

IN THIS CHAPTER

- Creating a chart and editing the data used to generate it.
- Customizing charts with decorative borders, background colors/patterns, and different fonts.
- Selecting a different chart type to change from one type to another.
- Setting up a legend and titles to help the reader identify the different chart elements.
- Creating and editing diagrams to illustrate the relationship between concepts.
- Building an equation with Microsoft Equation 3.0.



WORKING WITH CHARTS, DIAGRAMS, AND EQUATIONS

At first glance, you might think that charts, diagrams, and equations are too technical, and you might decide to skip this chapter for a while. That's fine. Come back when you're ready. But remember this: Word makes working with these features so easy, it would be a shame not to cover them in this book.

All you need is a set of numbers, and you can create charts just like the pros. Because there are so many to choose from, you're sure to find one that clearly illustrates your point. Diagrams and equations aren't found in *that* many documents, but again, they are so easy to create that you might start using them more often.

Using Charts to Illustrate Numeric Data

Word communicates text effectively, and Word tables present numbers well. But numbers and words are often more effective when accompanied by charts that present the same information graphically.

Word's charting feature can convert otherwise boring or unintelligible numbers into bar charts, pie charts, and more. You can even link charts to tables and Excel spreadsheets right in Word.

Inserting a Chart in a Document

Let's start by creating a simple chart. This sample chart gives you something to play with as you work through the steps to revise the data, apply formatting, and customize the chart.

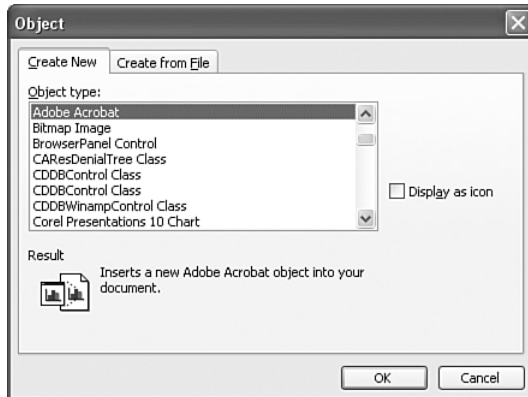
There are two ways to create a chart. You can choose **Insert, Object** and select the type of chart you want to create: either a Graph chart or an Excel chart. You can also choose **Insert, Picture, Chart** to insert a Graph chart.

To create a Graph or Excel chart, follow these steps:

1. Choose **Insert, Object** to open the Object dialog box (see Figure 18.1). You might need to click the **Create New** tab to see the dialog options shown in the figure.

FIGURE 18.1

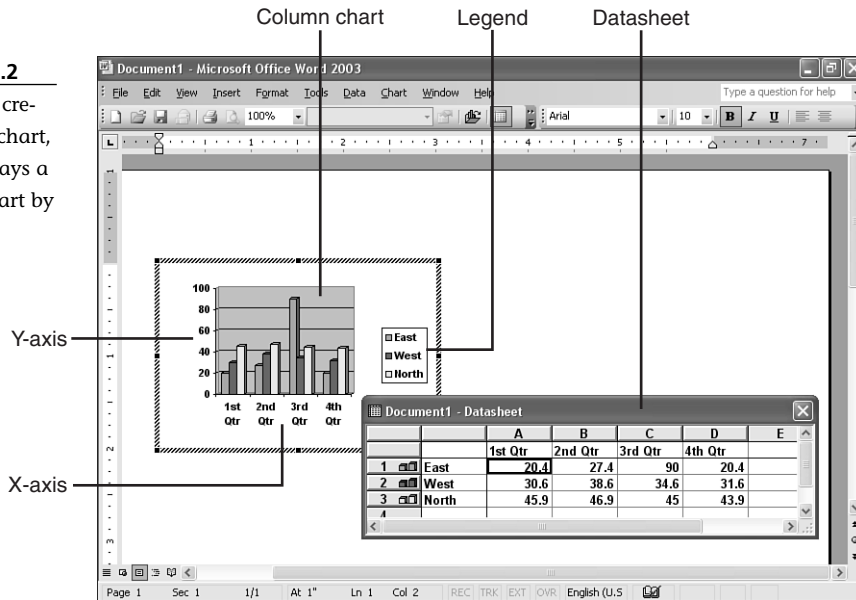
The Object dialog box lists all the different types of objects that you can add to a Word document.



2. Scroll through the list of objects and select **Microsoft Graph Chart** or **Microsoft Excel Chart** (whichever one appears in your list).
3. Click **OK**. Word creates a chart and displays the sample datasheet. Figure 18.2 shows the chart created with Microsoft Graph.

FIGURE 18.2

When you create a new chart, Word displays a column chart by default.



As you can see in Figure 18.2, the sample chart displays sales data for three regions over a period of 12 months. The legend identifies the regions, the x-axis identifies the time period, and the y-axis shows the values being measured.

The menus and toolbars now show the Microsoft Graph (or Excel) menu items and buttons. To return to Word, click in the document window. When you're ready to work with the chart again, double-click the chart to select it and switch to the Graph or Excel menus and toolbars.

If you choose Microsoft Excel Chart, your new chart looks a little different. The datasheet is on the Sheet1 tab (next to the Chart1 tab, along the bottom of the chart). Click the Sheet1 tab to switch to the datasheet. You also see a new Chart toolbar with buttons to help you customize the chart.

Editing Data in the Datasheet

The foundation for any chart is a series of numbers and labels to identify those numbers. The numbers and labels are found in the datasheet. You can put information into a datasheet in several ways. One, you can enter the numbers and labels directly in the chart's datasheet. Two, you can type the numbers and labels into a table and create the chart based on the table data. Or three, you can enter the information into an Excel spreadsheet and then import that data into a chart in Word.

Follow these steps to edit data in the datasheet:

1. If the datasheet isn't already displayed, double-click the chart.
2. Click in the datasheet (or click the tab that contains the data). The datasheet must be active for you to edit it.
3. Click in a cell and revise the entry, or click in a blank cell and type a new entry.

You can update the chart with the new information when you click in another cell or in the chart itself. To close the datasheet, click the **Close** button in the upper-right corner, or just click elsewhere in the document to close the datasheet and return to the Word screen. To redisplay the datasheet for a Word chart, choose **View, Datasheet**.

Using Table Information to Create a Chart

If you already have the information in a table, you don't need to re-enter it all. You can use the table to create a chart. Furthermore, you may prefer to work in a table as you design and edit the chart to include just the right information.

To use a table to create a chart, do the following:

1. Click in the table.
2. Select the table (choose **Table, Select, Table**).
3. Choose **Insert, Object**. If necessary, click the **Create New** tab.
4. Scroll down and double-click **Microsoft Graph Chart** or **Microsoft Office Excel Chart**.

Word displays a chart with the information from the table. The data you entered in the table is shown in the datasheet (see Figure 18.3).



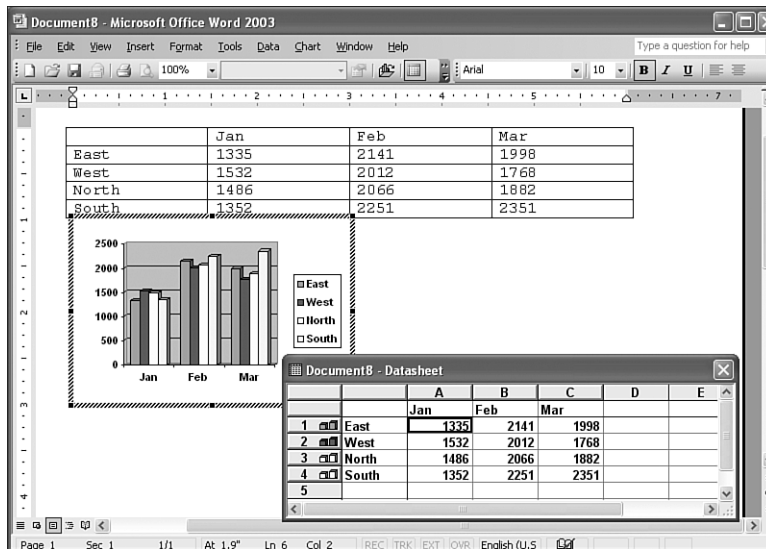
caution

If you don't have Microsoft Excel on your system, you won't have an entry for Microsoft Excel Chart. Likewise, if Microsoft Graph hasn't been installed, you won't have an option for it either. If this is the case, you have a choice: You can install either Microsoft Graph or Microsoft Excel, whichever you prefer.

First, close all programs. Choose **Start, Control Panel, Add or Remove Programs**. Select the entry for **Microsoft Office 2003** or **Microsoft Word 2003**. Choose **Change** to start the Setup program. Select **Add or Remove Features** and then click **Next**. To install Excel, choose **Excel**, click **Next**, and then choose **Update**. To install Microsoft Chart, select **Choose advanced customization of applications** and then click **Next**. Click the plus sign next to **Office Tools**, click the drop-down list next to **Microsoft Graph**, and choose **Run from My Computer**. Choose **Update** to make your changes take effect.

FIGURE 18.3

Creating a chart from an existing table is fast and easy.



Formatting the Chart Area

When you're satisfied with the data, you might look for ways to improve the appearance of your chart. There are several things you can do. First, you can add a border, of the color and width of your choosing. Second, you can add a fill pattern that appears behind the data. Last, you can set the font for the chart numbers and labels.

To add a border around the chart, follow these steps:

1. Double-click the chart. You should see a thick slash border around the chart (see Figure 18.4), which means it is now selected.
2. Right-click in the top-right corner (the white area) in the selected chart and then choose **Format Chart Area**. The Format Chart Area dialog box appears (see Figure 18.5).

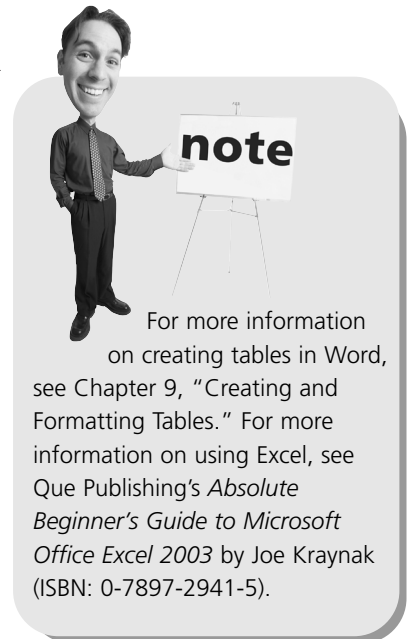


FIGURE 18.4

A chart can be edited only when the thick slash border appears around it.

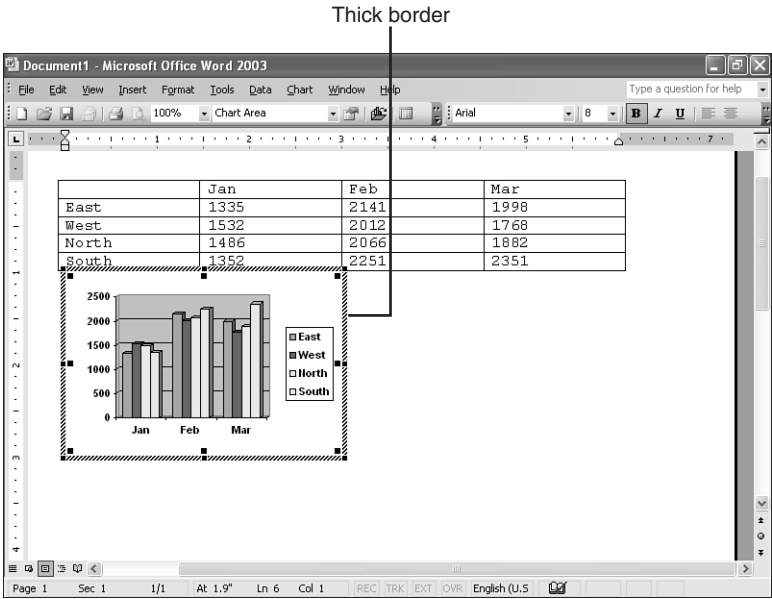
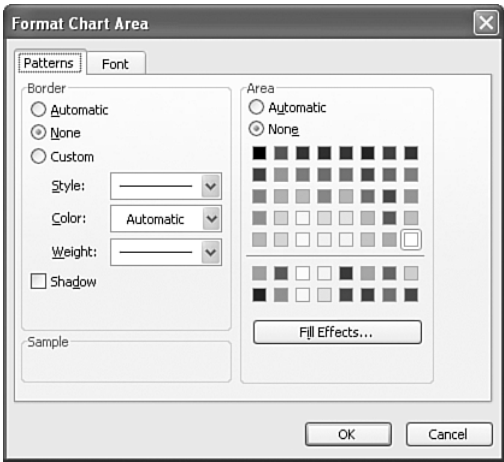


FIGURE 18.5

The Format Chart Area dialog box offers options for adding a border or a fill pattern, and selecting an attractive font.



3. In the Border section, choose **Automatic** to create a basic thin black border. Otherwise, choose **Custom** to create a customized border with the following options:
 - **Style**—Click the drop-down list arrow and choose a line style.
 - **Color**—Click the drop-down list arrow to open the color palette where you can select a color for the border lines.

- **Weight**—Click the drop-down list arrow to open a list of line widths.
- **Shadow**—Enable this check box to add a drop shadow on the right and bottom sides of the chart.

4. When you're satisfied with the results shown in the Sample box, click **OK** to apply the new border.

A fill pattern is really just a background that you can add to a chart. You can choose from a full palette of colors, but I suggest you use something in a light or medium tone; otherwise, it is difficult to read the information in the chart.

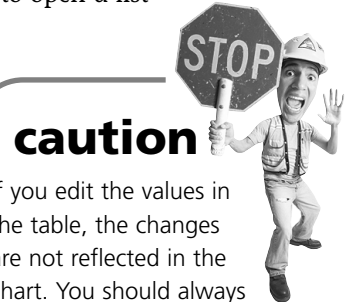
To add a fill pattern to a chart, follow these steps:

1. Double-click the chart. You should see a thick slash border around the chart (refer to Figure 18.4).
2. Right-click in the top-right corner (the white area) in the selected chart and then choose **Format Chart Area**. The Format Chart Area dialog box appears (refer to Figure 18.5).
3. In the Area section, click one of the colors on the color palette. The Sample box shows a larger swatch of the color.
4. Click **OK** to apply the new fill pattern.

The default font for the chart information is Arial, which may work just fine for you. However, if the rest of your document is in a certain font, or if you want to dress up your chart a bit, changing the font is a great way to do that.

To set a font for the numbers and labels, do the following:

1. Double-click the chart. You should see a thick slash border around the chart (refer to Figure 18.4).



caution

If you edit the values in the table, the changes are not reflected in the chart. You should always edit the values in the datasheet instead.

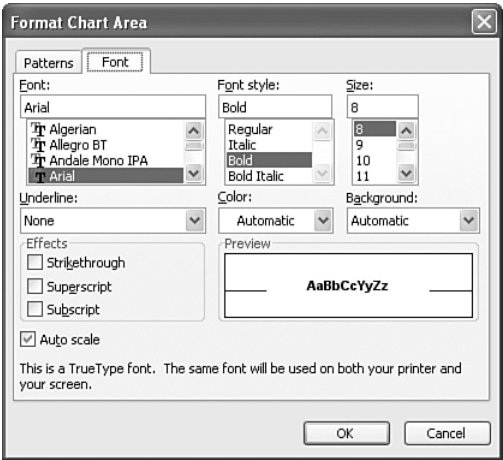


tip

If you want something a little fancier than a solid fill color, you can apply special effects fill patterns. In the Format Chart Area dialog box, click the **Fill Effects** button to open the Fill Effects dialog box. Make your selections in any of the four tabs to see the results in the Sample box. When you're finished, click **OK**.

2. Right-click in the top-right corner (the white area) in the selected chart and then choose **Format Chart Area**. The Format Chart Area dialog box appears (refer to Figure 18.5).
3. Click the **Font** tab to display the font options (see Figure 18.6).

FIGURE 18.6
The Font options for charts are a subset of the options that are available for document text.



4. Choose a font, font size, font effects, color, or background.
5. When you're satisfied with the results shown in the Preview box, click **OK**.

Choosing a Chart Type

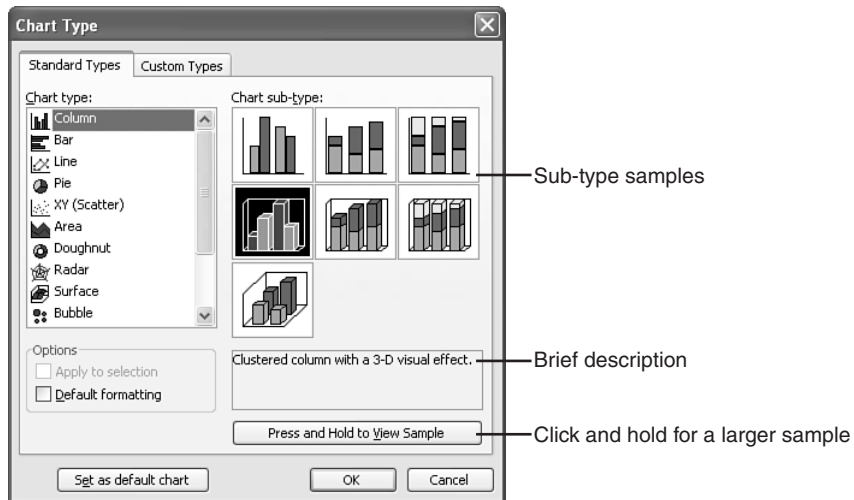
You may be thrilled or even a little intimidated when you see that you can choose from 14 different types of charts, with each type having a set of sub-types. All told, you can choose from more than 70 different charts.

To select a chart type, follow these steps:

1. Double-click the chart. You should see a thick slash border around the chart (refer to Figure 18.4).
2. Right-click in the top-right corner (the white area) in the selected chart and then choose **Chart Type** to display the Chart Type dialog box (see Figure 18.7).

FIGURE 18.7

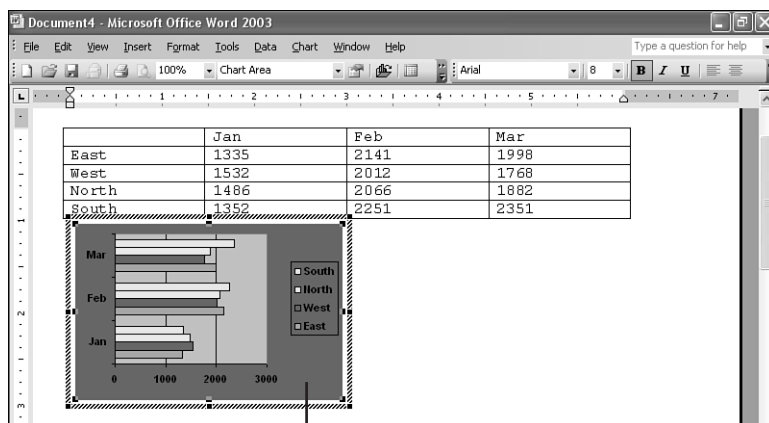
Word has a comprehensive set of chart types to choose from.



3. Select an item in the **Chart type** list box to display samples of the different sub-types in the **Chart sub-type** window.
4. Click a sub-type chart to display a brief description below the **Chart sub-type** window.
5. Click the **Press and Hold to View Sample** button to see a larger sample of a selected chart sub-type.
6. When you're satisfied with your selection, click **OK** to change to the new chart type (see Figure 18.8).

FIGURE 18.8

A bar chart clearly illustrates the differences between the sales figures.



Clustered bar chart

Customizing a Chart

Charts don't make much sense if they aren't properly labeled. You can look at a bar chart but not know what it is telling you unless you have a good set of labels and a descriptive legend. The legend in Figure 18.8, for example, clearly indicates which color has been assigned to each region. Furthermore, the title on the y-axis tells you exactly which month you're looking at.

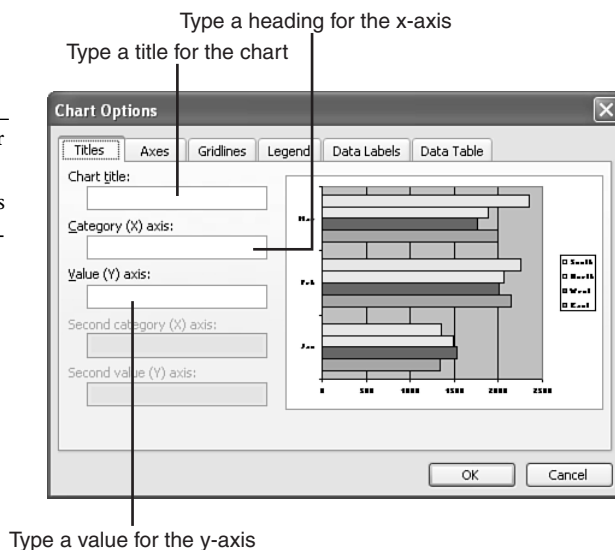
The options to customize a chart are found on the Chart Options dialog box. It has separate tabs for each area of the chart, so you can quickly pinpoint the area that you want to work with and make those changes. I'll cover the options that are used most frequently and leave it to you to discover the rest when the situation calls for it.

To create chart titles, do the following:

1. Double-click the chart. You should see a thick slash border around the chart.
2. Right-click the selected chart and then choose **Chart Options** to display the Chart Options dialog box (see Figure 18.9).

FIGURE 18.9

Create a title for the chart and set up identifiers for the x- and y-axes on the Titles tab.



3. Type a title in the **Chart title** text box.
4. Type a label for the x-axis in the **Category (X) axis** text box.
5. Type a label for the y-axis in the **Value (Y) axis** text box. (The label for this text box may change depending on the data and chart type.)
6. Click **OK** when you're finished.

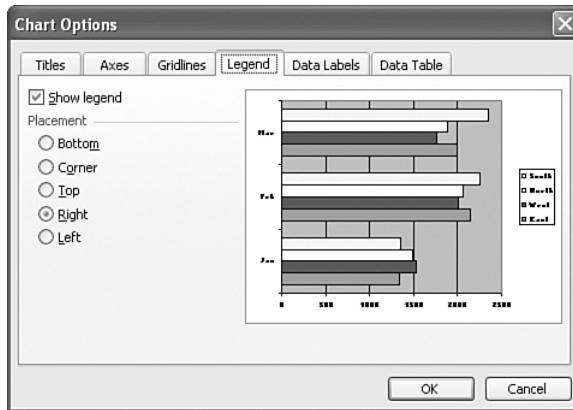
A legend is like a road map for a chart. It helps the reader identify what the various elements in the chart represent. Without a legend, a reader can easily misinterpret the data.

To create a legend, follow these steps:

1. Double-click the chart. You should see a thick slash border around the chart.
2. Right-click the selected chart and then choose **Chart Options** to display the Chart Options dialog box.
3. Click the **Legend** tab to display the legend options (see Figure 18.10).

FIGURE 18.10

Turn the legend on and off and choose a position for it on the Legend tab of the Chart Options dialog box.



4. If necessary, enable the **Show legend** check box to turn on the legend.
5. Select one of the options in the Placement section.
6. Click **OK** when you're finished.

Adding Diagrams to a Document

Charts are a great way to illustrate relationships between numerical data. And a diagram is a great way to illustrate relationships between elements. So, what is an element? An element might be a concept, a part of a plan or project, or a piece of a theoretical puzzle. The important point for you to remember is that the diagram is a visual representation and is often better understood than a long description.

Inserting a Diagram

You can insert a variety of diagrams in Word: Cycle, Radial, Pyramid, Venn, and Target. In addition to these diagrams, you can also insert an *organization chart*, which is also known as a *flowchart* or *flow diagram*.

To insert an organization chart or diagram, follow these steps:

1. Position the insertion point where you want the diagram to appear.
2. Choose **Insert, Diagram** to display the Diagram Gallery dialog box (see Figure 18.11). Click a sample to view a short description.



FIGURE 18.11

The Diagram Gallery dialog box shows samples of the six different types of diagrams that you can create in Word.

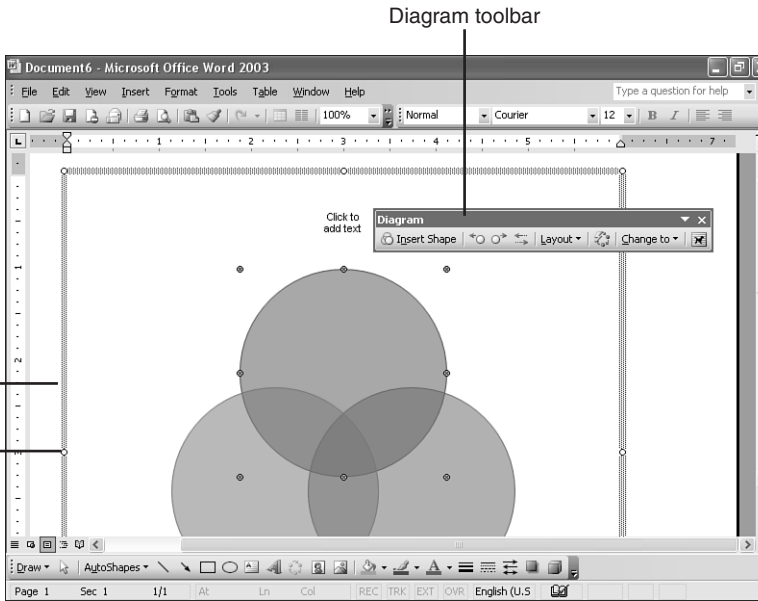


3. Double-click the picture for the type of diagram you want to create. Word creates the diagram and displays the Diagram toolbar, which has buttons to help you customize the diagram. Figure 18.12 shows a new Venn diagram.

FIGURE 18.12

A diagram has sizing handles on the drawing border so you can quickly move and resize the diagram.

Drawing border
Sizing handles



The steps to add text to a diagram vary depending on which type of diagram you create. In most cases, the process is simple: You click where the text says “click to add text” and then type your text. In some cases, you right-click a shape, choose **Edit Text**, and then make your changes.

Editing Diagrams

When you create a diagram, you have a good starting point, but rarely does the basic diagram suit your needs. In most cases, you need to add space for more information. You’ll probably end up rearranging items as well. And for purely aesthetic reasons, you may want to play around with the text color, fill color, and line styles and color. Most of these elements can be changed through the buttons on the Diagram toolbar.

With your diagram selected, use the following Diagram toolbar buttons to make your changes:

- **Insert Shape**—Select the shape in the diagram that you want to add and then click the **Insert Shape** button. If you change your mind, you can delete the shape by selecting it and pressing **Delete**, or you can use Undo (**Ctrl+Z**).
- **Move Shape Backward**—Select the shape or segment of the diagram that you want to move backward and then click the **Move Shape Backward** button.
- **Move Shape Forward**—Select the shape or segment of the diagram that you want to move forward and then click the **Move Shape Forward** button.
- **Reverse Diagram**—Select the shape or element that you want to reverse and then click the **Reverse Diagram** button.
- **Layout**—Select from available options to fit the diagram to the contents, expand the diagram, or resize the diagram.
- **AutoFormat**—Select this button to open the Diagram Style Gallery dialog box (see Figure 18.13), where you can choose a different style for your diagram.



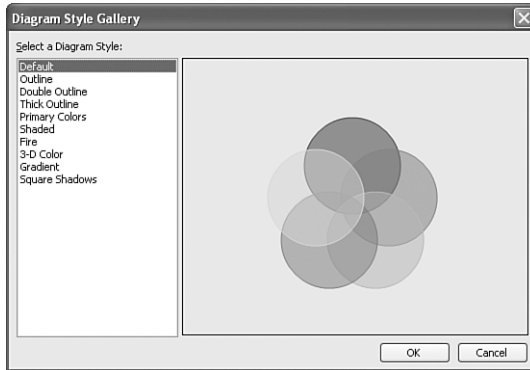
tip

When you resize the drawing canvas, the diagram is resized as well. If you are trying to reduce the size of the drawing canvas to allow room for text, you can make the canvas fit more tightly around the diagram. On the Diagram toolbar, click **Layout, Fit Diagram to Contents**.



FIGURE 18.13

Word offers a collection of pre-set styles to enhance the appearance of your diagrams.



Buttons on the Drawing toolbar enable you to easily customize the diagram. If the Drawing toolbar isn't displayed at the bottom of the screen, right-click a toolbar and choose **Drawing**. With the diagram selected, use the following buttons to customize the diagram:



- **Font Color**—Select the text. Click the **Font Color** button and choose a color from the palette. Click in the diagram to deselect the text and display the new text color.



- **Fill Color**—Select the shape that you want to fill and then click the **Fill Color** button. Click the color you want to use, or choose **Fill Effects** and click the appropriate tab to apply a gradient, texture, pattern, or picture as a fill.



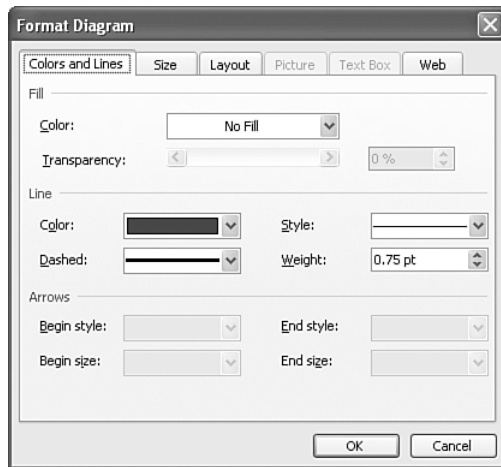
- **Line Color**—Select the line or connector that you want to change and then click the **Line Color** button. Click the color you want to use, or choose **Pattern Lines**, choose a pattern for the line, and then choose the foreground and background colors for the pattern.



- **Line Style**—Select the line or connector that you want to change and then click the **Line Style** button. Choose a line from the list, or choose **More Lines** to open the Format Diagram dialog box (see Figure 18.14), where you can create your own custom line.

FIGURE 18.14

The Colors and Lines tab of the Format Diagram dialog box contains options to create a customized line.



Creating Equations

The Microsoft Equation Editor enables you to create all types of equations, from simple fractions to complex equations for technical or scientific documents. In this section, I'll show you how to create a simple fraction. Beyond that, you're on your own. Just kidding! The Equation Editor offers a good help system, so you can find information on how to create other types of equations.

Inserting an Equation

When you create an equation, you always work from left to right. You can choose from more than 150 mathematical symbols and a variety of templates for creating fractions, radicals, integrals, and more.

Follow these steps to create an equation:

1. Choose **Insert, Object** to open the Object dialog box. If necessary, click the **Create New** tab.
2. Scroll down and double-click **Microsoft Equation 3.0**. The Equation Editor starts and takes over the menus and toolbars. You see a blank equation box and an Equation toolbar (see Figure 18.15).

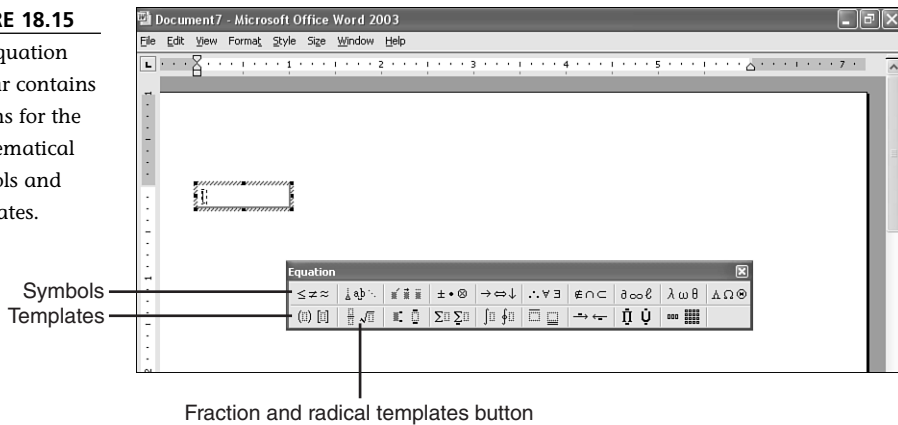
caution

If you don't see Microsoft Equation 3.0 in the list of objects in the Object dialog box, you need to install it. First, close all your programs. Choose **Start, Control Panel, Add or Remove Programs**. Locate the entry for Microsoft Office or Microsoft Word. Select it and then select **Change**. Click **Add or Remove Features** and then click **Next**. Select the **Choose advanced customization of applications** check box and then click **Next**. Click the plus sign next to **Office Tools**, click the arrow next to **Equation Editor**, and then choose **Run from My Computer**. Choose **Update** to make your changes take effect.



FIGURE 18.15

The Equation toolbar contains buttons for the mathematical symbols and templates.



3. Select symbols from the top row of the Equation toolbar or select a template from the bottom part of the toolbar. If necessary, select a specific item from a pop-up palette or type the necessary information.
4. Continue inserting symbols until your equation is complete. Click in the document window to return to Word.

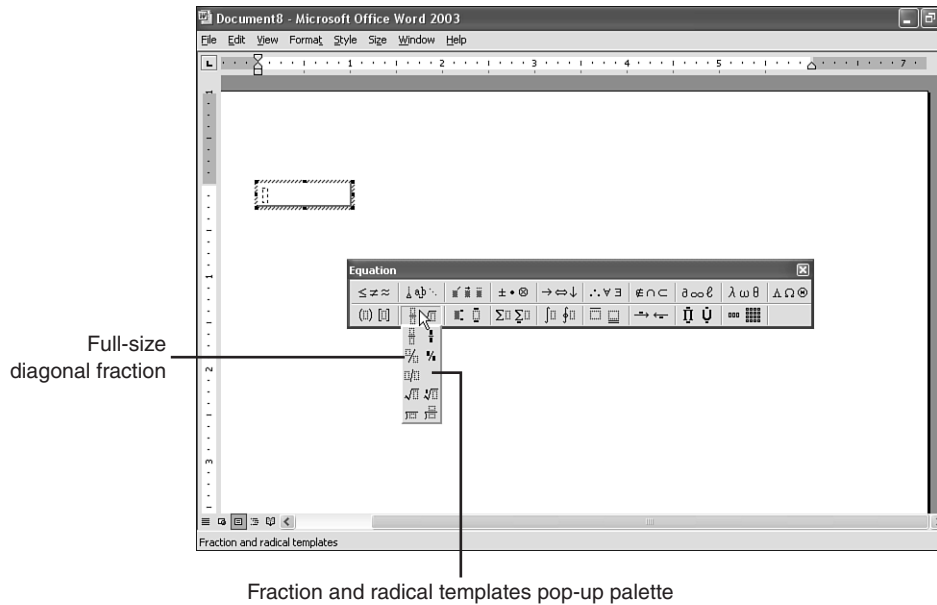
What if you want to create a simple fraction. When I'm working on recipes, for example, I use fractions like 3/4 cup. When precise measurements are necessary, it's not uncommon to use 5/8 or 7/16 inches in a description.

To create a fraction, follow these steps:

1. Choose **Insert, Object** to open the Object dialog box. If necessary, click the **Create New** tab.
2. Scroll down and double-click **Microsoft Equation 3.0**. The Equation Editor starts and takes over the menus and toolbars.
3. Click the **Fraction and radical templates** button to open the pop-up palette (see Figure 18.16). Hover over each button to view a short description on the status bar.
4. For this example, click the **Full-size diagonal fraction** button (first button, second row). In the equation box, you see the insertion point blinking in the first text box.
5. Type the top number, press **Tab**, and then type the bottom number.
6. Click in the document window to complete the fraction and switch back to Word.

FIGURE 18.16

When you open a pop-up palette of buttons, you can hover over each one to display a description.

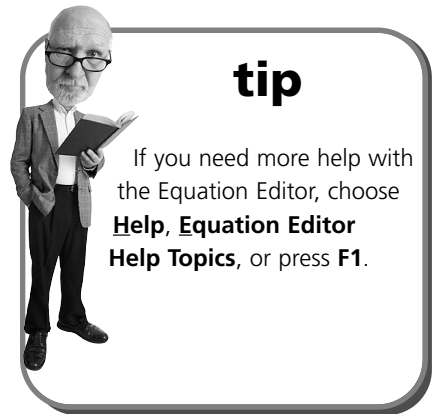


Editing Equations

Editing an equation is essentially the same as creating a new one. When you double-click an equation, the Equation Editor takes over the menus and toolbars so you have all the tools you need to modify the equation.

Simply follow these steps to edit an equation:

1. Double-click the equation.
2. Click in the equation where you want to add or remove symbols.
3. Use the buttons on the Equation toolbar to add symbols, or click in front of a symbol and press **Delete** to remove symbols.



THE ABSOLUTE MINIMUM

After reading this chapter, you now know how to

- Insert a chart using Microsoft Graph or Microsoft Excel.
- Edit the datasheet, which supplies the data for the chart, and create a chart using a Word table as the datasheet.
- Pick a border color using the options available to customize your charts.
- Switch to a different type of chart on the fly by using the coolest part of the Chart feature.
- Create a legend and use titles to help the reader understand your chart.
- Insert diagrams into your documents and edit the diagrams to add your information.
- Create and edit equations with Microsoft Equation 3.0, Word's equation editor.

In Chapter 19, you'll learn how to use data from other sources in your Word documents.