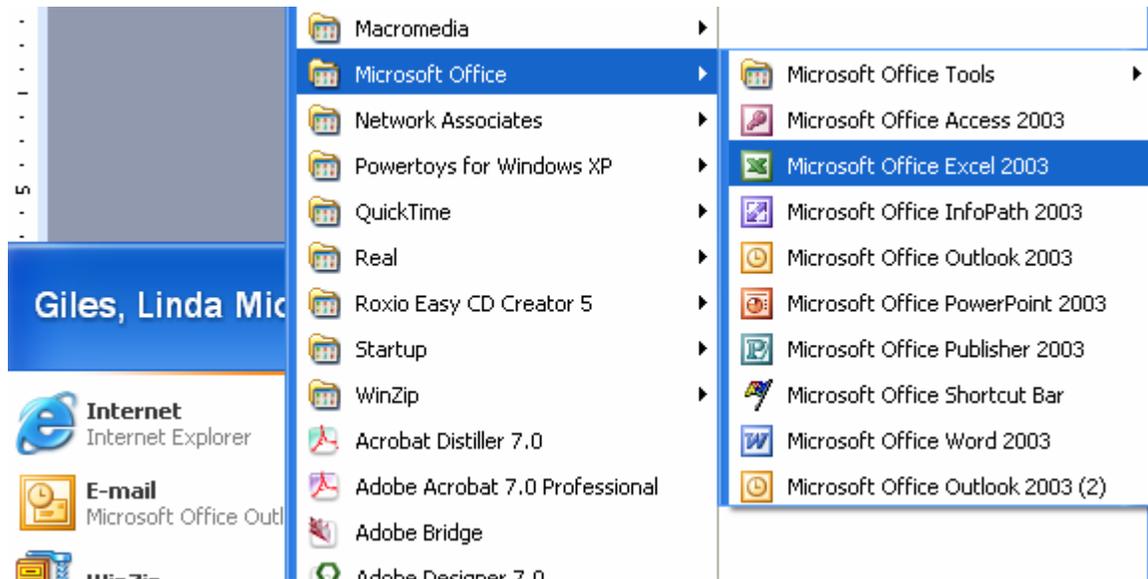


Microsoft Excel Basics

Opening Excel:

Start >> Programs >> Microsoft Office >> Microsoft Office Excel 2003



Microsoft Excel will automatically open with a blank spreadsheet spanning many columns and rows. You will notice a number of toolbars with many more options included.

Standard Toolbar:



1. **New:**
Create a new, blank spreadsheet
2. **Open:**
Open a previously saved spreadsheet
3. **Save:**
Save your current spreadsheet
4. **Permission:**
5. **Print:**
Prints the current document.
6. **Print Preview:**
Preview the potential print of the current document.
7. **Research:**
Microsoft has enabled Information Rights Management (IRM) within the new

version of Excel, which can help protect sensitive documents from being copied or forwarded. Click this for more information and options.

8. **Copy:**
Copies the current selection to the clipboard, which can then be pasted elsewhere in the document.
9. **Paste:**
Takes the current clipboard contents and inserts them.
10. **Undo:**
Undoes the last action in the document, reverting “back” a step in time.
11. **Insert Hyperlink:**
Inserts a hyperlink to an Internet location.
12. **AutoSum:**
A drop-down menu of available mathematical operations to perform.
13. **Sort Ascending:**
Sorts the current selection in ascending order.
14. **Chart Wizard:**
Opens the “Chart Wizard,” which will walk you through the creation of a chart / diagram using the currently selected information.
15. **Microsoft Excel Help:**
Brings up the Excel Help window, which will allow you to type in a key-word for more information, or click anything on screen to directly bring up further information on that subject.
16. **More Options:**
There are a variety of extra options you can call or add to the toolbar, such as Spell Check, Sort Descending, Cut, Redo, etc. By clicking the triangle, you can access these options; at the same time, you can drag this toolbar outwards more to make more available space for these options directly on the toolbar.

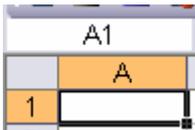
Formatting Toolbar:



1. **Font:**
Change the font of the selected cell(s)
2. **Size:**
Change the font size of the selection
3. **Bold:**
Put the selection in **bold** face
4. **Italics:**
Italicize the selection
5. **Underline:**
Underline the selection
6. **Align Left:**
Align the current selection to the left

7. **Center:**
Align the current selection to the center
8. **Align Right:**
Align the current selection to the right
9. **Merge & Center:**
Combine two selected cells into one new cell that spans the width of both and center the contents of this new cell
10. **Currency Style:**
Change the style in which currency is displayed
11. **Percent Style:**
Change the style in which percents are displayed
12. **Decrease Indent:**
Decrease the indent of a cell by approximately one character
13. **Border:**
Add or alter the style of borders to format a cell with
14. **Fill Color:**
Select a color to fill the background of a cell with
15. **Font Color:**
Select a color to apply to a selection of text

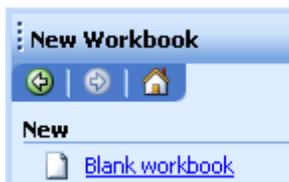
You now have a basic understanding of the toolbars, but still have a huge window of cells in front of you. Cells can contain text, numbers, or formulas. To refer to a particular cell, you call it by its column letter, and then by its row letter. For example, the cell in the uppermost left corner would be "A1." The current cell(s) will always be listed in the "Name Box," which appears on the left below the toolbars.



Creating a Workbook

An Excel workbook contains multiple worksheets. Worksheets can be used to group information together. A worksheet can contain data, charts, or both.

1. From the *File* menu, select *New...*
The *New Workbook* task pane appears.
2. Under *New*, select ***Blank workbook***



3. A new workbook appears.

OR

1. On the *Standard* toolbar, click **NEW** 
A new workbook appears.

Entering Text

A cell containing text and numbers or only text cannot be used in formulas, even if numbers exist with the alphabetic characters.

1. Select the cell where you want to enter text
2. Type the alpha-numeric text that should be in the cell
3. To accept the information, press [**Enter**] or an [**Arrow**] key

Entering Numbers

Numeric cells can be used for calculations and functions. A numeric cell may contain numbers, plus (+), minus (-), currency (\$).

1. Select the cell where you want to enter numbers
2. Type the numeric information that should be in the cell
3. To accept the information, press [**Enter**] or an [**Arrow**] key

Excel automatically right-aligns values and left-aligns text.
Do not include spaces or alphabetic characters in a calculation cell.

Entering Dates or Times

1. Select the cell where you want to enter the date or time
2. To enter a date, type the date in one of the following formats: 6/23/2004, 6-23-2004, or June 23, 2004
To enter a time, type the time
NOTE: To indicate AM or PM, leave a space and press [**Shift**] + [**A**] or [**P**], respectively.
3. To accept the information, press [**Enter**] or [**return**]

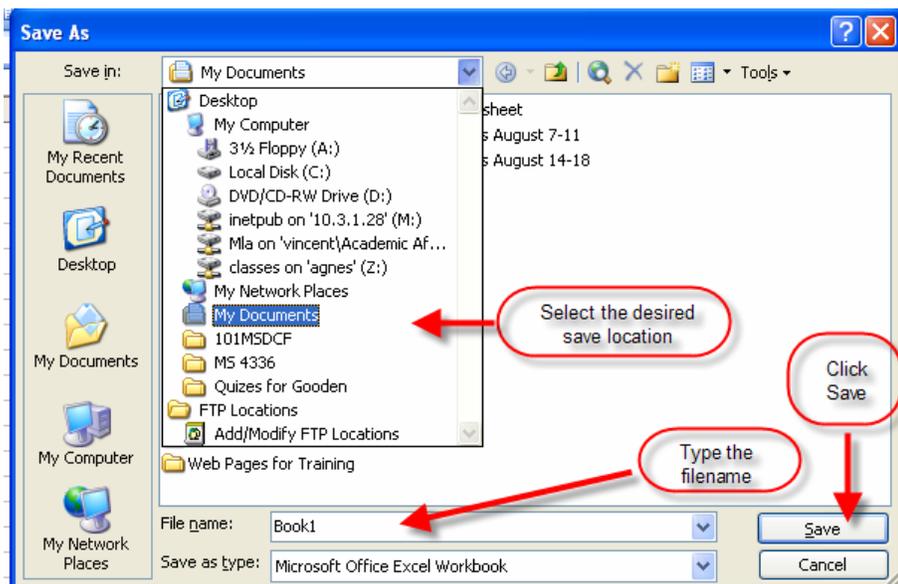
OR

1. To enter today's date, press [**Ctrl**] + [**;**]
To enter the current time, press [**Ctrl**] + [**Shift**] + [**;**]
2. To accept the information, press [**Enter**]

Saving A Spreadsheet

The following steps should be used when you are saving a worksheet for the first time, when you want to save it to a new location (perhaps a backup), or when you want to save a copy with a different name.

1. From the *File* menu, select **Save As...**
The *Save As* dialog box appears.
2. From the *Save in* pull-down list, select the desired save location
3. In the *File name* text box, type a **filename**

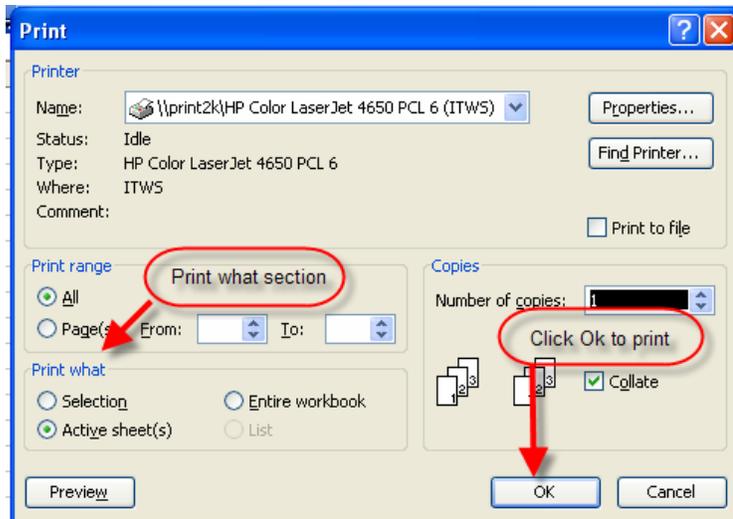


4. Click **SAVE**
The file is saved.

Printing the Current Worksheet

When printing your worksheet, you may not want to print the entire workbook. You can print a selected worksheet from the workbook. This will print all the active cells on the current sheet of the workbook.

1. From the *File* menu, select **Print...**
The *Print* dialog box appears.
2. In the *Print what* section, select **Active sheet(s)**
3. Click **OK**

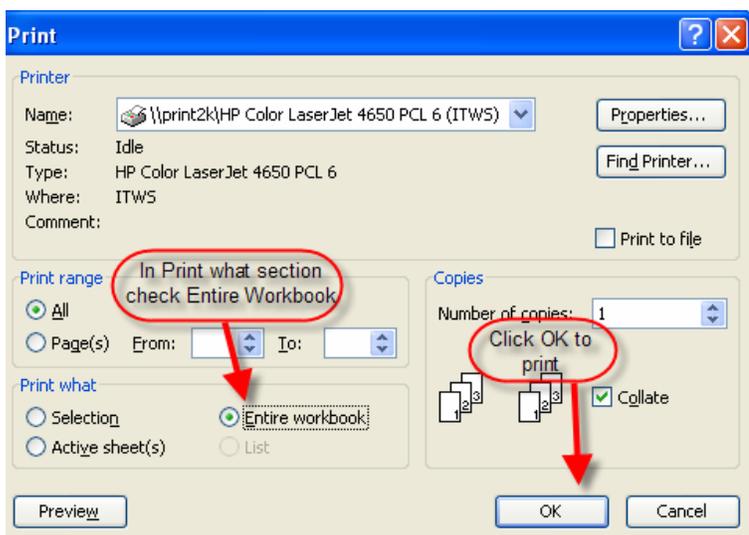


The current worksheet is printed.

Printing the Entire Workbook

Printing the entire workbook will print all sheets of the workbook that contain data.

1. From the *File* menu, select **Print...**
The *Print* dialog box appears.
2. In the *Print what* section, select **Entire workbook**
3. Click **OK**



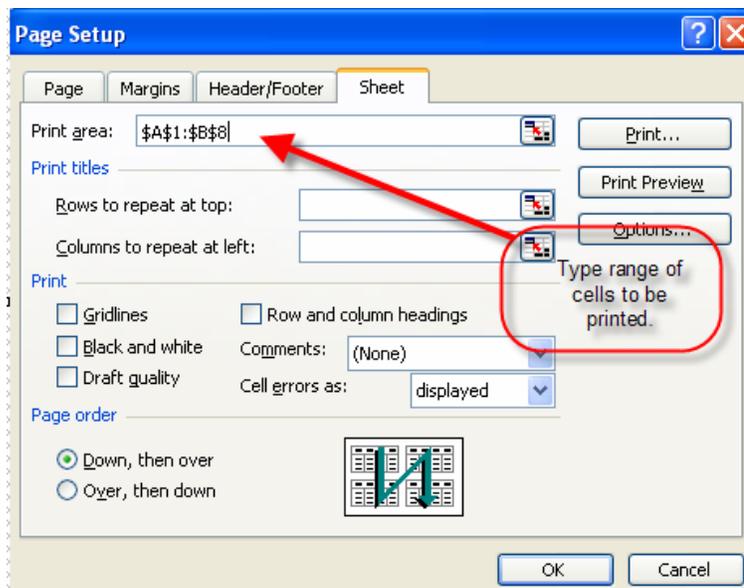
The entire workbook is printed.

Defining the Print Area

Unless you specify a print area, Excel assumes you want to print the active area of the current worksheet. You can specify a different print area through several options: the Page Setup dialog box and the Print Area command.

Defining the Print Area: Dialog Box Option

1. From the *File* menu, select **Page Setup...**
The *Page Setup* dialog box appears.
2. Select the **Sheet** tab
3. In the *Print area* text box, type the range of cells to be printed



OR

To select the area,

1. Click **COLLAPSE DIALOG** 
2. Select the desired range of cells
3. Click **RESTORE DIALOG** 
4. Click **OK**

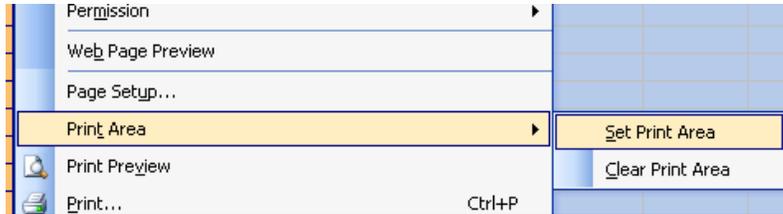
The print area is defined.

Defining the Print Area: Print Area Option

The *Print Area* command is useful when you want to print a specific range of cells. The print area will remain in Excel's memory until it is cleared or replaced.

To set the print area:

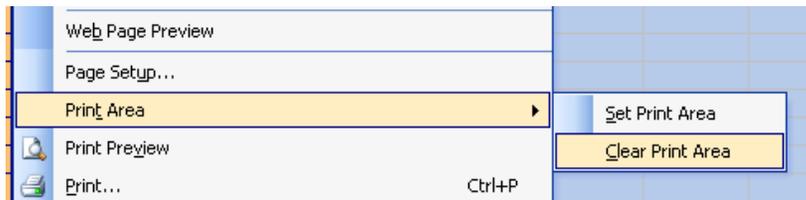
1. Select the cells to be printed
2. From the *File* menu, select **Print Area » Set Print Area**



The print area is set.

To clear the print area:

1. From the *File* menu, select **Print Area » Clear Print Area**



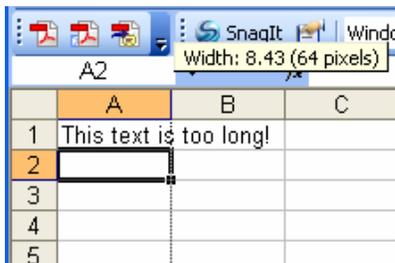
The print area is cleared.

Microsoft Excel Intermediate

Navigating the Spreadsheet:

You can use the "Up," "Down," "Left," "Right," to move (one cell at a time) throughout the spreadsheet. You can also simply click the cursor into a cell). The "tab" button will move one cell to the right. The "Enter" button will confirm the entered information and move one cell down.

If you enter text or numbers that span further than the column allows, simply place your cursor on the line dividing two columns next to their respective letters, and drag to the right or left until the desired width is achieved. You can also double-click this dividing line to have Excel automatically choose the best width.



A Simple Spreadsheet:

	A	B	C	D
1		Grade 1	Grade 2	Grade 3
2	Student 1	98	100	80
3	Student 2	78	90	85
4	Student 3	90	100	100
5	Student 4	86	88	90
6	Student 5	0	0	0

This is what a basic spreadsheet may look like, keeping track of the grades for five students. As you'll notice, numbers automatically align to the right, while text automatically aligns to the left. Room has been allowed at the top and the left for column and row headings, which have been placed in bold.

Simple Formulas:

	A	B	C	D	E
1		Grade 1	Grade 2	Grade 3	
2	Student 1	98	100	80	92.66667
3	Student 2	78	90	85	
4	Student 3	90	100	100	
5	Student 4	86	88	90	
6	Student 5	0	0	0	

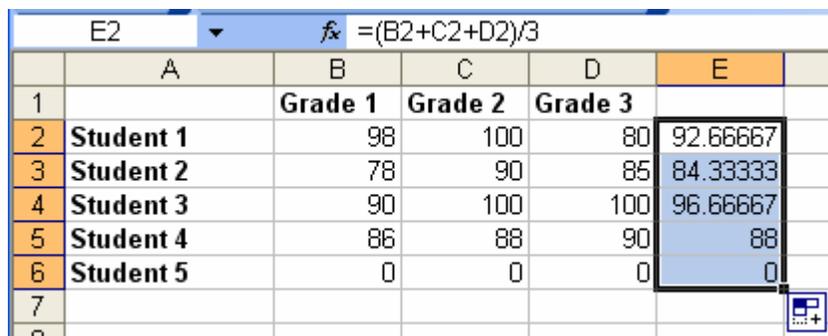
"92.66667" was not entered as the contents for cell "E2." The "formula bar" has the following entered into it:

$$=(B2+C2+D2)/3$$

By following the normal order of operations, the contents of the three cells in parenthesis (B2, C2, and D2) are all added to each other, and then divided by 3. This gives an average of the three grades, which is then shown in the cell "E2" (where the formula was entered).

If you wanted to do the same for students 2 through 5, you would enter in similar formulas for each cell from "E3" to "E6" replacing the column and row numbers where appropriate.

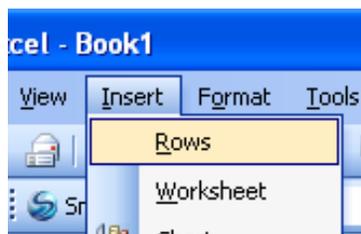
An easy method to replicate formulas is to select the cell which contains the original formula ("E2" in this case), click the bottom right corner of the selection box, and drag down several rows (to "E6" in this example). The formula will be copied down in each cell, and will change itself to reflect each new row.



	A	B	C	D	E
1		Grade 1	Grade 2	Grade 3	
2	Student 1	98	100	80	92.66667
3	Student 2	78	90	85	84.33333
4	Student 3	90	100	100	96.66667
5	Student 4	86	88	90	88
6	Student 5	0	0	0	0
7					

Insert Rows & Columns:

You may find that you need to insert a new, blank row where there isn't a blank row any more. To insert a new blank row, place your cursor directly below where you would like a new row. Select Insert >> Rows. To insert a new column, place the cursor in a cell directly to the right of where you would like the column. Select Insert >> Columns.



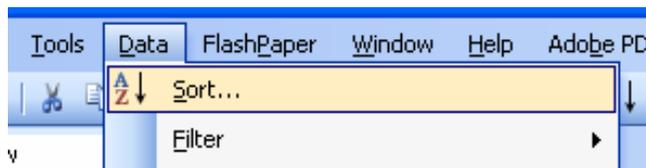
Sorting:

One of Excel's powerful features is its ability to sort, while still retaining the relationships among information. For example, let's take our student grade example from

above. What if we wanted to sort the grades in descending order? First, let's select the information we want to sort.

	A	B	C	D	E
1		Grade 1	Grade 2	Grade 3	
2	Student 1	98	100	80	92.66667
3	Student 2	78	90	85	84.33333
4	Student 3	90	100	100	96.66667
5	Student 4	86	88	90	88
6	Student 5	0	0	0	0

Now let's select the "Sort" option from the "Data" menu.



A new window will appear asking how you would like to sort the information. Let's sort it by the average grade, which is in Column E; be sure to set by "Descending" order. If there were other criteria you wished to sort by as secondary measures, you could do so; let's select "Then by" as "Grade 3" just for the practice of doing so ("Descending" order, as well).



Excel will sort your information with the specifications you entered. The results should look something like this:

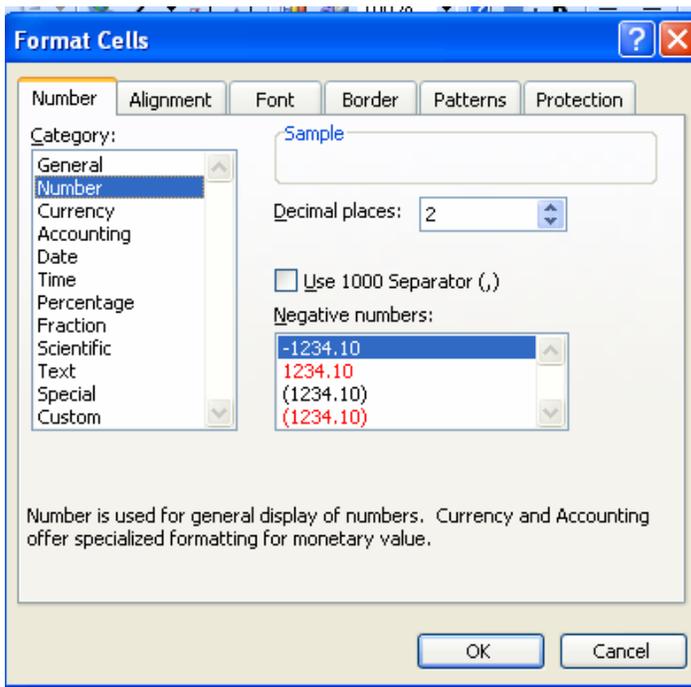
E2		fx =(B2+C2+D2)/3			
	A	B	C	D	E
1		Grade 1	Grade 2	Grade 3	
2	Student 5	0	0	0	0
3	Student 2	78	90	85	84.33333
4	Student 4	86	88	90	88
5	Student 1	98	100	80	92.66667
6	Student 3	90	100	100	96.66667

Cell Formatting:

You may notice that, by default, Excel will leave as many decimal points as possible within the cell's width restraints; as you increase the cell's width, the number of decimal points increases.

	A	B	C	D	E
1		Grade 1	Grade 2	Grade 3	
2	Student 5	0	0	0	0
3	Student 2	78	90	85	84.33333
4	Student 4	86	88	90	88
5	Student 1	98	100	80	92.66667
6	Student 3	90	100	100	96.66667

Select "Cells" from the "Format" menu. A new window will appear with a wide variety of ways in which to customize your spreadsheets.



For example, if we wanted to set the percentages fixed to only two decimal points, you can make this selection under the “Number” category within the “Number” tab. You can also set the formatting for things such as the date, time, currency, etc.

The “Font” tab will also allow you to change the default font used on the spreadsheet. The other tabs provide even more ways to customize your spreadsheet and its appearance; experiment with the settings to see what works best for you.

Microsoft Excel Advanced I

Calculating with Functions

To create a basic worksheet, some of the core tasks involve entering formulas and functions. Both formulas and functions are instructions for Excel to do calculations for you by referring to values in the worksheet or within the formula.

Working with Functions

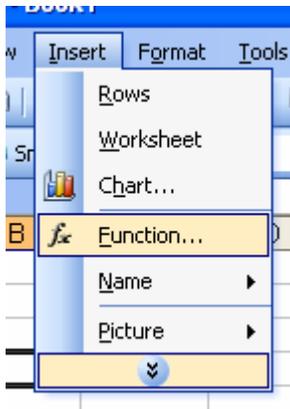
There are multiple ways you can create a function. You can insert functions manually (by typing them), or you can use the *Insert Function* dialog box. The *Insert Function* dialog box eliminates the possibility of a typing error, so it is the recommended method.

Writing Functions with the Insert Function Dialog Box

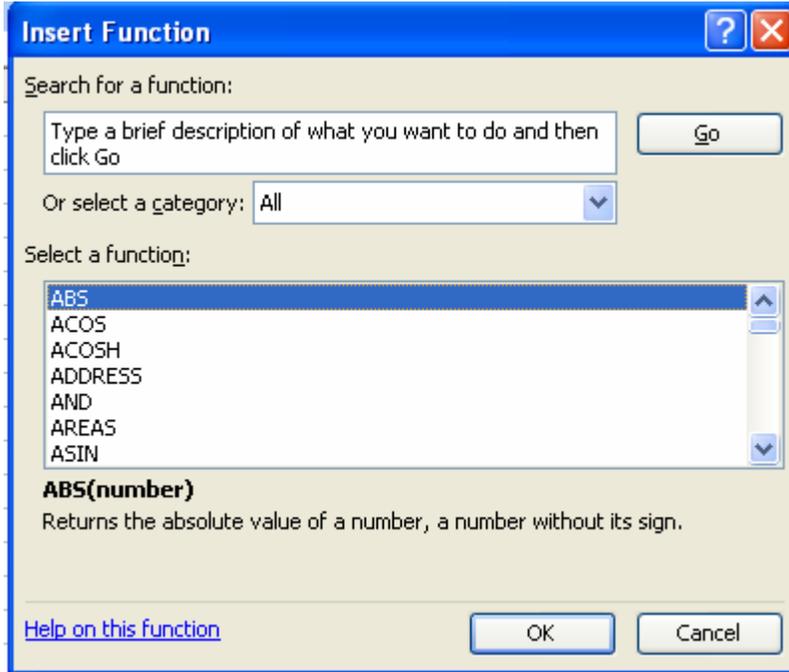
Determining what functions are available, what function you should be using, and what you need to include in the function is easier with the *Insert Function* dialog box. The *Insert Function* dialog box will display a listing of all functions or categories of functions available with Excel. As you select a function (as in the following graphic), a sample of the function appears at the bottom of the dialog box. As you make your selection, the *Insert Function* dialog box will request certain types of information. You simply select the cells where that information is located.

Windows:

1. Place the cell pointer on the cell where the formula should be added
2. From the *Insert* menu, select ***Function...***

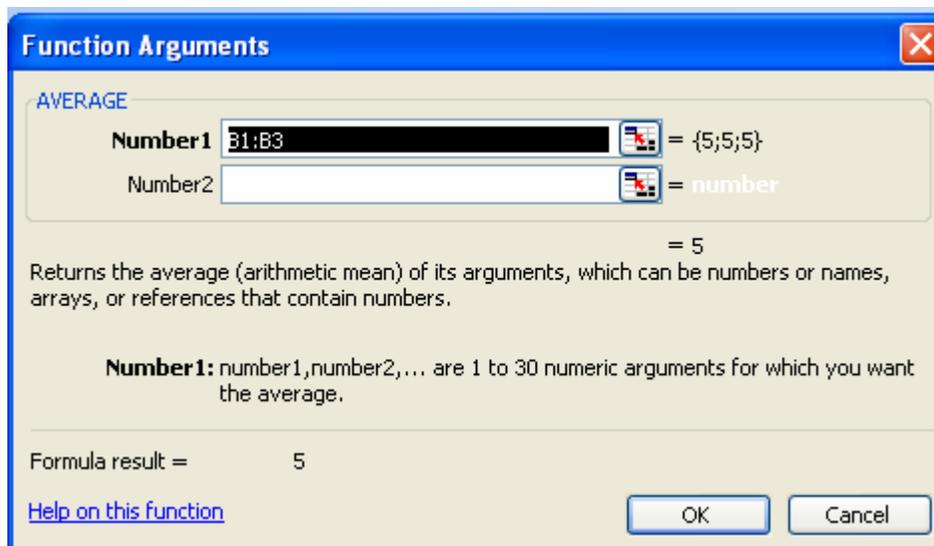


The *Insert Function* dialog box appears.



3. From the *Or select a category* pull-down list, select the appropriate function category or *All*
4. From the *Select a function* scroll box, select the desired function. A description of the selected function appears beneath the *Select a function* scroll box.
5. Click **OK**

The *Function Arguments* dialog box appears.



6. In the text boxes, type the data to be in the function. To hide the dialog box so you can select cell ranges with the mouse rather than type them, click

COLLAPSE DIALOG

To restore the dialog box, click **RESTORE DIALOG** 

7. Click **OK**

About the Function Arguments Dialog Box

The *Function Arguments* dialog box helps you to enter worksheet functions. As you type the function, the *Function Arguments* dialog box displays the name of the function, the function arguments, a description of the function and its arguments, and the result of the function. Once you have entered a function, you can further edit it using the *Function Arguments* dialog box.

To access the Function Arguments dialog box:

1. Select a cell containing a function
2. On the *Formula* bar, click **FUNCTION** icon 
The *Function Arguments* dialog box appears.

Writing Formulas and Functions with the Point Method

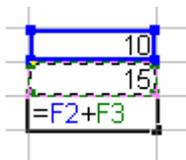
Formulas based on cell references can be "written" by pointing to the cells rather than typing the cell entries. This "point" method can help reduce the chance of error in the formulas and sometimes may make more sense. The point method may not work as well when the cells in question are located in different areas of the worksheet, but the method can be used then as well.

The key to the point method is to point to click the cells to be included and to type the operators where appropriate.

The following examples provide step-by-step instructions for a simple addition of two cells and for adding a range of cells.

Adding Cells Together

1. Place the insertion point in the cell where the results should be displayed
2. To start the function, press [=]
3. Point and click the first cell to be added
4. Press [+]
5. Point and click the next cell to be added
6. Repeat steps 4-5 as necessary



7. Press **[Enter]** or **[return]**

10
15
25

Adding a Range of Cells with the SUM Function: Option 1

1. Place the insertion point in the cell where the results should be displayed
2. To start the function, press [=]
3. Type **SUM(**
4. Point and click the first cell in the range to be added
5. Press [:]
6. Point and click the last cell to be added
7. Type **)**

2
5
=SUM(E9:E10)

8. Press **[Enter]** or **[return]**

2
5
7

Adding a Range of Cells with the SUM Function: Option 2

1. Place the cell pointer in the cell where the results should be displayed
2. To start the function, press [=]
3. Type **SUM(**
4. Click and drag the mouse to select the range of cells to be added
5. Type **)**

2
5
=SUM(E9:E10)

6. Press **[Enter]** or **[return]**

2
5
7

Microsoft Excel Advanced II

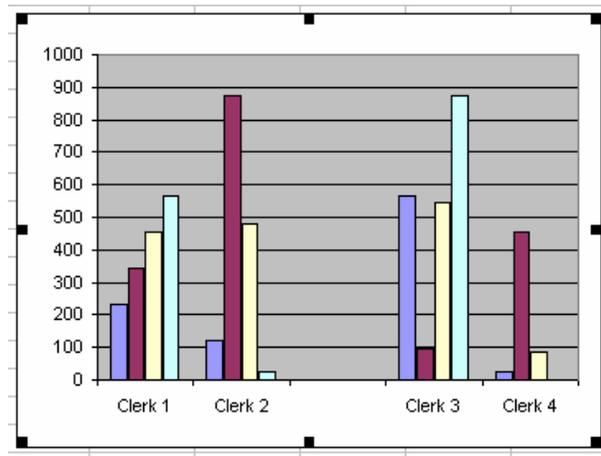
Creating and Working with Charts

Charts are objects on your worksheet that can be moved, resized, and deleted without affecting your worksheet. If the chart is placed on top of information, the information will not be modified or lost.

Bad Data Sample

In the following example, notice how the blank cells in the data series create blank spaces in the chart. The lack of row labels makes it difficult for the reader to understand the chart, because no legend exists to guide them.

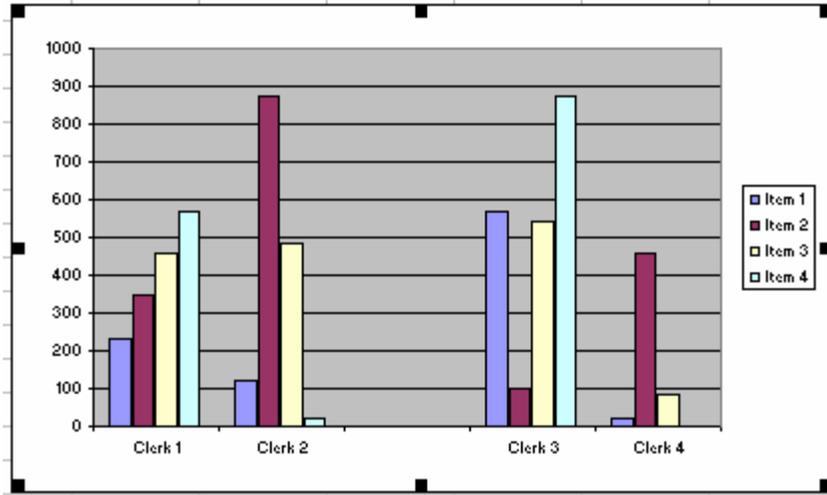
clerk 1	clerk 2		clerk 3	clerk 4
234	123		567	23
345	875		98	456
456	482		543	85
567	23		876	



Good Data Sample

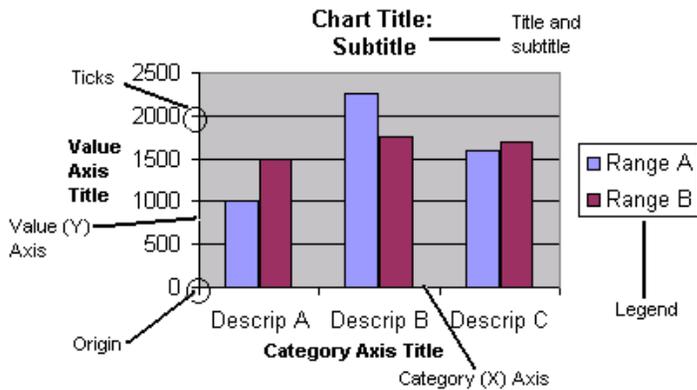
In the following example, notice that no blank spaces exist in the data series, so no empty spaces exist in the chart. The row labels allow a legend that makes the chart much easier to understand.

	Clerk 1	Clerk 2	Clerk 3	Clerk 4
Item 1	323	216	65	841
Item 2	135	321	564	12
Item 3	321	197	301	761
Item 4	401	285	34	657



About Charting Elements

A chart contains several elements, which are illustrated in this graphic.



The following table describes the various elements.

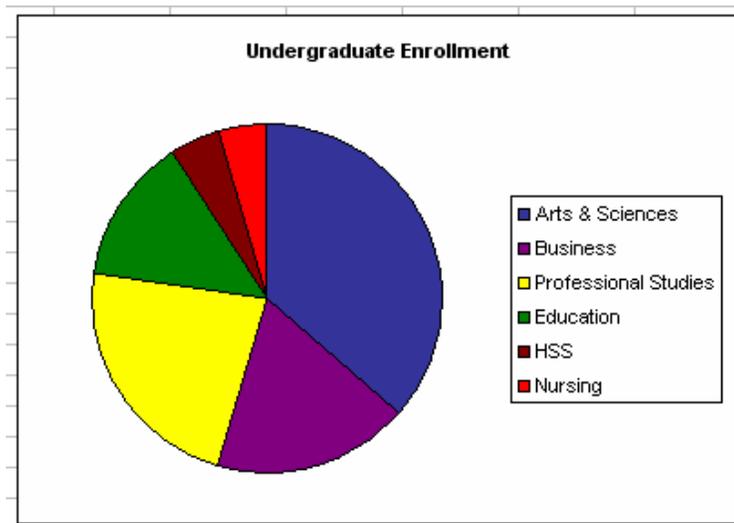
Element	Purpose
Title (Subtitle)	Identifies the chart and frequently includes a date or time period
Category (X) Axis	Identifies the data being charted on the horizontal x-axis. Examples of Category (X) Axis types include dates, projects, and salespersons
Category Axis Title	Identifies the title of the Category (X) Axis
Value	Identifies the data being charted on the vertical y-axis. Examples of Value

(Y) Axis	(Y) Axis types include numbers and years
Value Axis Title	Identifies the title of the Value (Y) Axis
Legend	Identifies the information charted. This is especially important when you have more than one type of information charted. For example, if you have a chart for enrollment by class (freshman, sophomore, junior, senior), a legend will be important for identifying which information relates to what class
Ticks	Ticks, indicating measurement increments, appear on both the y-axis and x-axis and can help improve the readability of a chart. Both y-axis and x-axis ticks are optional
Origin	The origin is the point where the x-axis and y-axis meet. The origin is generally at zero (0) but can be modified

Types of Graphs and Helpful Hints

Pie Charts

Pie charts are best used to compare parts of a whole; in other words, they help divide a group into components. Some factors to keep in mind when creating pie charts include the following:



Limiting the number of slices

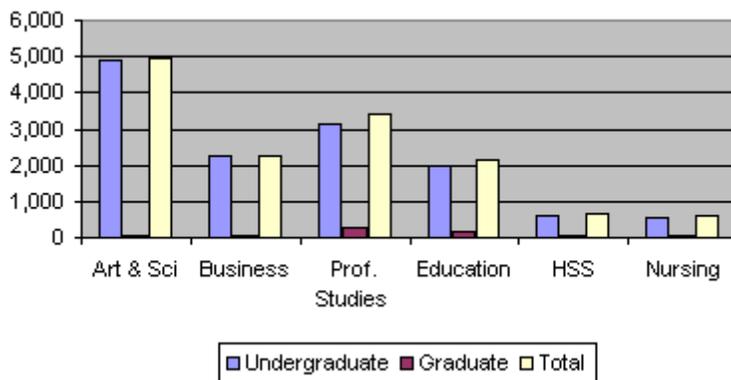
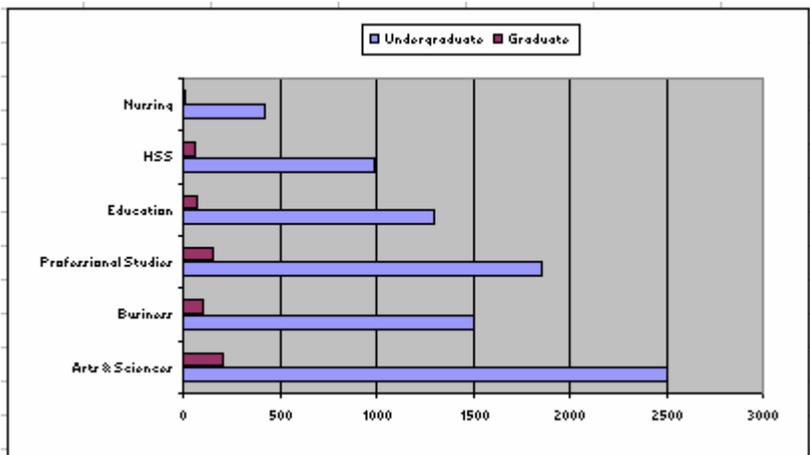
Keep the number of slices to a minimum by combining smaller categories into one. Too many slices will hinder interpretation by making your pie chart appear complicated and cramped; it will also create difficulties for labeling.

Using labels for slices

Try to place labels within slices whenever possible; this will help you create pie charts that are both clear and readable.

Bar Graphs

Bar graphs work best to emphasize the contrast between quantities. Two types of bar graphs can be used: vertical and horizontal. Vertical bar graphs work well for comparing quantities at different times, while horizontal bar graphs compare different quantities when time is not an important consideration. For example, a graph showing student enrollment by year would probably work best in the vertical format, while a graph showing current participation in faculty organizations would be most effective in the horizontal format. Some design considerations to keep in mind when creating either type of bar graph include the following:



Limiting the scale

Make sure your bar graph is kept within a reasonable scale; in other words, try to avoid

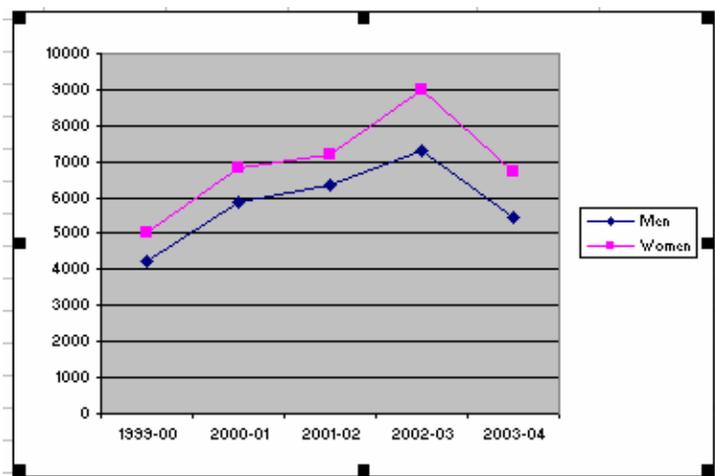
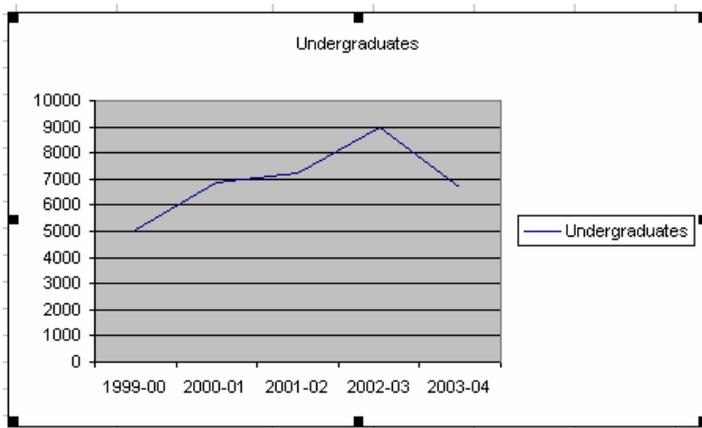
showing three quantities of similar size and one quantity that is drastically larger or smaller.

Enhancing the graph

Consider adding perspective or a drop shadow to your chart for visual appeal, but again, be aware that (as with pie charts) the third dimension can confuse or even mislead the audience. Numerical values placed above or within the bars themselves may help solve this problem.

Line Graphs

Line graphs best indicate the relationship of one variable to another, and they can be created using either straight or curved lines. Which type of line graph you use depends on the type of information you wish to convey: straight-line graphs show specific observation points, while curved-line graphs show general trends. Some design considerations to keep in mind when creating either type of line graph include the following:



Using contrast

Make sure to use lines with sufficient contrast; in other words, create a line that is bold enough to clearly appear to your audience but thin enough to still convey specific information.

Limiting multiple lines

When using multiple lines to compare trends, keep the number of lines to three or less. Comparing more than three trends on the same line graph can create confusion for your audience, especially if your graph is not in color.

Summary

Adhering to the guidelines in this document will help you create charts and graphs that present information clearly. Of course, the three chart formats discussed here are not the only ways to convey numerical data; other formats can effectively portray information as well. The following table provides a quick guide to most of your choices:

Chart Format	Description
Pie	Compares parts of a whole
Bar	Shows contrast between quantities
Line	Indicates the relationship of one variable to another
Area	Indicates the volume relationship of one variable to another
Scatter Plot	Correlates two factors by marking the points where particular events occurred

Getting Ready to Chart

Excel offers several options for designing worksheets along with creating and modifying charts. Even before you make your chart, however, you should consider creating range names for your data. Specifying range names in advance will decrease the potential for errors and enable you to add more data at a later date.

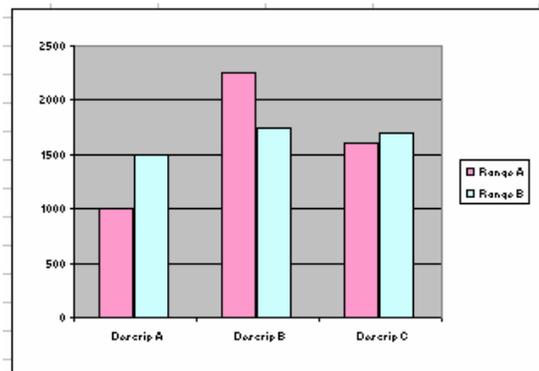
Designing Your Worksheet for Charting

You have two basic options for setting up your worksheet. First, you can design your worksheet so the information to be charted is close together. Second, you can create a summary section for charting. The right option for you will often depend on what the worksheet is designed to do. Often worksheets are designed to track information; later on, charting becomes a secondary purpose. With this type of worksheet, a summary section may be the easiest. You can summarize the detailed data in a different area on your worksheet and make it much easier for charting.

A summary section will include the information to be charted in a contiguous group. The more complete the summary section, the less work you will have to do when creating your chart. Based on the Charting Rules, an organization similar to the following graphic will make it easiest for automatic charting. While this setup may not always be appropriate, keep in mind the format can reduce the amount of adjustments required for your charts.

	Range A	Range B
Descrip A	1000	1500
Descrip B	2250	1750
Descrip C	1600	1700

This sample worksheet section was used to create the following chart. Aside from telling Excel to create a chart and indicating where the chart was to appear, the default setup created the chart.



Charts can be enhanced by modifying the individual chart elements or by adding a new data series. Notice that the chart title and subtitle are not included in the chart. Excel requires that these be added after the chart is created or during the *Chart Wizard* process.

Recommended: Range Names

Before you create your chart, you should create a range name to represent the data on your worksheet. Range names refer to specific groups of cells and are often used for cell references in functions, charting, and printing.

Creating a Basic Chart

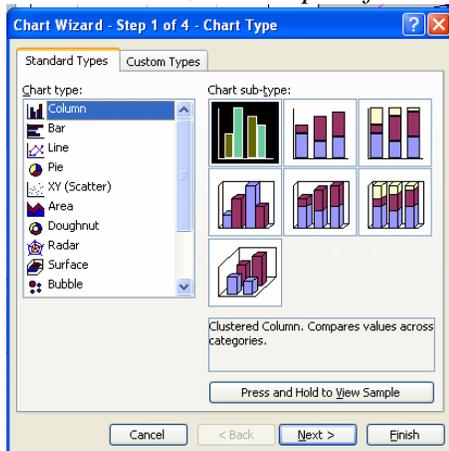
The Excel Charting Wizard makes it easy to create a basic chart. With a few clicks, Excel will create a basic chart you can edit and enhance to meet your needs.

Using the Chart Wizard

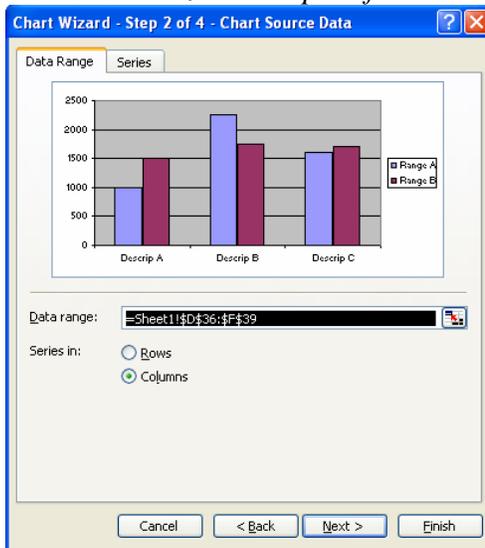
Sometimes the data in your worksheet may not fit the Excel basic chart criteria, or you may not want to spend time creating a summarizing section. Instead of creating the basic Excel chart, you can go through all four steps in the Chart Wizard and add several options to your chart immediately. By using the Chart Wizard, you can alter the chart type, add a title, and specify which direction Excel charts your data.

Using the Chart Wizard: Selecting Your Data

1. Select data to be charted On the *Standard* toolbar, click **CHART WIZARD** 
The *Chart Wizard - Step 1 of 4 - Chart Type* dialog box appears.

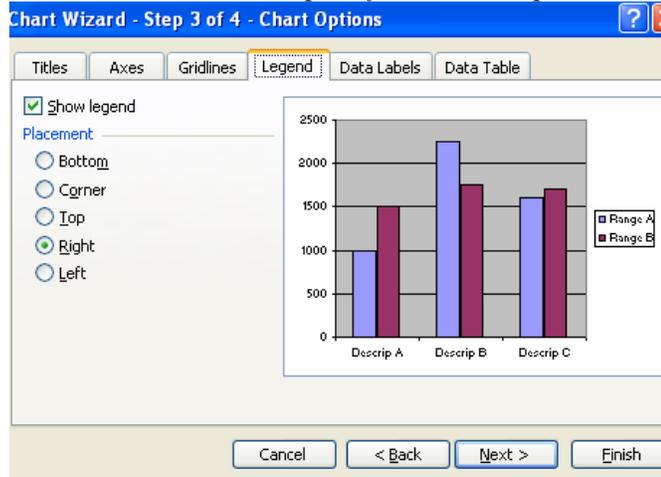


2. From the *Chart type* scroll box, select the appropriate chart type
3. Under *Chart sub-type*, select the appropriate sub-type and click **NEXT**
The *Chart Wizard - Step 2 of 4 - Chart Source Data* dialog box appears.

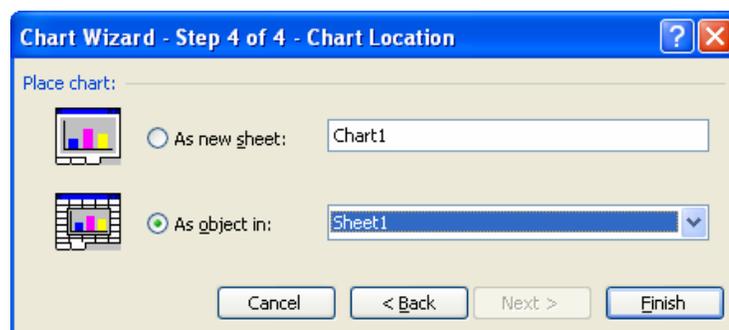


4. Select the *Data Range* tab

5. For *Series in*, select **Rows** or **Columns** and click **NEXT**
The *Chart Wizard - Step 3 of 4 - Chart Options* dialog box appears.



6. Select the **Legend** tab
7. To use a legend, select **Show legend**
*If you are using a pie chart, use labels instead of a legend.
8. To create a title for your chart, select the **Titles** tab
9. In the *Chart title* text box, type the desired title
10. In the appropriate text boxes, type the desired x- and y-axes labels and click **NEXT**
The *Chart Wizard - Step 4 of 4 - Chart Location* dialog box appears.



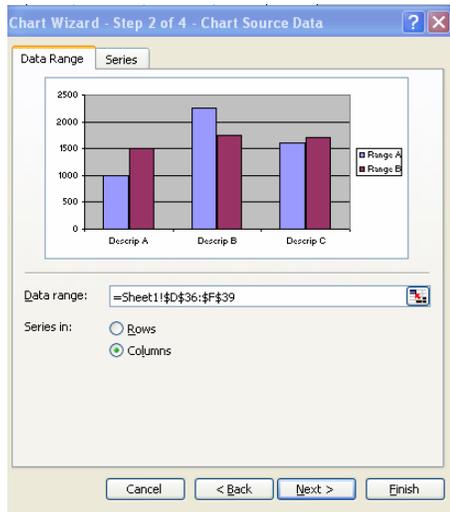
11. To make your chart appear within the Excel sheet,
 - a. Select **As object in**
 - b. From the pull-down box, select the desired worksheet

To make your chart appear as a separate sheet,

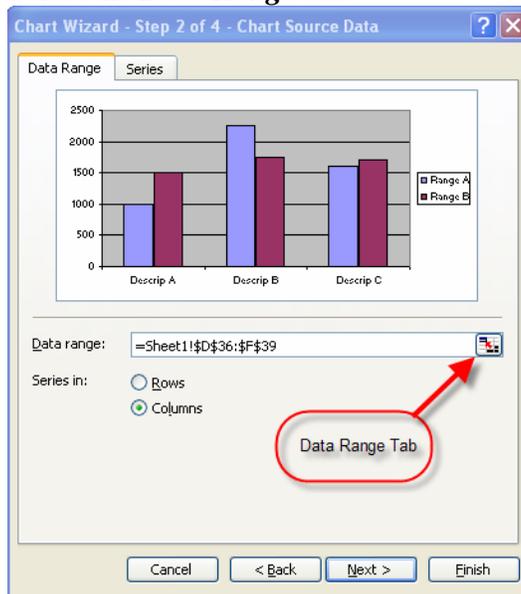
- c. Select **As new sheet**
 - d. **OPTIONAL:** In the text box, type a name for the new worksheet
12. Click **FINISH**
The chart is created.

Using the Chart Wizard: Range Names

1. On the *Standard* toolbar, click **CHART WIZARD** 
The *Chart Wizard - Step 1 of 4 - Chart Type* dialog box appears.
2. From the *Chart type* scroll list, select the appropriate chart type
3. Under *Chart sub-type*, select the appropriate sub-type and click **NEXT**
The *Chart Wizard - Step 2 of 4 - Chart Source Data* dialog box appears.



4. Select the *Data Range* tab



5. In the *Data range* text box, press [=] and type the range name
6. Click **FINISH**
The chart is created.

Modifying a Chart

Once your chart is created, you can modify it to fit your needs or the evolving nature of your data.

Changing the Chart Type

If the default chart type is not appropriate for the information you are charting, you can change it by using the *Chart Type* selection from the *Chart* menu.

1. Select the chart
2. From the *Chart* menu, select **Chart Type...**
The *Chart Type* dialog box appears.
3. From the *Chart type* scroll box, select the appropriate chart type
*To preview your information in any chart before you create it; click **PRESS AND HOLD TO VIEW SAMPLE.**
4. Under *Chart sub-type*, select the appropriate sub-type
5. Click **OK**
The chart type is changed.

Positioning Your Chart

Moving Your Chart

The chart is an object on your worksheet. While your chart may be placed on top of some worksheet information, the information still exists. The chart can be moved anywhere on your worksheet.

1. Select the chart
2. Click and hold the mouse button
3. Drag the chart to the appropriate location
4. Release the mouse button
5. To deselect the chart, click outside the chart

Resizing Your Chart

As you resize the chart, the chart elements are adjusted proportionally.

1. Select the chart
2. Click and hold one of the sizing handles
3. Drag the handle inward or outward
4. Release the mouse button
5. To deselect the chart, click outside the chart

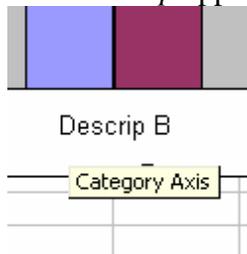
Formatting Your Chart

Adding formatting to your chart can greatly enhance its overall appearance and clarity. Formatting is also a way to emphasize important areas of your chart. Some useful formatting options include colors, patterns, arrows, text boxes, and font types.

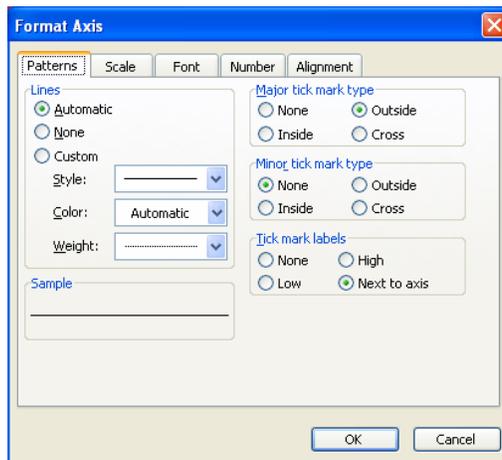
Selecting Chart Elements

The key to formatting a chart in Excel is selecting the correct chart element(s). When you hold your mouse over a certain element, a *Screen Tip* appears, telling you what element (e.g., gridlines, data series) your mouse is hovering over.

1. Hold your mouse over the desired chart element
A *Screen Tip* appears, indicating the type of element.



2. Right click the element » select ***Format (Element Name)...***
OR
Double click the element
The *Format (Element Name)* dialog box appears.



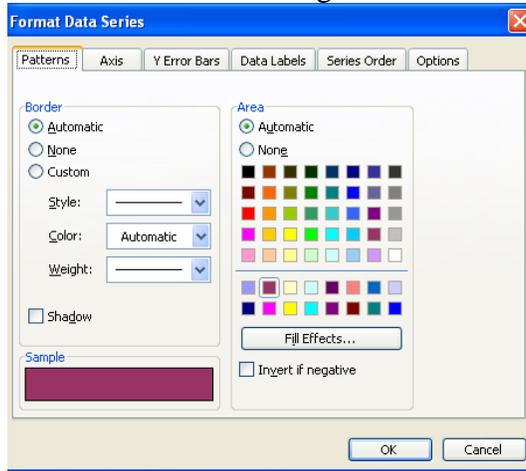
3. Make the necessary changes

Adjusting Chart Colors and Patterns

Colors and patterns can enhance your chart. If you have a black-and-white printer, you should do a test print to make sure the chart is legible. Using patterns instead of colors

can also help enhance the readability of your chart. The patterns should be easily differentiated by the reader of the chart.

1. Select the appropriate chart
2. Access the Format dialog box



3. Make the necessary changes

Working with Chart Elements

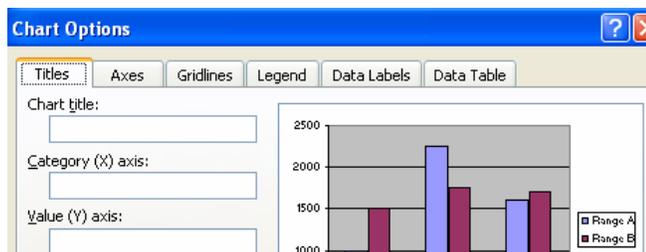
Learning how to use Excel's chart elements can make your charts easier to understand and therefore, convey a more effective message. Titles, legends, and X-axis and Y-axis options can help specify the purpose of the chart, while using gridlines, exploding pie pieces (on pie charts), and adding text boxes can give your chart a helpful visual boost.

Adding a Chart Title

Titles are used to identify the chart for the reader. If you did not assign a chart title in the *Chart Wizard*, you can add the title at any time.

*These instructions assume a chart is already created.

1. Click your chart to select it
2. From the *Chart* menu, select ***Chart Options...***
The *Chart Options* dialog box appears.
3. Select the ***Titles*** tab



4. In the *Chart title* text box, type the desired title
5. Click **OK**
The title is now added to your chart.

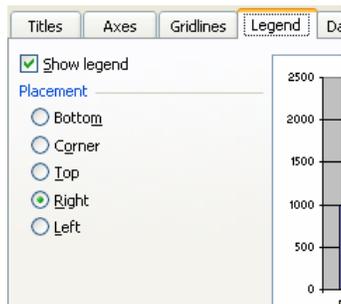
Working with Legends

Legends are used to identify the type of data in the chart.

The legend can be placed anywhere within the chart area, but it is commonly located at the bottom or to the right of the chart. Legend descriptions should be brief but descriptive. In Excel, a legend will be placed in your chart automatically. With the *Format Legend* dialog box, you can change the placement of the legend within your chart; however, you cannot change the labels that are used to identify the data types in your chart without changing the row labels on your worksheet.

Placing the Legend

1. Double click the legend to select it
The *Format Legend* dialog box appears.
2. Select the **Placement** tab
3. Under *Placement*, select the desired legend placement



4. Click **OK**

Working with Axes

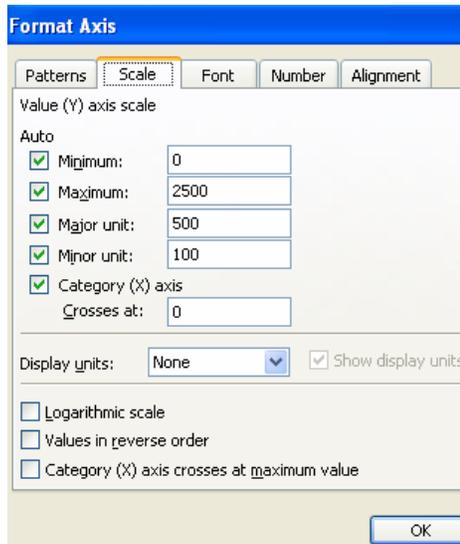
Axis labels are used to identify the information being charted. The scale for both the X-axis and Y-axis labels can be manually adjusted (i.e., you decide the minimum, maximum, and increment values).

NOTE: You cannot adjust the axes for pie charts.

Scaling an Axis

1. Double click the axis you want to adjust
The *Format Axis* dialog box appears.

2. Select the *Scale* tab



3. Make adjustments as desired
4. Click **OK**

Creating Charts with a Percent Scale

While pie charts are appropriate for reflecting percentages of a whole, they are not always appropriate for the information you are charting. To reflect the percentages, you may need to convert the values to be charted into percentages (they should add up to 100%). Excel offers two ways of creating charts with a percent scale: the menu option and the mouse option.

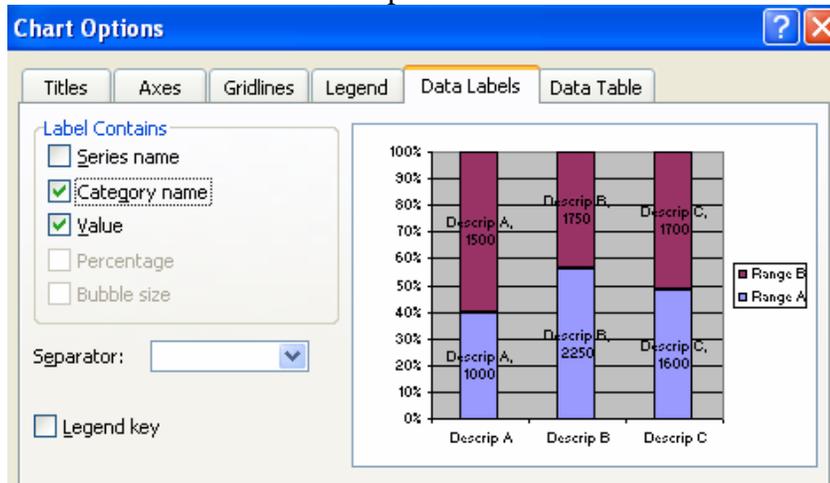
Creating Charts with a Percent Scale: Menu Option

NOTES:

To use this option, you must select a 100% stacked chart.
This option changes all data series.

1. Click your chart to select it
2. From the *Chart* menu, select *Chart Options...*
The *Chart Options* dialog box appears.
3. Select the *Data Labels* tab

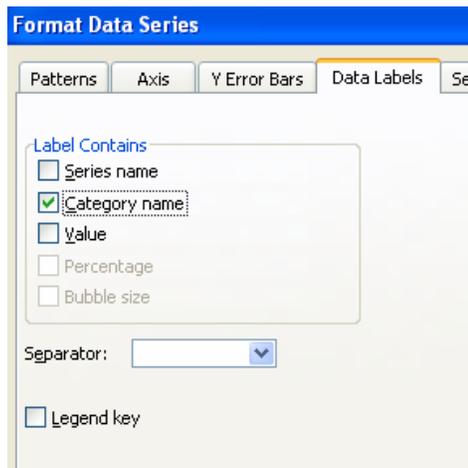
4. Select the desired data label option



5. Click **OK**

Creating Charts with a Percent Scale: Mouse Option

1. Double click the chart series you want to adjust
The *Format Data Series* dialog box appears.
NOTE: Make sure the chart pieces are selected, and not the entire chart.
Otherwise, this option will not work.
2. Select the *Data Labels* tab
3. Select the desired data label option



4. Click **OK**

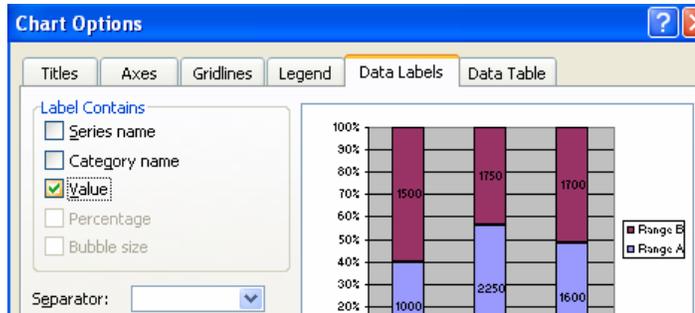
Adding Data Labels to Your Chart

Data labels can enhance your chart by adding useful information. This can be useful if you have a wide or tall chart. However, on some charts the data labels may look

cluttered. Test data labels on your chart, and with other chart types, before using them on your final chart.

To add data labels to your chart, use the following steps:

1. Click your chart to select it
2. From the *Chart* menu, select **Chart Options...**
The *Chart Options* dialog box appears.
3. Select the **Data Labels** tab



4. To display the value for a series, select **Value**
To display the label for a series in the chart, select **Series name**
5. Click **OK**

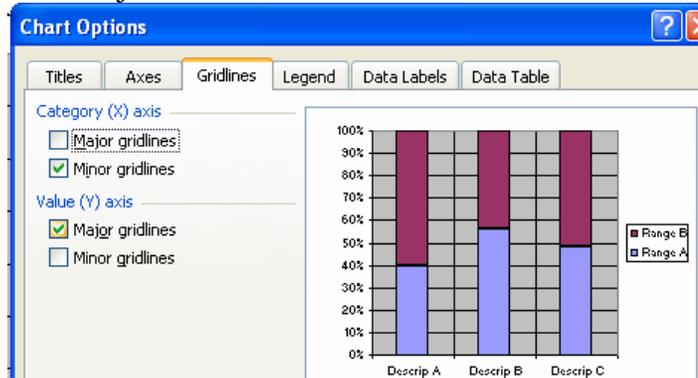
Working with Grids

Grids are used to increase the readability of the chart by helping direct the eye from axis value to the value being charted. This is especially useful if you have a wide or tall chart. You can establish both major and minor grids. Generally, major grids are sufficient.

Inserting Gridlines

1. Click your chart to select it
2. From the *Chart* menu, select **Chart Options...**
The *Chart Options* dialog box appears.
3. Select the **Gridlines** tab
NOTE: This tab will not exist with some charts (e.g., pie charts) that do not use gridlines.

4. Make adjustments as desired



5. Click **OK**

Creating Exploding Pie Charts

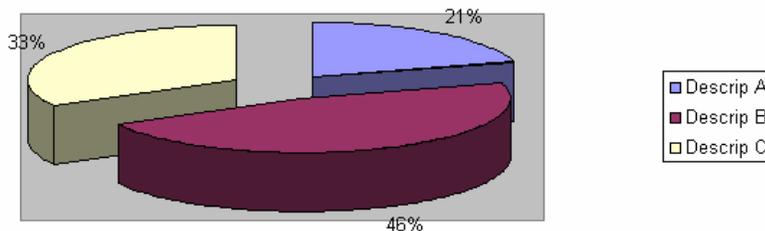
Exploding a pie slice can be used to draw attention to a specific portion of the pie. In Excel, you can drag the pie slices outward to explode all of the slices away from each other.

Creating an Exploding Pie Chart

If you have not yet created your pie chart, use these instructions to create an exploding pie chart.

1. Select the data to be charted
2. On the *Standard* toolbar, click **CHART WIZARD** 
The *Chart Wizard - Step 1 of 4 - Chart Type* dialog box appears.
3. From the *Chart type* scroll box, select **Pie**
4. Under *Chart sub-type*, select one of the exploded pie charts
5. Click **NEXT**
6. Complete your chart

Range A



Exploding an Existing Pie Chart

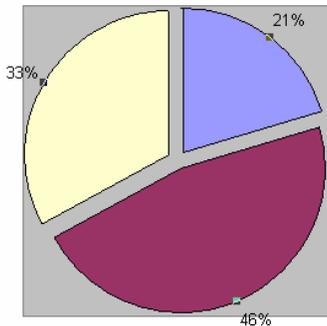
If you have already created a pie chart, you can make it an exploding pie chart by changing the chart type or by manually exploding the pie slices. You can also explode only a single pie slice.

Changing the Chart Type

1. Click your pie chart to select it
2. From the *Chart* menu, select **Chart Type...**
The *Chart Type* dialog box appears.
3. From the *Chart type* scroll box, select **Pie**
4. Under *Chart sub-type*, select one of the exploded pie charts
5. Click **OK**
The chart type is changed.

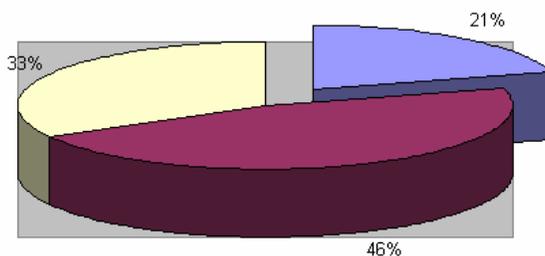
Exploding All Pie Slices

1. Click your pie chart to select it
2. Click any pie slice and drag it outward
The pie slices appear exploded.



Exploding a Single Pie Slice

1. Click your pie chart to select it
2. To select a pie slice, click it once
3. Click and drag the selected slice outward
The selected slice appears exploded.



Charting Extras

Extra charting features offered by Excel can be very useful during the different stages of your project. Some of these options include printing charts and data and copying charts into Word.

Printing Chart and Worksheet Data

Within Excel, you can print entire worksheets, selected data, or the chart alone.

Printing the Data and Chart

You can position the chart next to or below the data, so that both fit on one page. You can use *Page Break Preview* to see what will be printed on one page. Once you are satisfied with what will be printed, use the following instructions:

1. Place the insertion point within the worksheet to be printed except within the chart
2. From the *File* menu, select **Print...**
The *Print* dialog box appears.
3. In the *Print what* section, verify that **Active sheet(s)** is selected
4. Click **OK**
The selected worksheet is printed

Printing Only the Chart

This option allows you to print only the chart, rather than the data table or the entire worksheet.

1. Click to select the desired chart
2. From the *File* menu, select **Print...**
The *Print* dialog box appears.
3. In the *Print what* section, verify that **Selected Chart** is selected
4. Click **OK**
The selected chart is printed.

Copying Charts to Word

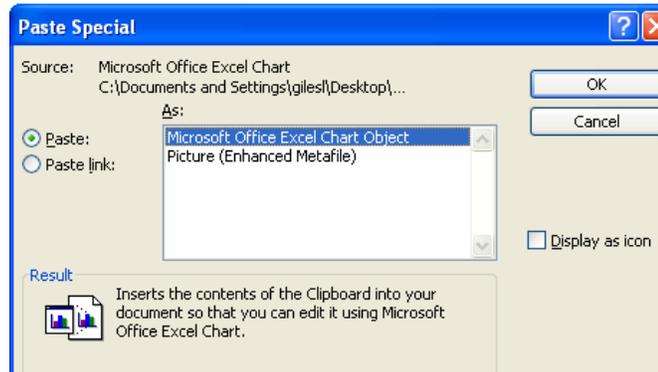
Adding charts to Word is a feature available due to the integration between Microsoft Office programs. When you copy a chart to Word, you can create a link so that if the worksheet is updated, the Word chart will also be updated.

1. Select the chart to be copied to Word
2. From the *Edit* menu, select **Copy**
OR

On the *Standard* toolbar, click **COPY** 

The chart is copied.

3. Open the Word document to which the chart will be copied
4. Place the insertion point where the chart should be pasted
5. In Word, from the *Edit* menu, select **Paste Special...**
The *Paste Special* dialog box appears.



6. To add the chart as a link, select **Paste Link**
To add the chart without a link, select **Paste**

NOTES:

To paste with linking means that when changes are made to the original source chart, the pasted chart will be updated.

To paste without linking means when changes are made to the original source chart, the pasted chart will not be updated.

7. Click **OK**

The chart is pasted to Word.

