

# Excel 2000 for PC



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## Overview

Increasingly, educators are using technology tools to support and enhance classroom instruction and professional activities. Spreadsheet software provides options for creating documents for managing and interacting with data and creating informative graphs and charts. Microsoft Excel is a widely used spreadsheet program. This module is based on the most current version of Microsoft Excel for the PC, Microsoft Excel 2000.

### Objective

To develop familiarity and initial proficiency using Microsoft Excel to create spreadsheet documents.

### Prerequisites

Teachers should be familiar with the basics of their PC and the Windows 98 operating system, including navigating and selecting and opening files.

### Glossary

The following terms are pertinent to learning and using Microsoft Excel.

#### **Data**

Factual information used as a basis for reasoning, discussion, or calculation.

#### **Dialog box**

A box that appears onscreen and requires you to respond to a particular computer issue.

#### **Preferences**

Settings that can be altered by the users to determine parameters such as date formats, font, type, and size.

#### **Spreadsheet**

A grid-oriented application that allows you to create lists, charts, graphs, and other business- and education-related documents that include formulas and functions to automate calculations.

#### **Window**

A frame that contains buttons and menus for executing certain commands.

#### **Workbook**

A file in Excel that can contain a number of worksheets.

#### **Worksheet**

A single page or sheet in a workbook file.

## Welcome to Microsoft Excel

Microsoft Excel is one of several programs in the Microsoft Office 2000 suite. It is useful for creating spreadsheets in support of a number of teaching, learning, and administrative activities.

Spreadsheets are useful for organizing, managing and using data. Once organized within a spreadsheet's grid of rows (horizontal) and columns (vertical), data can be easily sorted, charted, and graphed. You can apply functions to designated data to achieve new results, for example, adding the amounts in a column to get a total, or multiplying the contents of one cell by another to get a total in a new cell.

As a teacher you can create spreadsheets that support your professional productivity by helping you manage information and records. Spreadsheets can be used for many learning activities where data must be collected and used. Your students can also create spreadsheets using Microsoft Excel related to any number of learning activities where data collection, data analysis, calculations, and reporting are required.

The purpose of this module is to assist you in acquiring the fundamental skills needed to create and modify basic spreadsheets using Microsoft Excel.

### Installing Microsoft Excel

Your LAUSD PC came with Office 2000 for the PC preinstalled and ready to use. Generally, Office 2000 is distributed on a CD. The following installation instructions assume you are running Windows 98. Check with your network manager or support technician if you need additional assistance.

#### **Installing MS Excel/Office from a CD**

To install MS Excel or the entire Office suite from a CD, simply insert the Office 2000 CD in your CD drive and follow these steps:

1. The CD should open a start window automatically. Simply respond to the onscreen instructions as you move from window to window in the Installer.
2. If the CD does not start automatically, double-click the My Computer desktop icon then the CD drive icon; a window opens with the contents of the CD. If this does not activate the Office installation process, you may need to double-click the Setup.exe file for Office to initiate the process. Check with your site or district tech support personnel if you encounter problems.
3. Follow any onscreen instructions when the installation is complete, including to restart the computer if necessary.
4. You are now ready to use the installed programs and files for Microsoft Office.

## Locating and Opening Microsoft Excel

Excel uses a particular naming convention for its files. An Excel file is known as a workbook. Each workbook contains a number of worksheets. This terminology is a carryover from the days when accountants actually spread out sheets of financial data across their rather large desktop to manage accounts.

Depending on where and how you choose to open Excel you will either automatically see a new blank workbook or be able to choose from a few Excel templates.

To begin using Excel to create spreadsheets, follow either of these sequences to locate and open it:

### **Locate and Open the Excel Application from the Office Shortcut Bar**

Microsoft Excel, which is installed on your hard drive, can easily be opened from the Office Shortcut Bar that appears along the right edge of your desktop.

1. Point to the New Office Document button on the Office Shortcut Bar and click.
2. The New Office Document window opens. Note that this window contains a collection of files, templates and wizards for ALL the Office applications, including PowerPoint and Word. Depending on which new document you select, the appropriate Office application will open.
3. There are a number of cards each with their own labeled tab. Excel files are found on two of these cards, General and Spreadsheet Solutions.
4. Double-clicking the Blank Workbook icon on the General card opens exactly that.
5. Double-clicking one of the templates on the Spreadsheet Solutions card opens Excel with that template in view, containing some pre-formatting.
6. Click Cancel for now to explore another way to open Excel.

### **Locate and Open the Excel Application from the Start Menu**

Microsoft Excel can also be opened from the Start Menu.

1. Click the Start Menu and point to Programs. A submenu appears.
2. Locate the Microsoft Excel icon in the list of programs and click to open it.
3. Microsoft Excel automatically opens with a new blank document in view.

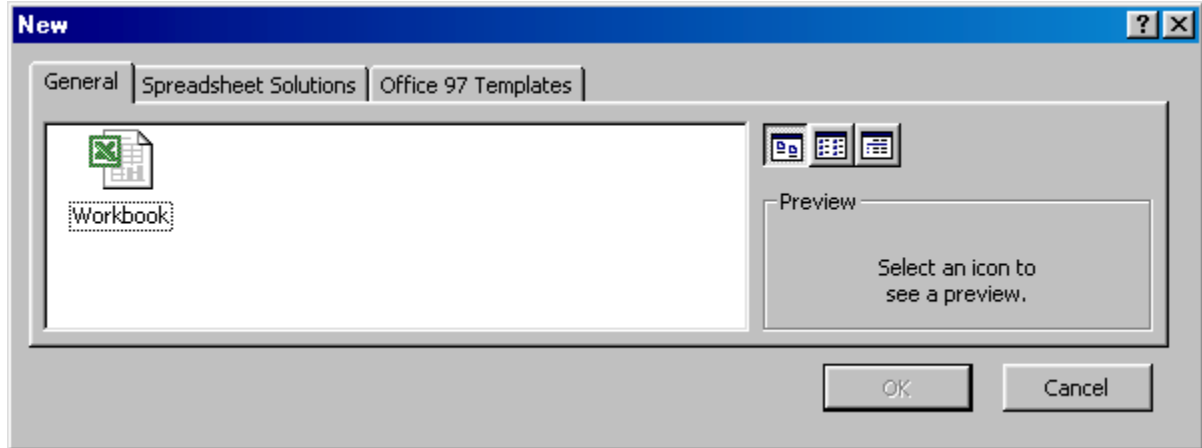
### **Opening Additional Workbooks with Excel Open**

When Excel is already open and you request a new document, the New Excel Workbook window opens. This window is similar to the New Office Document window, but contains only Excel files, including the Blank Workbook file and a few templates.

The following sequences are for opening a file from within Excel.

## Opening a New, Blank Excel Workbook

1. From the File menu select New. The New Excel Workbook window opens.
2. Click the General tab if it is not already selected to bring its card to the foreground.



**Excel New Workbook Window, General Card with Workbook File**

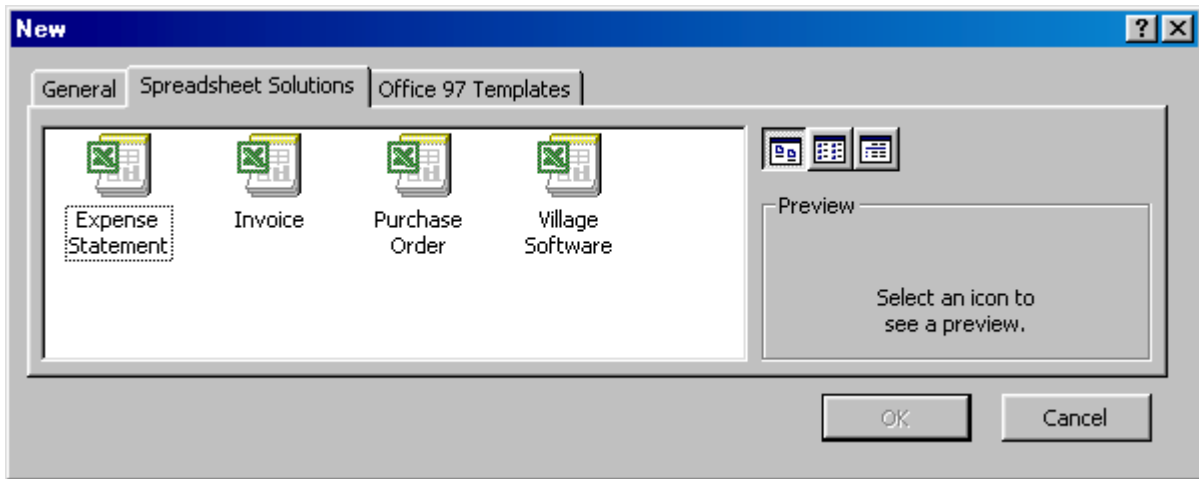
3. Double-click the Workbook icon. A new blank workbook opens.
4. Alternately you can click the New Document button on the Standard Toolbar to open a new workbook.

When you open a new workbook, you get a set number of worksheets. (Excel's default is three worksheets). How much work can you put into an Excel workbook? Well, workbooks can contain up to 255 worksheet pages, and each worksheet can contain up to 256 columns and 65,536 rows, probably more than enough to crunch your numbers! Remember that you can add worksheets as you need them.

## Opening a New Excel Workbook Using a Template

Templates are files that contain formatting and sometimes “placeholder” content. You simply update any generic content and add your own. Excel offers a few templates.

1. From the File menu select New. The New Excel Workbook window opens.
2. Click the Spreadsheet Solutions tab to bring its card to the foreground if necessary.



**Excel New Workbook Window, Spreadsheet Solutions Card with Workbook File**

3. Review the available options. Click once on any template to see a preview of it in the Preview pane.
4. Double-click any template to open it.

## Opening Existing or Microsoft Excel Workbooks

If you have already created Microsoft Excel documents or if someone gives you files that have been created in Microsoft Excel, you can open the application by simply double-clicking the icon for the specific Microsoft Excel file where ever it is on your hard drive or on a network.

If Microsoft Excel is already open, you can also open any existing Excel document by selecting Open from the File menu, navigating to the specific Excel file you want to open, selecting it and either double-clicking it or clicking OK.

Likewise, you can open a new file by selecting New from the File menu, or by selecting Project Gallery from the File menu and returning to the Project Gallery to select and open a file.

## Using Excel's Help Resources

Microsoft Excel provides Help resources to assist you as you use Excel. These resources can be accessed from the Help menu and include the Office Assistant/Microsoft Excel Help and Help on the Web.

It is worth mentioning that Excel is a sophisticated program. To learn to use its basic features takes only a little time, but to master its tools and capabilities is a long term pursuit. As you use Excel, you will decide the arc of your learning curve. As you learn Excel, the Help resources can be of great benefit.

### About the Microsoft Assistant and Microsoft Excel Help

When you first open Excel, you will likely see the Office Assistant, which opens in its own window. Think of the Office Assistant as a helper and an entry point to the Microsoft Excel Help files. A few key points about the Office Assistant:

The Office Assistant can be turned on and off (it is on by default) by using a command in the Help menu.

When the Office Assistant is turned on, it can be in view or hidden.

When the Office Assistant is turned on, whether in view or hidden, it will provide you access to the Microsoft Excel Help files (instructions to follow).

When the Office Assistant is turned off, selecting Microsoft Excel Help from the Help menu takes you directly into the Help files.

### Using the Office Assistant to Obtain Help

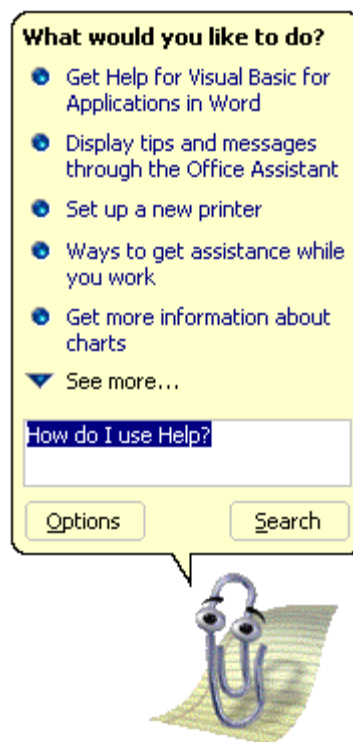
The Office Assistant will help you narrow your search for information and guide you toward the appropriate files in Microsoft Excel Help. Follow these steps:

1. Be sure the Office Assistant is turned on. (It will either be visible onscreen, or if hidden, the command Turn Assistant Off should appear in the Help menu).
2. If the Office Assistant is in view, simply point to it and click. If the Office Assistant is not in view, select Microsoft Excel Help from the Help menu and the Assistant will appear. Point to it and click.
3. A dialog box opens with highlighted text.
4. Type a word, phrase, or question, for example, How do I use help?



**Office Assistant with Dialog Box**

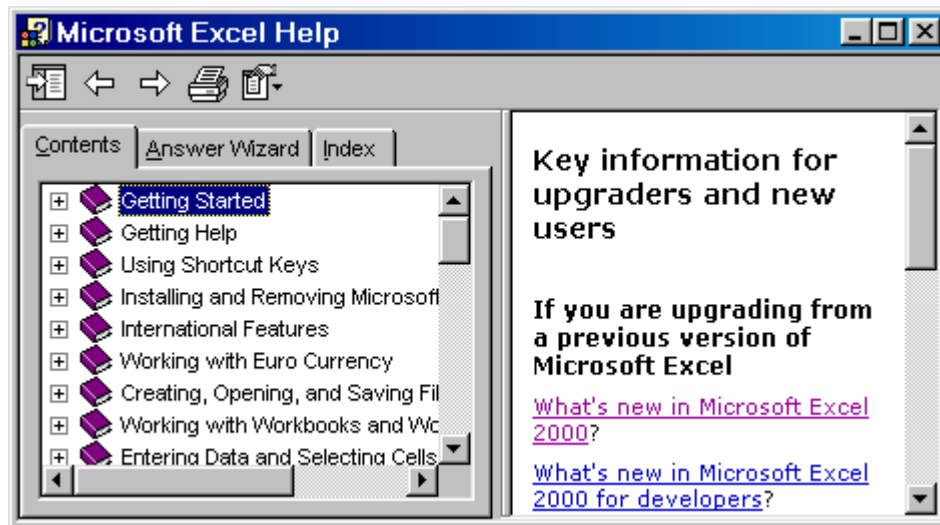
5. Click Search. A window with a number of choices opens, which allows you to narrow your search by selecting the most appropriate topic.



**Office Assistant and Dialog Box of Options**

6. If necessary, you can reword your search to obtain another list of options. Otherwise, select the most appropriate choice from the list by clicking the blue bullet to the left of your choice.

The MS Excel Help window opens in the Contents view, with information related to your choice.



**MS Excel Help Window**

Note that the Help window is divided into two panes, with categories (and subcategories and topics) on the left, and actual help content displayed towards the right.

7. Click a + sign or double-click the book icon by any category to view subcategories and topics.
8. Click a question mark icon representing a topic of interest in the left frame. Note how the content changes in the right frame.
9. Read the Help content at right. Click any blue, underlined hyperlink to “jump” to a related topic.
12. Use the buttons at the top of the window to navigate and change views or to print the contents of the Help window.



**Buttons in the MS Excel Help Window**

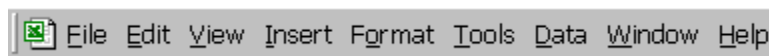
13. Click the back and forward buttons to navigate backward or forward through files you have selected.
14. Click the Index button to search for help topics alphabetically.
15. Click the Search button to initiate a new search.

# Organization of the Microsoft Excel Workbook Window

Becoming familiar with the layout and location of available tools in Excel will increase your ability to use Excel effectively.

## Menus

The following graphic shows the menus available in Excel.



Menus Available in Microsoft Excel

Think of these menu titles as headings for a category, with related commands organized within each menu. For example, commands related to working with files, such as New File, Open File, Save, or Print are organized under the File menu.

## Toolbars

Excel has a number of toolbars that contain buttons useful for executing commands. Pictured below is the Standard toolbar, which includes buttons for the most basic commands in Excel. If you point to a button without clicking, a small popup window opens that tells you the name, and essentially, the function of that button.



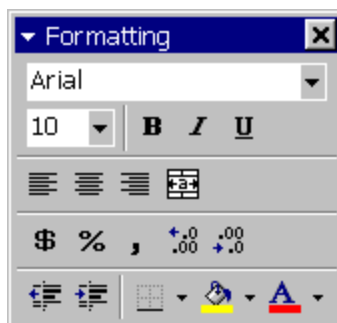
Standard Toolbar



Toolbar Button with Popup Description

## Palettes

A toolbar can also be transformed into a palette or floating window to provide you access to commands. At the left of each toolbar is a small vertical line. Pointing to this line changes the pointer into a four-way arrow. Pressing and dragging the toolbar onto your document window changes it to a palette. Using a toolbar as either a toolbar or a palette is a matter of personal preference.



Formatting Toolbar Viewed as a Palette

## Worksheet Tabs

Each workbook can contain a number of worksheets. At the lower left of the workbook window are tabs that you can click to bring forward a particular worksheet.



**Worksheet Tabs at bottom of Excel Worksheet window**

Note also that there are scroll buttons to use when you have more worksheets than fit within the workbook window. Use these scroll buttons to scroll through all the worksheets until you arrive at one you want to work with.

## Rows, Columns, and Cells

Spreadsheets work within a row and column format. Note that both rows and columns have headers, which identify the row or column and which you can click to select the entire contents of a particular row or column. Columns are identified by letters and rows are identified by numbers. The intersection of a row and column results in a cell. For example, column B and row 2 would intersect at cell B2.

	A	B	C
1			
2			
3			

**Rows and Columns and a Selected Cell**

An Excel worksheet window has a number of primary parts. As in all windows, there are scroll bars and scroll arrows that allow you to navigate up and down, and left and right through the various areas of your worksheet.

## Formula Bar

Another important toolbar in Excel is the Formula bar, which provides an area for working with formulas (more on this later).



**Formula Bar**

To select additional toolbars to view and use, from the View menu, select Toolbars, then select or deselect a toolbar as active. A checkmark indicates an active toolbar.

## Navigating Within Excel

Spreadsheets can easily grow to become quite extensive. Being able to navigate smoothly and efficiently is particularly important in Excel.

### Navigating Using Point and Click

Perhaps the easiest and most obvious way to navigate within your worksheets is using your mouse. Point and click to insert your cursor into any cell. An active cell is denoted by a border around the selected cell. Note that the pointer/cursor takes on one of three shapes depending on where it is being used.

When pointed at menus or scroll bars, it appears as the typical arrow-shaped pointer.

When pointed at cells or headers, it takes on the shape of a cross or plus sign.

Finally, when pointed at the text field in the formula bar, it becomes an I-Beam, the conventional text cursor.

### Navigating Using the Arrow Keys

You can use the arrow keys on your keyboard to move from cell to cell. The arrow direction you choose is the direction the cursor will move. Press an arrow key once to move one cell. Hold the arrow key down to move continuously through a number of cells. When you get to the last cell in view in any direction, continuing to hold down an arrow key will cause the worksheet to scroll in that direction.

### Navigating Using Key Commands

You can use key commands to navigate.

Pressing the Tab key moves you a cell to the right while pressing Return moves you down a cell.

Pressing the Shift-Tab combination moves the cursor left a cell, while pressing the Shift-Return command moves the cursor up a cell.

There are a number of other key commands, both single key and key combinations which you may want to learn and use for navigation as you expand your facility using Excel. To access a reference of these commands within Excel, follow these steps:

1. From the Help menu, select Microsoft Excel Help to access the Office Assistant.
2. Point and click once on the Assistant which opens the What would you like to do? dialog box.
3. Point and click in the field for your question and enter the following phrase: “navigate using key commands”.
4. From the returned list of results, click Use shortcut keys in Microsoft Excel. This will take you to a list of the various shortcut key categories.
5. Select the one for Move and Scroll to view the various shortcut key commands for navigation.

In Excel, you may start by working on a single worksheet in a workbook, however, as your work expands, you will begin to use multiple worksheets within a workbook. To navigate between worksheets, simply click on the tab at the lower left of the worksheet window to access the desired worksheet.

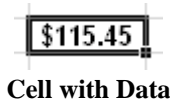
One other way to navigate is using the Go To option in the Edit menu. Use this option to enter the location of a particular cell or worksheet you wish to go to, or even to a particular cell in a particular worksheet by typing in the tab name, an exclamation point, and then the cell name.

## Entering Data

Certainly a main activity in Excel is entering data into a workbook. This section covers techniques for entering data.

### Point, Click, and Type

Point your cursor to a desired cell and click to insert the cursor in that cell. Type to enter data into the cell. The text also appears in the formula bar as you type.



Cell with Data



Note that when you click to insert the cursor into the data in the Formula Bar, Cancel (red X) and Enter (green checkmark) buttons appear. You can cancel your entry by clicking the Cancel button or pressing the esc (Escape) key, or enter it by either clicking the Return button or moving out of the cell with a mouse or key command.

### Enter or Edit Data in the Formula Bar

You can also enter data in the data entry field in the Formula Bar. This field and a selected cell function similarly. You can insert your cursor into either one to enter new data or to edit existing data. (For this choice, your Options must be set to allow editing within a cell, which they are by default.)

### Entering Numbers

Entering numbers with related symbols, such as dollar signs and percentage signs, allows Excel to interpret and apply a particular number format to that cell. For example, if you enter 75%, Excel will interpret that to be a number using the percentage format. You can also enter numbers without any symbols into a number of cells and then apply a format to one, many, or all the cells. For example, if you were working with dollar amounts, instead of entering the dollar sign for each cell entry, you could enter the numbers and then apply the format.

### Entering Text

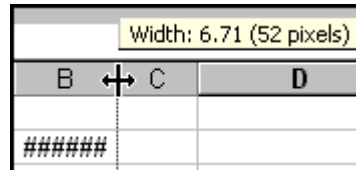
Enter text simply by selecting a cell and entering the data either directly into the cell or in the data entry window. Text can contain combinations of letters, words, numbers, and symbols.

### Entering Dates and Times

Both databases and spreadsheets work with standard types of formats for numbers, dates, and times. You can enter date and time information into Excel cells. As is true for numbers, if you enter the data with valid formatting, Excel will recognize the formatting and autoformat that cell. You can also apply formatting to a number of cells using the Format menu.

## The ##### Dilemma and Re-sizing Columns and Rows

The first time it happens, you may panic. You enter data into a cell but all that shows up is a string of number symbols (#####). Did you lose your data? Is the program crashing? No, the size of the cell is simply too small to contain the amount of data you have entered. The solution: Point your cursor to the dividing line between columns in the column header. The cursor changes to a dark, bi-directional arrow. Press and drag to resize the column until it is large enough to contain your data. You may also want to modify your font size to help with viewing data within cells.



Resizing column width

## Editing Data

Once data is in your spreadsheet, you will likely find the need to edit it. This section covers techniques for editing data in your workbook.

### Editing Using the Formula Bar or in a Cell

Click in the cell containing the data you want to edit. To edit in the cell, double-click in the cell then click once to insert the cursor at the point you wish to edit. Remember that the Edit in Cell preference must be active. Press Return to complete the task. Alternately, after selecting the desired cell, place the cursor over the contents in the Formula bar, then click to insert the cursor and begin editing.

### Clearing Data from Cells

Working with spreadsheets, you will encounter the need to clear or erase text from cells or to delete cells altogether.

#### **To clear the contents of a cell without moving any cells on the worksheet:**

1. Select the cell(s) you wish to clear.
2. Right-click then select Clear Contents from the popup menu. This clears the cell contents, formats, and comments, but leaves the cells where they are.

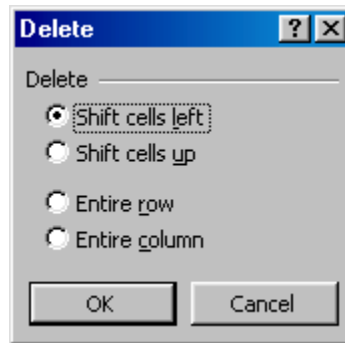


**Popup Menu with Clear Contents Selected**

#### **To delete a cell and its contents and shift other cells to fill in:**

1. Select the cell(s) you want to delete.
2. Right-click then select Delete from the popup menu.
3. A separate window opens asking you which direction you wish to shift the cells. Make your

selection based on the result you wish to achieve. This may take some practice to get used to.



**Delete Cells dialog box**

4. Note that you can also delete the contents of a cell without any cells moving by selecting the cell(s) and pressing the Delete key or Backspace key.

## Copying and Moving Cells and Data

As your work in Excel expands, you will also encounter the need to move data from one portion of a worksheet to another. Three main ways to move data around in Excel are:

- Cut, Copy, and Paste
- Drag and Drop
- Copying Data with Fill and AutoFill

### Cut, Copy, and Paste

Like so many other programs, you can select content then cut or copy it to paste to another location. First select the cell or range of cells you wish to move. (Note that you can also select entire rows or columns to cut/copy and paste by clicking the row or column header.) Then using either the key command (Ctrl-X for cut or Ctrl-C for copy), the Edit menu, or the right-click popup menu, select cut or copy to place a copy of your selection on the clipboard.

Remind yourself of the difference between cutting and copying. Notice that a highlighted, dashed line moves around your selection. Choose the desired destination for your data. Paste/place the data again using either a key command (Ctrl-V), the Edit menu, or the popup menu. Note that while the highlighted lines are still there that you can repeat the command as often you like. Remove the highlights by pressing the esc key or by double-clicking in an empty cell.

### Drag and Drop

Select a cell or range of cells you want to move. Point your cursor to the border of the selection until the cursor becomes an arrow. Press and drag the selection to the desired location and release.

### Copying Data with Fill and AutoFill

Use these two features to easily complete data sequences.

#### **Use the Fill handle to take data in an original cell and copy it to a selection of adjacent cells:**

1. Enter data into a cell or cells. Select the cell or cells you wish to copy to adjacent cells.
2. Move your cursor to the “handle” at the bottom right corner of your selection until it changes to a dark cross.
3. Click and drag your selection over the empty cells you want to fill in with your selection. The data automatically fills in.

#### **Use Excel’s AutoFill to extend a pattern through a number of cells:**

1. Enter data into three consecutive cells, with the number 1 in the first cell, 2 in the second cell, and 3 in the third cell.
2. Use your cursor to select all three cells.

3. Move your cursor to the “handle” at the bottom right corner of your selection until it changes to a dark cross, then click and drag over as many additional cells as you want and watch as Excel automatically extends the sequence. This process works for many recognizable patterns, such as months of the year and number sequences. Experiment with some other sequences.

# Creating and Using Formulas

Formulas are at the heart of Excel's functionality. This section covers the use of formulas.

## AutoSum

Excel uses formulas to perform operations and calculations on data contained in the cells of your spreadsheet. Formulas allow you to execute common math operations, perhaps the most common being addition. Accordingly, Excel has an AutoSum feature that allows you to easily apply an addition formula in your spreadsheet.

Say your students were creating a budget or expense record for lunch. They could use AutoSum to add the cost of a four-item lunch in a spreadsheet.

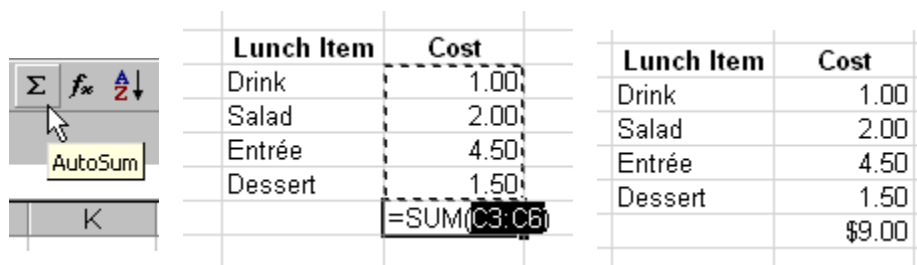
### To use AutoSum to add the total of a number of cells:

1. With Excel open, begin in any cell you like. Enter Drink, then press Return (to go to the cell immediately below). Enter Salad then press Return. Enter Entree then press Return. Enter Dessert then press return.
2. Next, insert your cursor into the cell just to the right of the cell containing Drink. Enter a dollar amount (Ex: \$1.00). Enter dollar amounts for the other lunch items as well.

Lunch Item	Cost
Drink	1.00
Salad	2.00
Entrée	4.50
Dessert	1.50

Initial List of Lunch Items

3. Next, select the cell just below the price for dessert then click the AutoSum button from the Standard Format toolbar. Excel will know you want to total the dollar amounts just above it, highlighting those cells and automatically placing the formula in that cell. Press the Return key to show the total amount.



Clicking the AutoSum Button, the AutoSum's Guess at Cells to Add, and Final Total Amount

Note: You can modify which cells are used in the formula before finalizing the formula by selecting a different range of cells before pressing the Return key.

## Point & Click and Typing

Copy and paste your lunch menu, **without the AutoSum formula/meal total**, to a nearby location in the spreadsheet. Now let's create a formula by pointing and clicking.

### To create a formula by pointing and clicking using the Formula bar:

1. In the new location, again select the cell directly below the cost for dessert.
2. Click the = sign in the Formula bar. This will place the = sign in the Formula bar data entry window. You will see a pulldown menu appear to the left of the Formula bar.
3. From this menu, select SUM. Excel will sense that you want to total the cells containing the lunch prices and automatically place that range in the formula. Again, you can modify the range of cells to be addressed by the formula before finalizing it. Be aware that you can also simply type the formula into the data entry window using the = sign, followed by the SUM command, immediately followed by a range of cells. An example would look like this: =SUM(A1:A7)

	A	B	C
1			
2		<b>Lunch Item</b>	<b>Cost</b>
3		Drink	1.00
4		Salad	2.00
5		Entrée	4.50
6		Dessert	1.50
7			\$9.00

Sum Range of Cells in Formula Bar

## Inserting Cells, Rows, and Columns

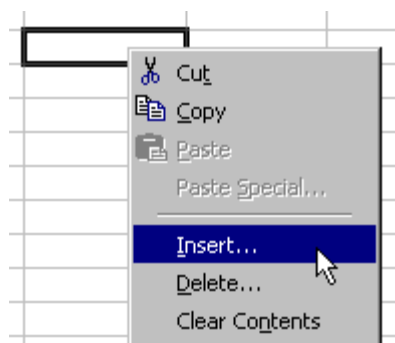
Sometimes when you have a spreadsheet in progress, you will encounter the need to add cells, rows, or columns into the middle of your work. Likewise you may need to remove cells, rows, or columns. Excel allows you to insert and/or delete these elements.

One caution, however: Inserting cells into the middle of existing data causes cells in that area to be shifted right or down. If your worksheet contains formulas that depend on the location of cells, and you move those cells in the process of inserting new cells, you will create errors in your worksheet calculations.

To insert a cell or range of cells, select the cell(s) you want to displace either right or down. Select the number of existing cells equal to the number of new empty cells you wish to replace them with.

### To insert a cell:

1. Select a cell and type the number 1. Press the Return key. Type the number 2 and press Return. Finally, type the number 4 and press Return. You should now have the sequence 1, 2, 4.
2. Remembering you need a “3” in the sequence, you decide to insert a cell. Select the cell with “4” in it. From the Insert menu, select Cells.
3. A window opens asking which direction you want the cells to shift when the new cell is inserted. Select Shift cells down and click OK.
4. The cell with “4” moves down, and the newly inserted cell remains selected. Type “3” to complete your sequence.
5. Now say you needed three new cells exactly where the cells containing 1-3 are. Select those three cells by pressing and dragging through them.
6. Next, from the contextual menu (right-click) select Insert. Decide whether you want to shift those numbers to the right or straight down. When you press OK, Excel inserts the new cells and shifts the existing ones.



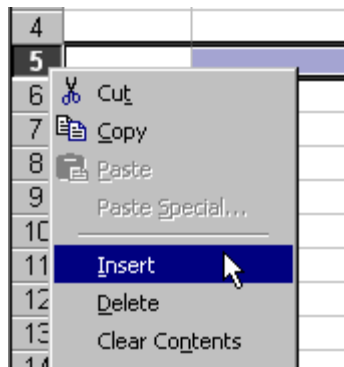
Inserting a New Cell

### To insert a row or column:

Perhaps the easiest way to insert a row or column is to click on the header for the row or column you want to move as you insert a new one.

1. For example, click the row header “5” for row 5.
2. From the contextual menu, select Insert.

Excel automatically places a new row as Row 5 and moves the former Row 5 and beyond rows down.



**Inserting a New Row**

Use this same technique to insert additional columns. Understand that you can insert multiple columns or rows with the insert command.

1. To select all three columns, click column E and drag over columns F and G.
2. From the Insert menu, select Columns and watch as Excel adds three new columns and shifts columns E, F, G, and all subsequent columns to the right.

### Deleting Cells, Rows and Columns

Deleting cells, rows, and columns is the mirror opposite process of inserting these elements.

1. Choose the cell or cells you want to delete. From the Edit menu or the contextual menu, select Delete.
2. A window opens asking you which direction you want to shift other cells to fill the void created by your deletion. Press OK.
3. To delete rows or columns, select the number of rows or columns, then select Delete from the Edit menu. Excel deletes your selected rows or columns with no dialog window.

## A Sample Classroom Spreadsheet

Spreadsheets can be used in several ways to support classroom learning. Here are two main examples:

### Scoring/Grading

Excel can be used to track scores for student work, whether using rubric numbers, percentage, or letter grades. Some teachers have even used Excel to create their own gradebook.

### Tracking Data

Excel can be used to store and manipulate data related to classroom projects and student learning. Example: The changes in soil moisture and temperature levels in garden soil each month for a year.

For an exercise, let's create a simple score tracker for three assignments for a fictional class of four students.

#### **To use an Excel spreadsheet to track student scores:**

1. Begin on a blank worksheet in Excel. Select and start working in cell B2.
2. Type Score 1 into cell B2, press the Tab key to move to cell C2, then type Score 2, then press the Tab key again to select cell D2, then type Score 3.
3. Select cell A3 and enter a fictitious student name. Press the Return key to move to cell A4 and enter another name. Repeat this process until you have 4 student names in cells A3-A6.
4. Using numbers from 1-100, enter values for each student for all three scores.
5. Select cell E2 and type the word Total, then tab to cell F2 and type the word Average.
6. Select cell E3 and click the AutoSum button from the Standard toolbar. The three cells in the range B3:D3 should be highlighted. Press the Return key and Excel automatically totals the scores. To apply this formula to the remaining three students, be sure cell E3 is selected, then place your cursor over the black, square handle at the lower right corner of the cell. Click and drag over cells E4:E6. The score totals for the other three students opens.
7. Select cell F2 and type in the word Average. Press the Return key to move to cell F3. You will now learn another technique for applying a function, which is simply a pre defined formula, in this case, an average of the scores for each student.
8. With cell F3 selected, click the Paste Function button on the Standard toolbar (the little fx next to the AutoSum button). The Paste Function window will appear.
9. From either the All or Math & Trig categories on the left (or the Most Recently Used, if the AVERAGE function has been recently used), select AVERAGE and click OK.

10. The AVERAGE function window opens, with Excel's best guess in the Number 1 field for which cells you wish to include in your average. But because we do not want to include the total score number in our average, change the range from B3:E3 to B3:D3. Leave the Number 2 field blank, then click OK.

11. The average of the three scores for your first student should be calculated. As we did for total score, select the handle for cell F3 then drag it over cells F4:F6 to obtain the average score for each student.

From this exercise you get the basic idea of how Excel can be used to work with data. Spreadsheets can range from fairly simple to extremely complex depending on the user's ability to use Excel's features.

Keep this spreadsheet open as we will use it next to explore how to sort data and use Excel's charting capabilities.

## Sorting Data in an Excel Spreadsheet

You may want to do some simple sorting of data. Let's use our class score spreadsheet to learn how to sort data. For example, assume you want to sort from highest to lowest total scores for your four students.

### **To sort by a particular column in your spreadsheet:**

1. Select the data, including column headers, you want to sort. In our example, select the rectangle represented by A2 (upper left) to E6 (lower right). The names of the students, the three scores, and the final scores should all be highlighted.
2. From the Data menu, select Sort. The Sort dialog window opens.
3. In the top section, from the pulldown menu, select Total Score.
4. For total scores to be displayed lowest to highest, select the Ascending radio button, or select the Descending radio button to display total scores from highest to lowest. (Be sure to specify at the bottom of this window that "My list has" a header row).
5. Click OK. The data will sort the way you have specified.

## Using the Chart Wizard to Create a Graph

Excel provides the capability to create a variety of charts to represent your spreadsheet data. You can use charts to visually represent your data and to support the viewing of trends and data analysis. Excel provides numerous formatting options for creating and enhancing the appearance of your charts. Let's start by using the Chart Wizard to easily create a basic bar graph representing the performance of our fictitious students on their three tests.

### To create a chart for a specified set of data using the Chart Wizard:

1. Select the student names, the headers for the score columns (Score 1, Score 2, Score 3), and each student's score for these three tests. DO NOT include the total scores. Another way to say this: Select cells A2:D6.

	A	B	C	D
1				
2		Score 1	Score2	Score 3
3	Javier	90	87	88
4	Kelly	89	92	91
5	Lisa	96	94	95
6	Chris	97	94	92

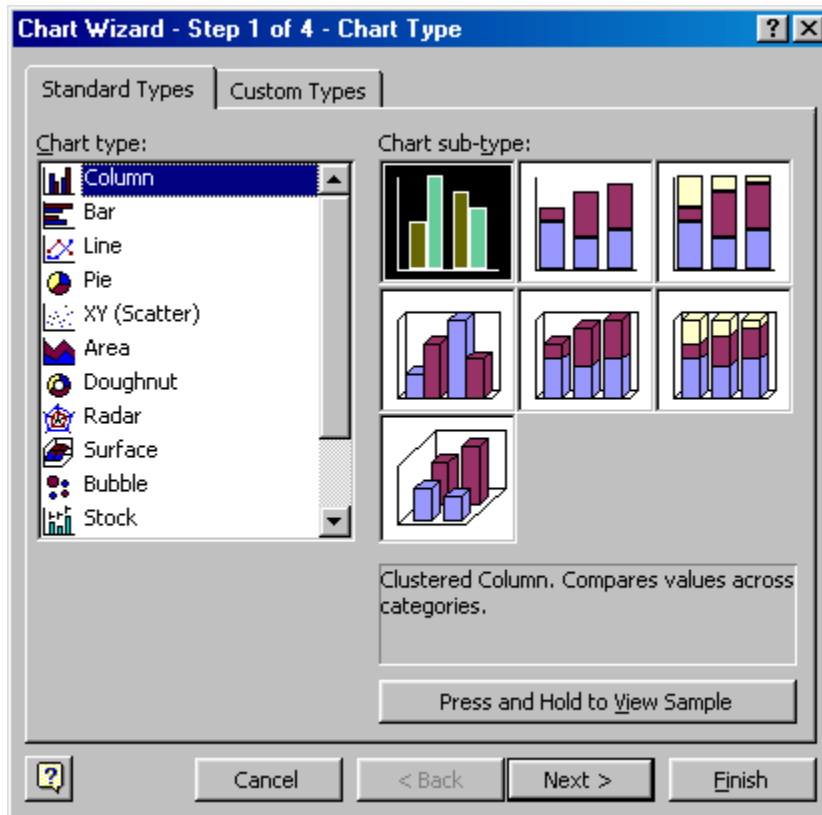
Sample Student Scores

2. Click the Chart Wizard icon in the Standard toolbar. The Chart Wizard window opens. There are 4 steps to creating a chart with the Wizard.



Chart Wizard Button on the Standard Toolbar

3. In Step 1, select the type of graph you want. A simple bar graph will work for this chart.



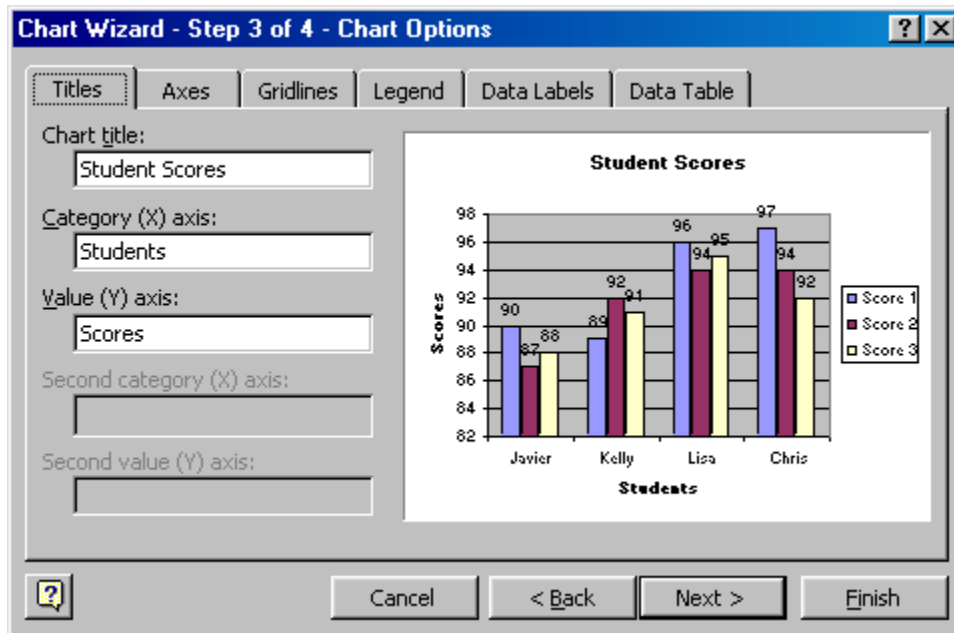
#### Chart Wizard - Step 1 of 4

4. Click the Press and Hold to View Sample button to see an initial view of your graph. Then click the Next> button to proceed. The Chart Wizard moves to Step 2.



#### Chart Wizard - Step 2 of 4

5. The data range is expressed in a field. Note that with the Rows radio button selected, the data shows areas for the three tests, with four columns showing how each student did on each test. With the Columns radio button selected, the data shows areas for the four students, with three columns showing how the student scored on each of the three tests. Excel provides flexibility in how you prefer to view your data.
6. Be sure the Columns radio button is selected, then click the Next button to move to Step 3.

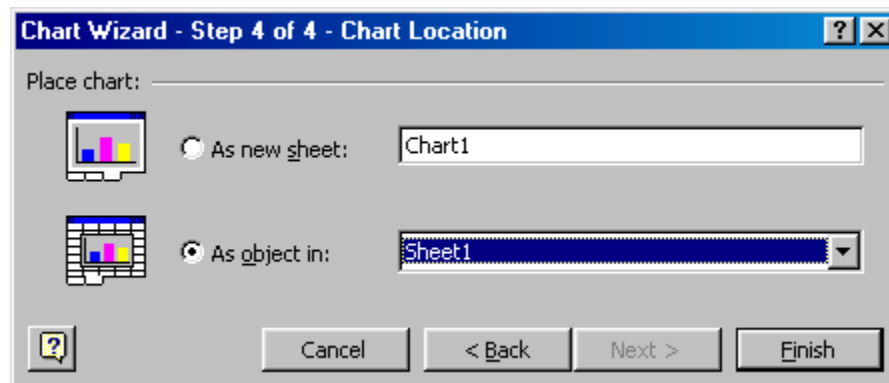


**Chart Wizard - Step 3 of 4**

7. In Step 3 you can add titles to your chart. Type Class Scores in the Title field, Students in the Category field, and Scores in the Value field. You can see these titles added to your chart in the preview window.

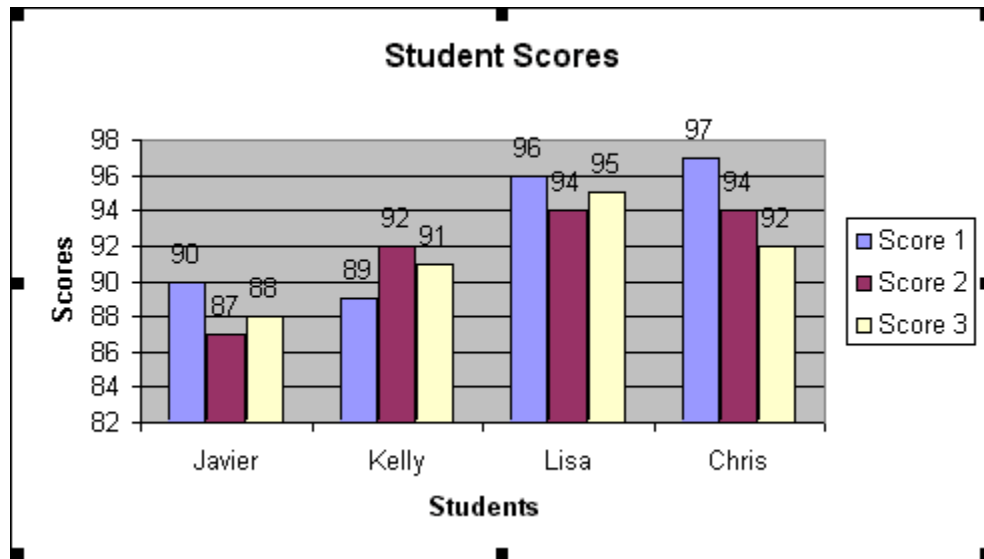
8. Many other options can be set in Step 3, but let's keep it simple for now and add just one more. Click the Data Labels tab to bring those settings forward. Click the Show value radio button and the test scores appear on the chart above each column.

9. Click Next to move to Step 4.



**Chart Wizard - Step 4 of 4**

10. In Step 4, select whether you want your chart to appear on a new sheet or as an object in your existing worksheet. Size sometimes is an issue, but for this exercise, either option should work fine. Your chart should look similar to the one pictured here:



**Sample Student Scores Chart**

Visual displays of information can help make it easier to interpret and work with. Take some time to experiment with a variety of chart options using the Chart Wizard.

## Closing Thoughts

You now have experience with the fundamentals of Microsoft Excel, enough to create and use basic spreadsheets. To continue to develop your skills in Excel, learn to work with a variety of formulas, then increase your efficiency through the use of functions. You will learn other techniques and shortcuts in Excel that will help streamline your work process and eliminate redundant key entry.

Excel can be used in an instructional setting for making simple lists and inventories, for executing financial and numerical calculations, and for entering and graphing a variety of data. The effective use of Microsoft Excel can help enhance teaching and learning in your classroom and increase your professional productivity.

## Resources

A list of linked web resources can be found on the [Excel Resources](#) page.