bar and make sure the starting and ending cells appear in your list. For example if you wanted to add everything in cells b2, c2, d2,e2, f2 and g2, the starting cell would be b2 and the ending cell would be g2 and Excel would type =SUM(B2:G2) which means to add everything from B2 through G2; the colon means through. In the example we did previously, we would do the following:

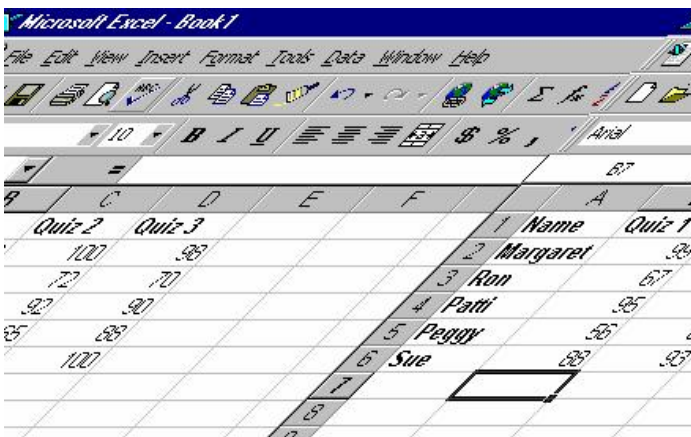


Click in **Cell E2**.  
 Click on the **AutoSum** tool.  
 Make sure it says =SUM(B2:D2)  
 Press **enter**.

Write the steps below that you would use to calculate Ron and Patti's scores using the AutoSum function.

### Using Functions fx

Excel allows you to use a variety of built-in functions. Common functions that you might use are average, count, sum, median, min and max.



If you wanted to find the average score for Quiz 1, you would click in the cell where you want the average to occur, in this example, Cell B7.

Click the **fx** button.  
 In the left hand column click on **statistical** (if you don't know what category a function might be, click on All).  
 In the right hand column click on **Average**.  
 Click on **OK**.

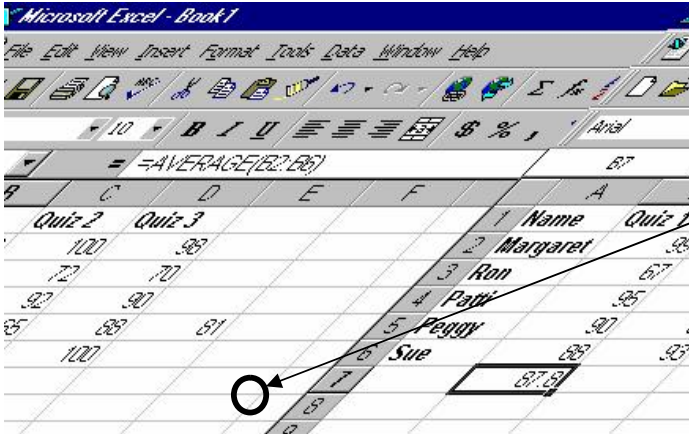
Make sure the numbers in the range are correct B2:B6  
 Click **OK**.

81 should appear on your screen in cell B1.  
 Write the steps you would do to find the Average for Peggy.

Once you have a formula, if you change values in the cells and press enter, the number in the formula will change. That is why spreadsheets are so good for doing "what if" calculations. So, "what if" Peggy wanted to have a B average (80%), what is lowest score she could receive if she retook the quiz with the score of 56 to get her B? \_\_\_\_\_

## Copying Formulas

Once you enter a formula into a spreadsheet, you do not have to enter the formula again for every row or column. You can copy the formula so that it is relative to the column it is copied to. For instance, if you were averaging the numbers from b2 to b7 with the formula `=AVERAGE(b2:b7)` and you wanted to copy the formula to do the same in row C, the new formula would read `=AVERAGE(c2:c7)`



Here are the steps:

Enter the formula in the cell and press enter.

Click on the Cell and you will see a dark box at the bottom right hand corner of the cell.

With the + cursor click and drag to cell D3 and release the mouse and your averages should appear.

Single click on cell c7 and d7 and look and see if the formula corresponds to the column.

## Formatting Cells

In column E, enter the formula so that you calculate the average score for each student, and your results should look like the example below. We probably don't want some whole numbers and some numbers with decimals to 5 places. To make all of the numbers go to the same decimal place do the following:

	A	B	C	D	E	F
1	Name	Quiz 1	Quiz 2	Quiz 3	Average	
2	Margaret	99	100	98	99	
3	Ron	67	72	70	69.66667	
4	Patti	95	92	90	92.33333	
5	Peggy	56	65	88	69.66667	
6	Sue	88	93	100	93.66667	
7						

Highlight the cells that you want to format.

In this example highlight cells E2 to E6.

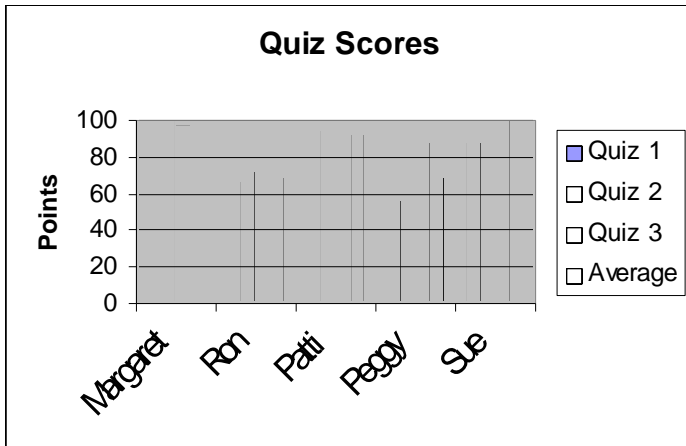
Go to **Format** and pull to **Cells**.

Under **Category**, click on **Number**.

Select how many decimal places you would like and press **OK**.

## Graphing the Data

By following the steps at the beginning of this handout, you can highlight cells A1 to E6 and use the Chart Wizard to create the following graph.

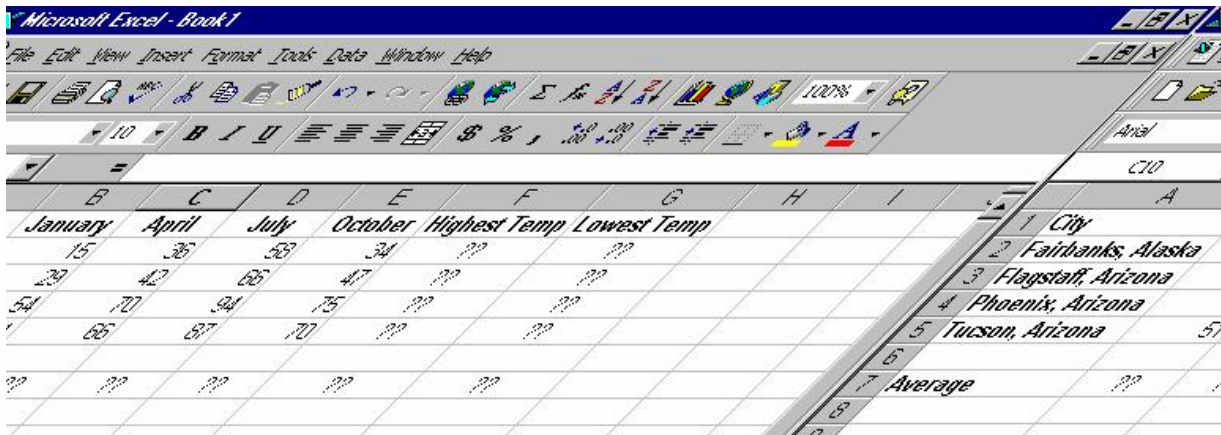


List below all of the things that you and your students could use Excel spreadsheets for, think of things that you do in science, social studies, language arts, math, PE, music, art, and other classes.

**Practice**

Use what you have just learned and create the following spreadsheet. Use your notes to help you enter and copy formulas. Write down additional steps on your handout to make it useful to you. The information is monthly weather average temperatures from the National Weather Service.

You will enter formulas that will calculate the highest and lowest temperature (hint: use the Min and Max functions).



Now make a bar chart with the 4 city’s and their average temperature for January – October. Your chart will look like this.

