

# 3 THE *OFFICE* DRAWING TOOLS

## LEARNING OUTCOMES

In Lesson 2 you learned how to work with a longer document (the Term Paper). You practiced inserting page numbers, formatting text, using the indent markers, creating sections and columns of text, finding and replacing text, moving and copying text, putting borders around blocks of text, and wrapping text around graphics. You also learned how to create a list, such as a Table of Contents, with dot leaders to connect the eye visually to the items in the list.

After completing lessons 1 and 2, you should be beginning to think of yourself as reasonably proficient at word processing, but there is still much to learn. In this tutorial you will be introduced to features of *Office 2016* that are especially useful when working with images (pictures, charts, and so forth)

The set of *Office 2016* drawing tools, which apply in *Word*, but also in other Office modules such as *Excel* and *PowerPoint*, is extensive, easy to use, and powerful in the sense that they enable anyone to create good quality images or designs for a multitude of practical applications. Teachers, in particular, should familiarize themselves with these drawing tools, not only for their own purposes, such as the preparation of handouts for class, but also so they can teach the tools to their students, who will thus use them for project work of all kinds.

Lesson 3 will cover the following:

- The tools available for drawing
- Drawing, moving, rotating, resizing, and otherwise editing simple shapes and lines
- AutoShapes
- Selecting one or more drawing objects at once—overlapping, ordering, aligning, and rotating objects
- Using colors, patterns, and other visual effects
- Grouping, ordering, and aligning drawing objects
- Working with text and word art
- Working with diagrams, organization charts, clip art, and other images

**A caveat before you begin:** You'll find it easiest to use the tutorial if you follow the directions carefully. On computers there are always other ways of doing things, but if you wander off on your own be sure you know your way back!

## 3.1 GETTING STARTED

This tutorial is designed to give you practice working with the drawing tools that are built into the various *Office* applications, including *Word*. Drawings that you create in one *Office* application such as *Word*, can be easily copied and pasted into other *Office* applications, such as *PowerPoint* or *Excel*.

The only way to learn the skills required to get the most out of the drawing tools is to use them. This lesson will get you started in that direction, introducing you to most all the drawing tools and showing you how to work with them.

But if you want to become proficient, you will need to work with them as much as possible and experiment with ideas of your own for applying the tools in the creation of art work of all kinds

Perhaps you already have a natural flair for drawing, in which case you will especially love these tools. But even if you think you don't have a flair for drawing, you may discover, as you become adept in the use of the drawing tools, that you have more artistic ability than you ever dreamed.

### Before we begin

Recall from Lesson 1 that the default settings of your version of *Word 2016* may not show the ruler at the top of the page. You may also find that the default spacing is too wide. Let's start out by making sure these two settings are the way you need them to be.

Open a **New blank document** in **Word** and click on the **View** tab to bring up the **View Ribbon**, then locate the **Show Group** and, if necessary, click to put a **check mark (tick)** in the box next to **Ruler** (Fig. 3.1)

This will display the ruler bar at the top of your Word document (Fig. 3.1).

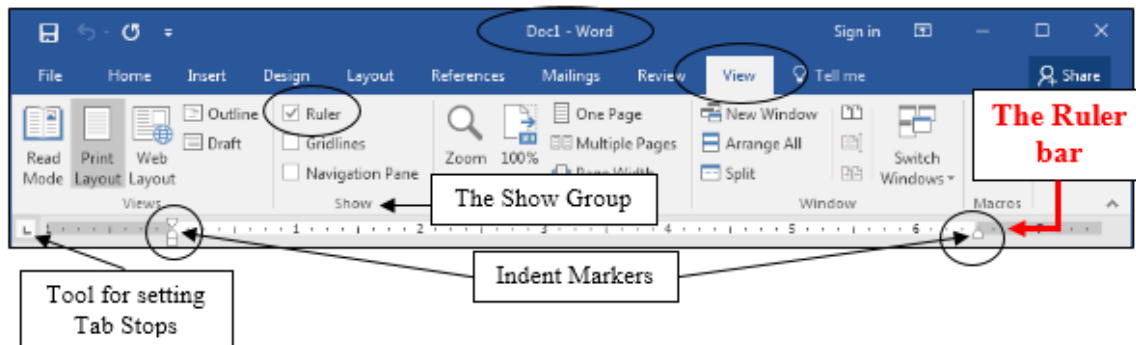


Fig. 3.1 The *Office 2016* ruler

You may also need to set the line spacing to single spaced because the default setting on the computer you are using may be other than single spaced. Here's the easiest way to do this.

Click on the **Home Ribbon** Tab, then in the **Styles Group** (Fig. 3.2), click on the icon for **No Spacing**

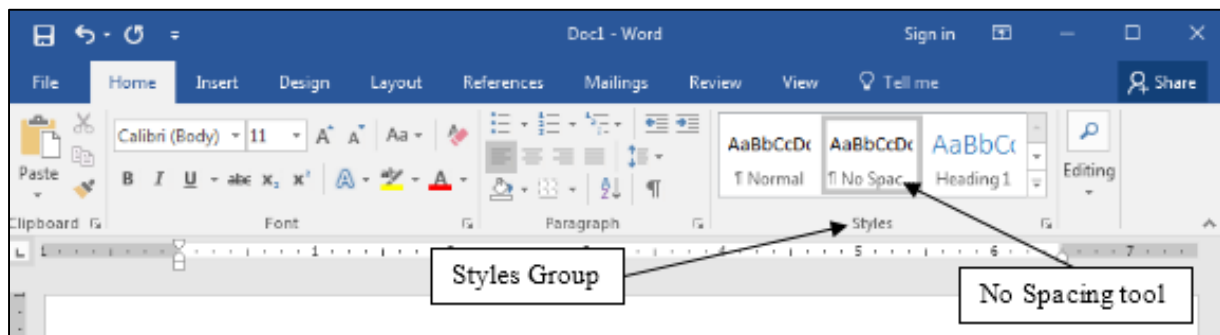


Fig. 3.2 No Spacing tool in the Styles Group of the Home Ribbon

For this lesson it will be useful to have a separate folder, inside your Data Files folder, for all the drawing-based documents you're going to create.

On your **USB drive**, **double click** on the **Work Files for Office 2016** folder to **open** it, then **double click** on the **Data Files folder** to open it

Inside the **Data Files** folder, click on the **Organize** menu, select **New Folder** from the **drop-down menu**, and, in the sub-menu, select **Folder**

The system will create a new folder for you and then wait for you to give it a name of your choice.

Type **Drawing Documents** for the name of the new folder

### 3.2 OVERVIEW OF THE DRAWING TOOLS AVAILABLE IN *OFFICE 2016*

Office 2016 offers a significantly larger set of tools for you to use and they are organized according to the type of drawing work you are doing. So let's take a moment to check out the various options available in *Word* that enable you to work with illustrations of various kinds. All you have to do for this section is read what follows; in Section 3.3 you'll swing into action.

#### Working with Shapes

If you are working with Shapes of any kind you'd use the *Shapes tool* in the Illustrations Group of the Insert Ribbon (Fig. 3.3).

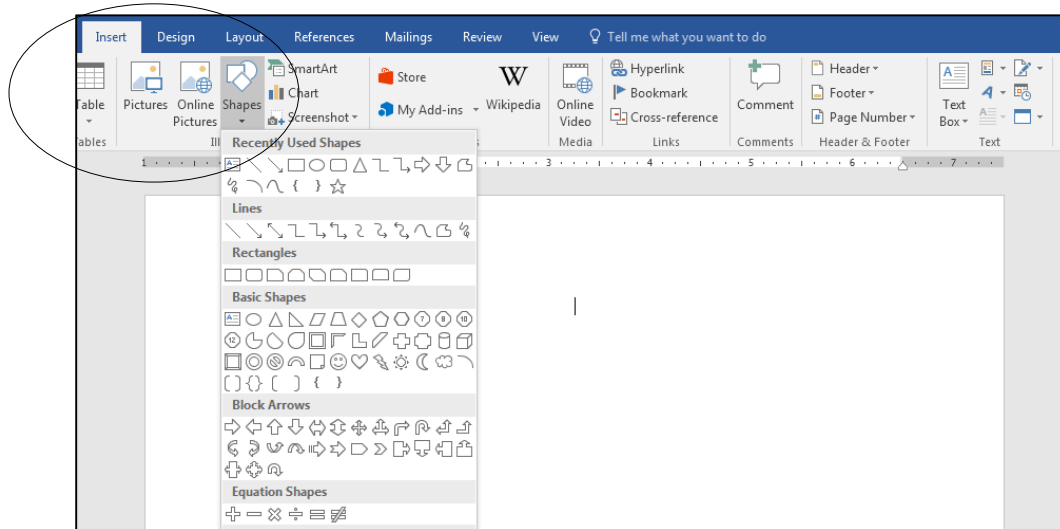


Fig. 3.3 The Insert Ribbon's Shapes menu of shapes templates

#### Working with your own Pictures

If, on the other hand, you are working with a previously prepared and saved *picture* that you already have stored on your disk—such as a photograph or a diagram or a chart—you'll use the Insert ribbon > Illustrations group and select *Pictures* instead of Shapes. This option will step you through the process of locating the picture on your disk and then bringing it up onto the page on your screen.

With the picture inserted onto the *Word* page and selected (it has the handles around it), *Word* presents a wide selection of *Picture tools* in the Format Ribbon (Fig. 3.4 next page).

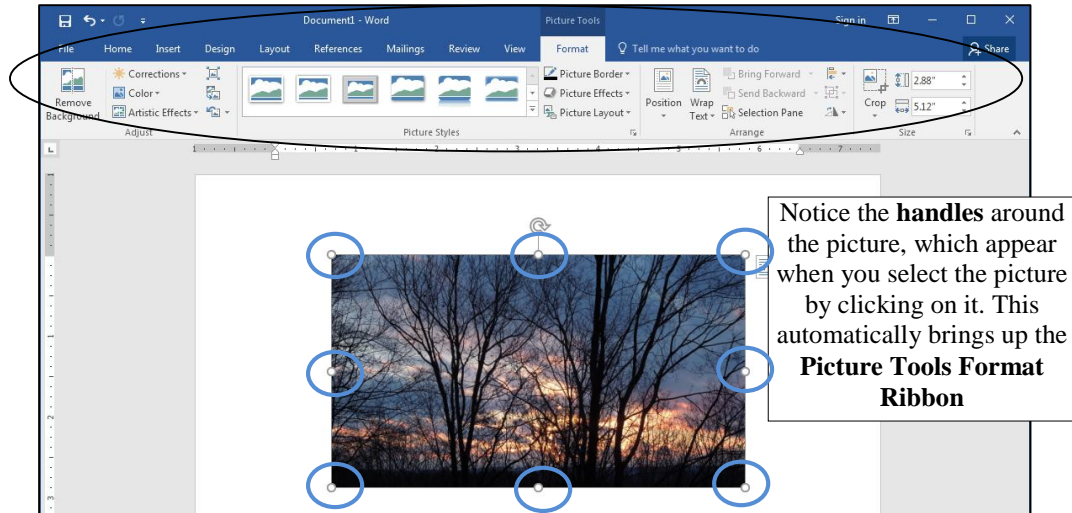


Fig. 3.4 Word 2016 Picture tools Format Ribbon

You'll be checking out many of these Picture Adjusting, Picture Styles, Shadow and 3-D effects, Arranging and Sizing tools in the course of this *Essentials* lesson.

### Working with Online Pictures

*Office 2016* offers a large selection of Clip Art that you can access direct from Microsoft and use in your documents. Alternatively, you also can search the Web from within *Word* for any of the millions of images that are out there. To do this you'd go to the Insert Ribbon > Illustrations Group and click on the *Online Pictures* tool to bring up the Insert Pictures dialog box (Fig. 3.5).

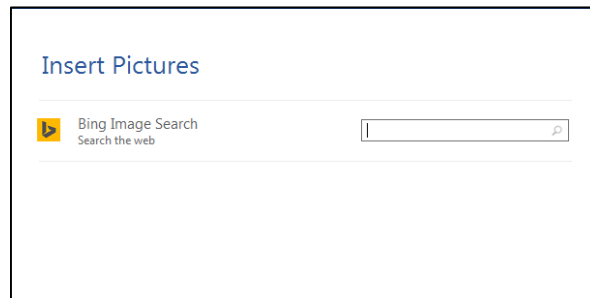


Fig. 3.5 Insert Pictures dialog box

In the *Bing Image Search* data entry box you'd type the topic for which you're interested in getting pictures and *Word* will quickly bring up dozens of examples from the Creative Commons image database for the use of which you do not need permission.

Fig. 3.6 illustrates what will be displayed if you searched using the search string *movies*.



Fig. 3.6 Selection of images related to movies

Bear in mind that pictures available online may need permission from the owner to use them. Copyright Law says that if you can see it, it's copyrighted; so you may need to contact the owner to use an image, especially if you intend to use it for profit. If you are using the image for a class assignment, no problem. If you're using the image to create a flyer for your business? You'd better get permission!

### Working with *SmartArt* or *WordArt*

In the Insert Ribbon > Illustrations Group there is a tool for creating *SmartArt* (Fig. 3.7).

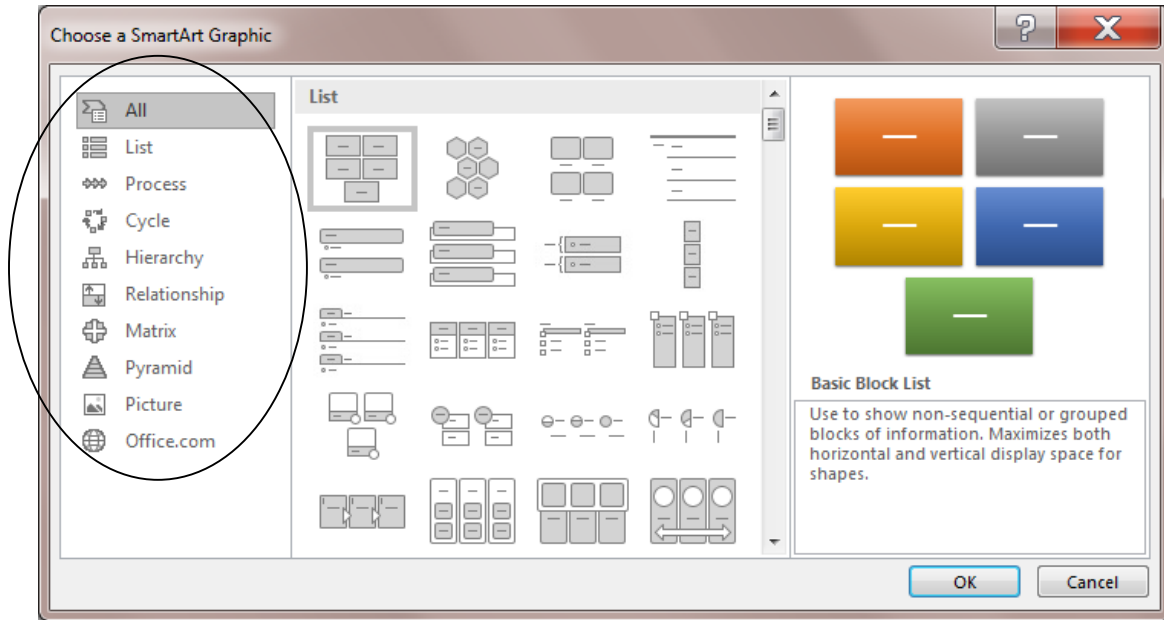


Fig. 3.7 *SmartArt* tools

*SmartArt* makes it easy to create graphic List, Process and Cycle diagrams, Hierarchy charts, Relationship diagrams, Matrices, and Pyramid charts. This lesson will provide you with the opportunity to learn how to use all of these *SmartArt* tools.

Another useful tool for creating interesting text-based graphics is *WordArt*, which enables you to insert decorative text into your document (Fig. 3.8). You'll learn to use this later, too.

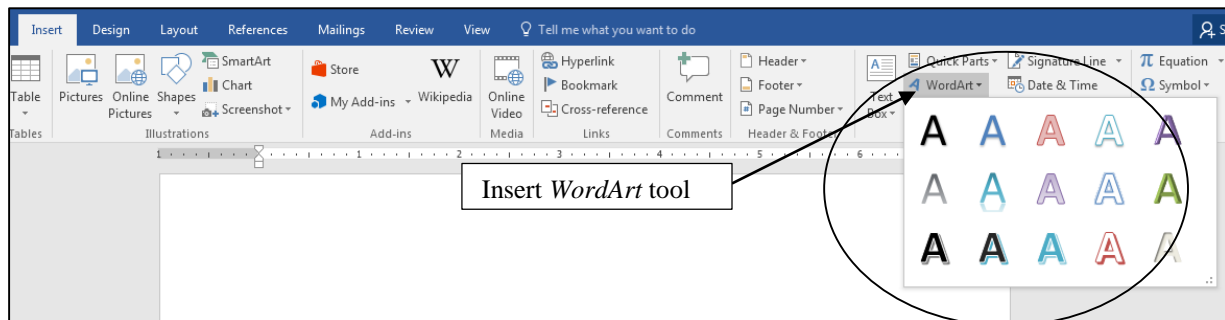


Fig. 3.8 *WordArt*

### Changing the Page Orientation

You have two options to orient a page in *Word*—*Portrait* or *Landscape* orientation. You'll use *Landscape* orientation for most of the exercises that follow, but the default is *Portrait* orientation because that's the orientation you'll use most of the time. To select one or the other you use the

*Layout Ribbon > Page Setup Group*, where you'll click on *Orientation* and select from the menu that pops up (Fig. 3.9).

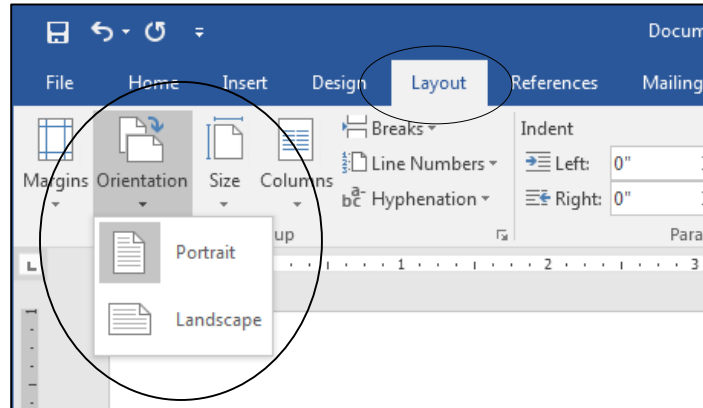


Fig. 3.9 Portrait or Landscape page orientation

*Landscape* orientation turns the page on its side. This mirrors the orientation of the traditional computer screen and often makes it easier for you when you are working with drawing objects. There will be many occasions, however, when you will want to work in Portrait orientation, too.

### The Zoom tool

The Zoom tool lets you zoom in on a page (so you can check out the details) or zoom out (so you can see the big picture of a single page or of a multipage document as a whole).

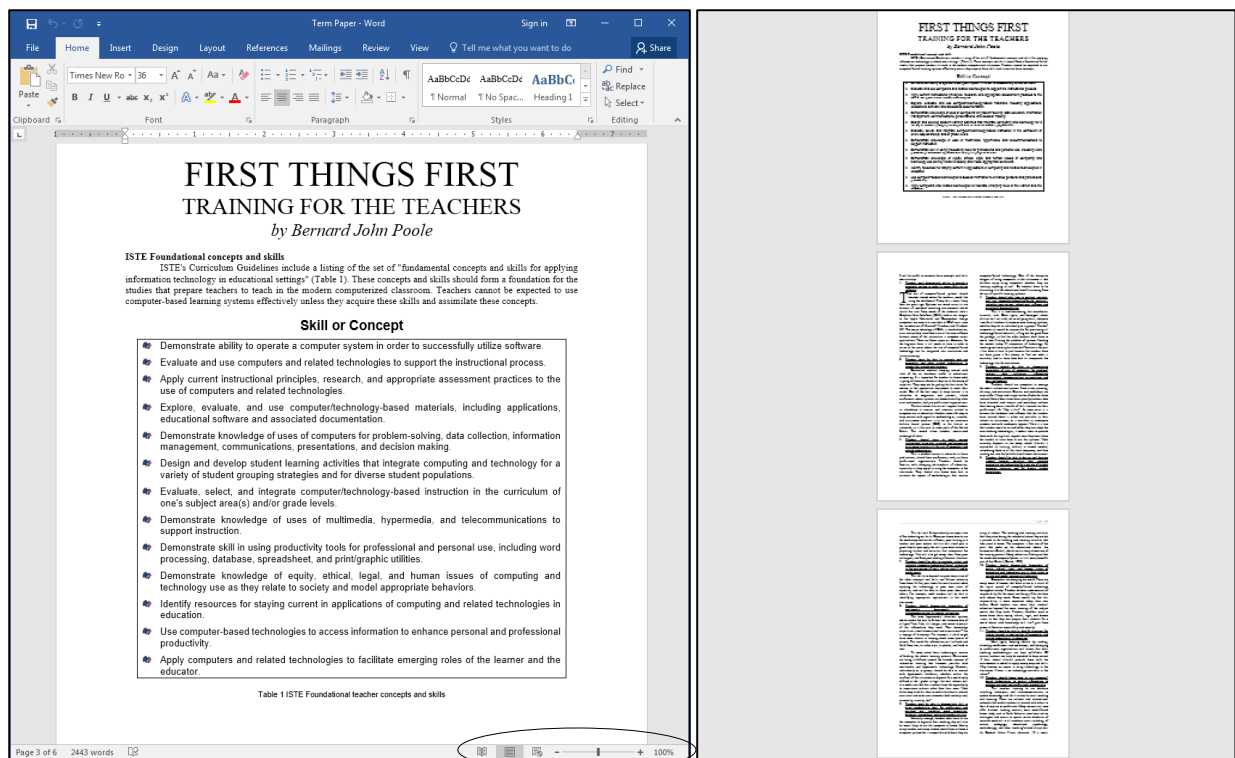


Fig. 3.10 Use the Zoom tool to shrink the document

In the sections that follow, you will practice zooming in and out of the pages you are working on, and you also will use most of the tools in the Drawing toolbar. Time to get to work.

### 3.3 DRAWING, MOVING, ROTATING, RESIZING, AND OTHERWISE EDITING SIMPLE SHAPES AND LINES

Word comes with dozens of shapes, including lines, rectangles, other basic geometric shapes, brackets and so forth, block arrows, flowchart shapes, stars and banners, and even callouts, which you'll practice using in Section 3.4. In this section you'll practice working with simple shapes and lines.

In the **Insert Ribbon > Illustrations Group** click on the **Shapes Tool** to bring up the palette or menu of pre-defined shapes (Fig. 3.11)

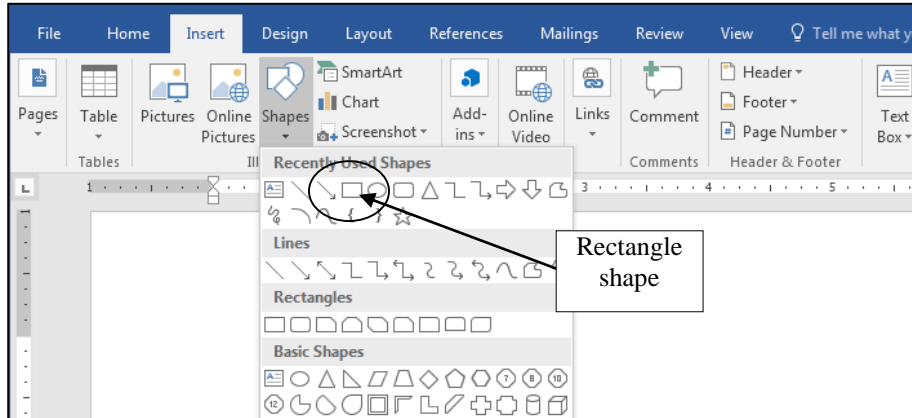


Fig. 3.11 The Shapes Palette in the Illustrations Group

In the **Shapes menu**, click on the **Rectangle** shape (Fig. 3.11 above), then scroll down to the page, hold down the **left button** of the mouse and **drag** to draw a simple **rectangle** (Fig. 3.12)

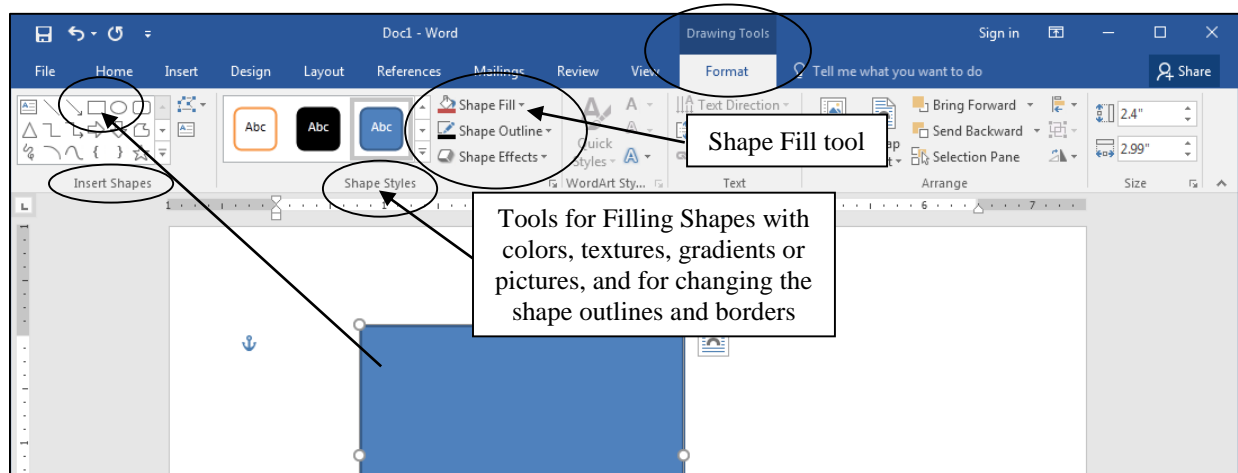


Fig. 3.12 The Drawing Tools Format Ribbon

With the **rectangle** selected (it has the **handles** around it), in the **Drawing Tools Format Ribbon**, look at the various tools for working with drawing objects (Fig. 3.12)

#### Live Preview

Word's *Live Preview* feature lets you check out how some change you want to make will look before you commit to it.



In the **Format Ribbon > Shape Styles Group**, click on the **small arrow** next to the **Shape Fill** tool (Fig. 3.13)

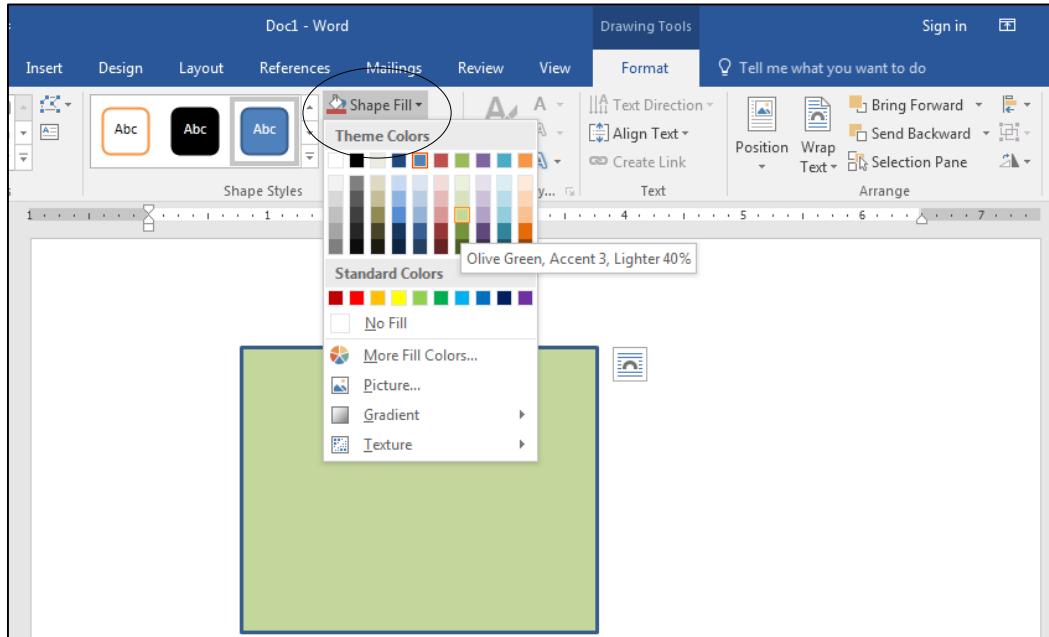


Fig. 3.13 Using Live Preview

In the **Theme Colors** menu, slide the mouse pointer over any color, gradient, or texture you like to try them out and see how they look (**Live Preview** them) before you actually select one of them for your shape

When you've made up your mind, click on your choice of a **color**, **gradient**, or **texture** for the rectangle

You do not have further use for this rectangle shape just now, so, with the rectangle **selected** (it should still have the **handles** around it) hit the **backspace** or **delete** key to remove it from the page and we'll move on

Live Preview is a neat, time-saving way of trying out your ideas before you commit to them on paper. In the next set of exercises, you are going to practice creating simple drawing objects using the basic drawing tools for lines and ovals.

### Working with lines

Let's start with drawing lines..

In the **Insert Ribbon** click on **Shapes**, then, in the **drop down menu of Shapes** click on the **line** tool (when you point at any tool you'll see what the tool is called), then use the mouse to draw a straight **line** anywhere **on the page**

### Working with lines and arrows

Complete the following tasks to learn how to work with, and draw, different styles of lines and arrows.

Click anywhere **off** the line you just drew and notice that the **handles** (little circles) at each end of the line **disappear**



You can only edit or move a drawing object of any kind if the handles are showing. The handles indicate that the object is *selected*. Clicking ON the object selects it; clicking OFF the object deselects it.

Position the mouse pointer anywhere **on** the line and notice how the cursor changes to a **crosshair** (⊕), which tells you that the mouse is correctly positioned on the line so that when you click the mouse it will select the line

Click anywhere **on** the line now, and notice that the **handles** (little circles) **reappear** at each end

Now, with the handles showing, you can edit the line you just drew.

At the top of the window, click on the tab for the **Format Ribbon** (Fig. 3.14)

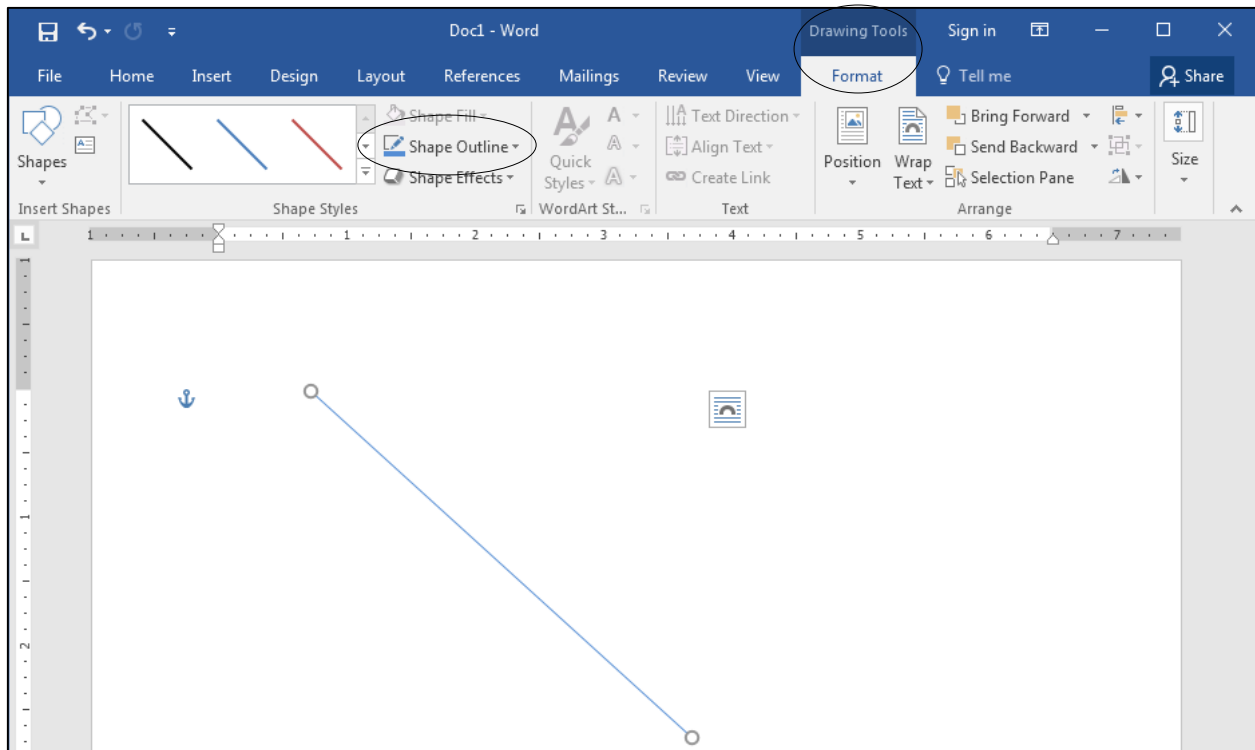


Fig. 3.14 The Drawing Tools Format Ribbon

In the **Shape Styles Group** click on the **Shape Outline** tool to show the pop up menu of **Theme Colors** (Fig. 3.13 on the previous page)

**Roll your mouse** over the palette of colors in the menu to **Live Preview** different **colors, styles** and **weight (line thickness), dash styles, and arrow styles** for the selected line—take your time; make yourself familiar with the various options available

When you are done checking out all the different design options for the line, hit the **Backspace** key or the **Del** key to delete the line from the page

### Working with rectangles and ovals

Creating and editing lines is simple enough. How about shapes such as rectangles and ovals—or squares and circles?

In the **Insert Ribbon > Illustrations Group**, click on **Shapes** to bring down the palette of shapes, then click on either the **rectangle** tool or the **oval** tool, and use the mouse to draw the object on the page (Fig. 3.15)

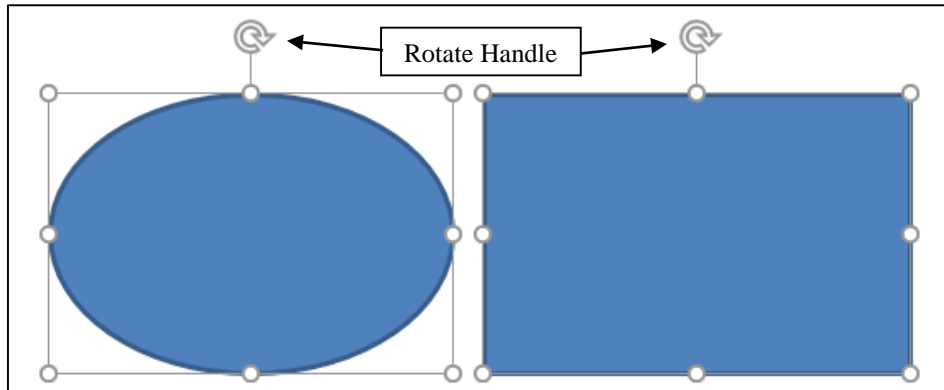


Fig. 3.15 The handles that accompany shapes such as ovals or rectangles

Notice the small handles that surround the shape—four tiny circles in the corners of the shape, four tiny circles at the middle of each side, and the small circular arrow-like shape at the top (which you’ll check out in a moment). You use these handles to change the shape and orientation of the object.

Grab any of the **small white handles** (not the **Rotate handle** at the top) and **stretch** them this way and that to change the shape

Notice that the *corner handles* allow you to stretch the shape any which way you want—even diagonally, whereas the *handles at the middle of each side* only allow you to stretch the shape up or down, left or right.

### Rotating Objects

Now, let’s take a look at the *Rotate handle*—the small circular arrow-like handle at the top (Fig. 3.15 above). This handle enables you to rotate the selected object very precisely either clockwise or counter-clockwise without changing its shape. Let’s try this now.

Use the mouse to point at the **Rotate handle**, then hold down the left mouse button and drag from left to right to **rotate** the object

Notice that you have no choice but to rotate the object in a circular direction. The same will apply when you come to work with pictures or any other type of graphic object later on. Take a couple of minutes to check out the other tools in the *Format Ribbon > Shape Styles Group*.

With the shape selected, in the **Shape Styles Group** use the **Shape Fill** tools to **Live Preview** some **Fill Colors**, **textures**, or **gradients**

Next use the **Shape Outline** (border) tools to **Live Preview** some of the **Colors**, **weight**, or **dashes**

Finally, **Live Preview** some of the **Shape Effects** for shading of various kinds that affect the border and orientation of the shape (3d, Glow, Reflection, shadow, and so forth)

When you are done checking out the **Shape Styles tools**, hit the **Backspace** key or the **Del** key to delete the shape from the page

As you see, there are dozens—well, millions when it comes to colors—of possibilities that you can apply to any shape you draw on the screen.

### Drawing a perfect square or circle

If you want to draw a “perfect” square or a “perfect” circle or any other variety of “perfect” shape, such as an equilateral triangle, you must hold down the *shift key* at the same time as you draw with the respective shape tool. Try this now.

In the **Insert Ribbon > Illustrations Group > Shapes** select either the **Rectangle, Oval,** or **triangle** tool, hold down the **shift** key, and draw the shape

Notice that the shape will always be a perfect square or circle *as long as you hold down the shift key*. After you’ve drawn the square or circle, if you let go of the Shift key you can then go ahead and use the handles to make the rectangle no longer square or to change the circle to an oval.

Try this now—**let go of the Shift key** and **change the shape** of your circle, triangle or rectangle

Be aware, then, that the shape will always be a perfect circle or square as long as you hold down the shift key. Remember this neat trick. It’ll work with other drawing software such as *Paint*, too.

### Moving drawing objects

Creating lines and other shapes is simple enough. But once you have an object drawn, how about editing it and moving it around on the page? To do either of these things, the line or rectangle or oval or other drawing object must first be selected (which means clicking on it so that you can see the handles around it). Let’s practice moving an object around on the page without changing its shape.

Slide the mouse pointer over the object and notice that the pointer changes to a **crosshair** any time the pointer is **anywhere on the border or within the perimeter** of the object, or **on** the object if it’s a simple line—the crosshair tells you that you can move or edit the object when you click on it with the mouse

Now, click on the **object you have on the screen** to select it (you see the handles around the shape), hold down the **left mouse button** and **drag** to move the object anywhere you like on the page

### Resizing drawing objects

How about resizing drawing objects—changing their size and shape? To do this, once again the line or rectangle or other drawing object must first be selected so you can see the handles.

Make sure the **object** from the previous exercise is still selected—you should be able to see the handles around it

If you want to change the *size* of the object without losing the object’s *shape*, you must use a combination of the Shift key and one of the four *corner* handles (not the 4 handles in the middle of each side). Try this first.

Hold down the **Shift** key, then position the mouse pointer on one of the small handles in any **corner** of the shape (**not** one of the 4 handles in the middle of each side or the rotate handle), hold down the **left mouse button** and **drag** in or out to stretch or squeeze the object you have on the screen

Notice that the object keeps its basic shape; when you hold down the Shift key only the size changes. If you're not concerned about distorting the object's shape you can drag on any of the handles without holding down the Shift key. Try this now.

Position the mouse pointer on any of the white handles, hold down the **left mouse button** and **drag** to stretch or squeeze the oval anyway you want

The same thing applies to irregular shapes such as polygons in general or freeform drawings like squiggly lines (yes, there's a squiggly line tool, too!). When you click on the shape, it shows the handles around it. By holding down the Shift key and grabbing one of the handles in the corners, you can make the shape smaller or larger *without otherwise distorting it*. By grabbing any of the handles around the shape *without* simultaneously pressing the Shift key, you can distort the shape by making it thinner or fatter, taller or shorter—whatever.

Try this now.

Make sure the **object you have on the screen** is **selected**—you should be able to see the handles around it—then hit the **Backspace** key to delete it

In the **Insert Ribbon > Illustrations Group > Shapes** tool select the **Scribble** tool, then **write (scribble) your name** on the page (see Fig. 3.16)

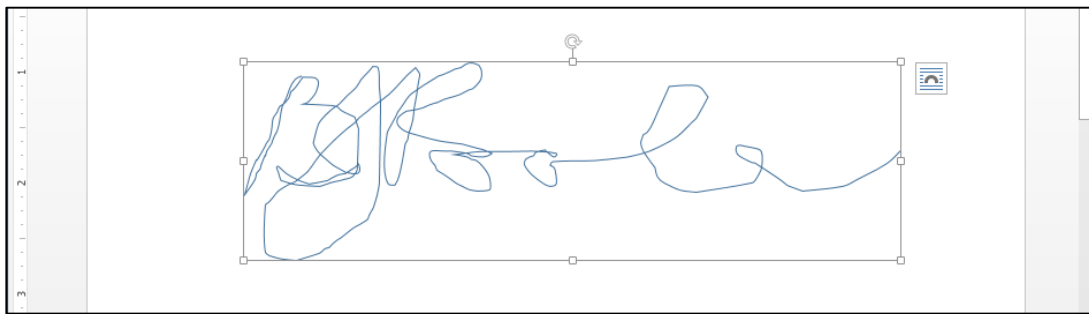


Fig. 3.16 Using the Scribble tool

With your name (the object on the page) highlighted, hold the **Shift** key down, then position the mouse pointer on any of the **corner** handles, hold down the **left mouse button** and **drag** to stretch or squeeze the object anyway you want—it will keep its basic shape; only the **size** of your name will change

Now try it again, but this time without holding the **Shift** key, and notice the **difference**—use all the handles and notice the difference there, too, between using the **corner handles** or the **handles at the middle of each side**

When you are done playing around with your signature, hit the **Backspace** key to delete it from the page

### **Editing (changing) straight lines or arrows**

Editing a straight line or a straight line arrow works a little differently than solid shapes such as ovals, polygons, and so forth, since you only have two handles to worry about—one at either end of the line or arrow. You use either of the handles to lengthen or shorten the line. You also can drag on either handle to rotate it from either end.

Let's try this now.

Draw a straight line or an arrow anywhere on the page, then grab a hold of the **handle** at either end, and **drag the handle** in or out, up or down, from side to side, so you can get a feel for how to change the **length** and **orientation** of the line

No need to save any of this work, so **clear** the **Page** of any drawing objects when you are done

### 3.4 OTHER DRAWING SHAPES

There is a wide selection of predefined shapes that you can use to create your drawings. These shapes are accessed from the Insert Ribbon > Illustrations Group (see Fig. 3.12 on page 96).

Specifically, there are Basic Shapes like text boxes, triangles, cylinders, and so forth, all of which would take you quite a while to create from scratch on your own—unless you’re a talented artist, of course. Then there are shapes designed to help you draw Block Arrows, and shapes to help you create Flowcharts—very useful for planning diagrams. If you want to add “voices” to characters in a diagram, there is a nice selection of Callouts you can use. Finally, when you want to create certificates and such, you can use the Stars and Banners shapes.

For the next exercise, when you have finished the exercise, you are going to Save the file in your Drawing Documents folder (in the Data Files folder) so that you can later send it to your instructor as an attachment in email. So let’s save the blank document you have open on your screen now before we proceed.

In the **File** menu select **Save As...**, navigate to your **USB drive > Work Files for Office 2016 > Data Files folder > Drawing Documents**, name the file **Practice Drawing 1**, and hit **Save**

Now, in the **Insert Ribbon > Illustrations Group**, click on the **Shapes** menu

Spend a few minutes checking out the many sets of shapes available to you, then complete the following exercises—draw each of the shapes small enough so you can fit them all on the page without overlapping the shapes and *don’t delete any of them* because you’re going to send the file to your instructor when you have completed Lesson 3. When you are done with this particular exercise, your page will look something like Fig. 3.17.

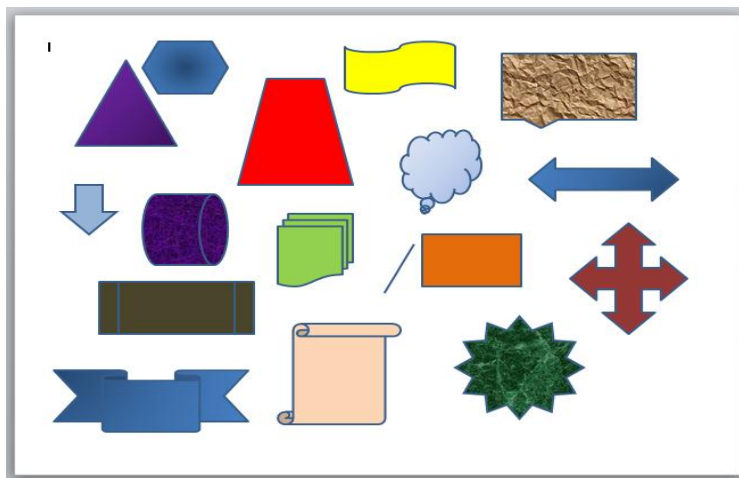


Fig. 3.17

First, in the **Home Ribbon > Layout Group** select **Orientation > Landscape** to turn the page on its side

Draw at least three **Basic Shapes**

Draw at least three **Block Arrows**

Draw at least three **Flowcharting Shapes**

Draw at least three **Callouts**

Draw at least three **Stars and Banners**

Now use the tools in the **Drawing Tools > Format Ribbon > Shape Styles Group** to add **Shape Fills**, **Outlines**, and **Effects** to each of the objects you have drawn (see Fig. 3.17 on the previous page)

**Save** the file on your **USB drive** in the **Work Files for Office 2016 > Drawing Documents folder** with the name **Practice Drawing 1**, then **Close** the document (later in the lesson you'll be sending it **as an attachment in email** to your instructor)

Tools are designed to make your life easier. Having all the *Word* Shapes readily at hand like this will save you and your students a lot of time. For example, you could use these ready-made shapes with a class to help them learn the geometric shapes. This is included as one of the exercises in the **SKILLS CONSOLIDATION** section at the end of the lesson.

### 3.5 USING COLORS, PATTERNS, AND OTHER VISUAL EFFECTS

#### Colors and transparencies

As you have already learned, the *Word 2016* drawing tools give you lots of control over colors, patterns, and other visual effects, such as shadows and 3-D. Let's start with colors and transparencies.

You need a new document for this next drawing exercise, so in the **File menu** select **New > Blank Document**

Go to **File > Save As > Computer > Browse** and, in the **Save As dialog box**, navigate to your **USB drive > Work Files for Office 2016 > Data Files > Drawing Documents**

In the **Save As** dialog box, name the file **Practice Drawing 2**, and hit **Save**

In the **Insert Ribbon > Illustrations Group > Shapes** menu, select the **Rectangle** tool and **draw a rectangle** on the blank page

In the **Drawing Tools Format Ribbon > Shape Styles Group**, click on the **Shapes Fill** tool to bring up the **Theme Colors** menu

Fig. 3.18 illustrates the Theme Colors menu that pops up when, with an object selected on the page, you click on the Shape Fill tool in the Drawing Tools Format Ribbon.

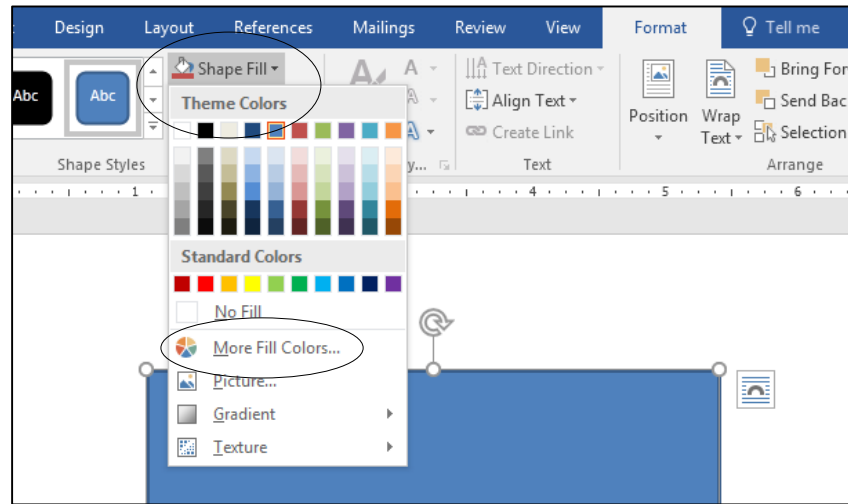


Fig. 3.18 The Theme Colors menu

Notice that you have the choice of a *transparent* object (*No Fill*), or for an object filled with any one of a *range of colors*, or you can fill a shape or object with a *picture* of your choice, or any one of a set of *gradients* or *textures*. Let's try out each of these options.

Scroll over the **50 or so colors** displayed in the menu to **Live Preview** them, then click again on the **Shape Fill** tool to bring up the **Theme Colors** menu, select the option for **More Fill Colors...** and, in the **Colors** dialog box that pops up, click on the **Standard Tab** (Fig. 3.19)

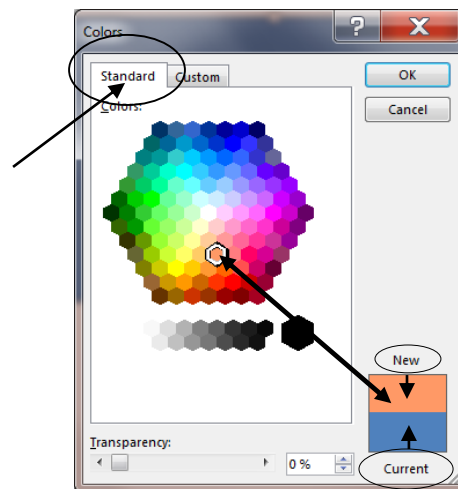


Fig. 3.19 The Office 2016 Standard Colors palette

The Standard Colors palette gives you a selection of 256 colors to choose from<sup>1</sup>. Click on any color in the palette to check it out.

You'll see the **New** color immediately displayed in the box in the lower right corner of the dialog box (see Fig. 3.19) so you can compare it to the **Current** color. Try this now.

<sup>1</sup> That's binary 2<sup>8</sup> colors



Click on any color you like in the palette, check the **New** and **Current** color box (Fig. 3.19 above) to verify your selection, then, if you like the new color you chose, click **OK** to see the new color displayed in the rectangle on the page

In the Colors dialog box, you can also set the *Transparency* of the Fill Color (Fig. 3.20), thus allowing a drawing object that is hidden *behind* a shape to show through. Let's try this.

From the **Insert Ribbon > Illustrations > Shapes** tools select the **Oval** tool and, on the page, draw an oval so that it **overlaps** the rectangle to some extent (Fig. 3.20)

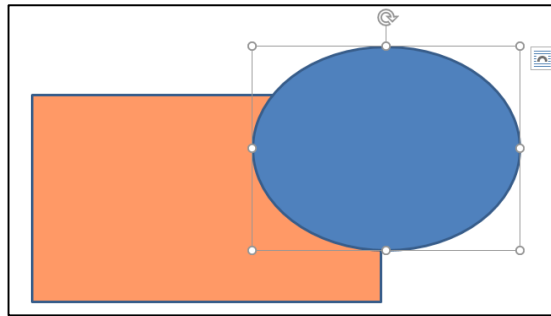


Fig. 3.20 Overlapping shapes

Now click on the **Shapes Fill** tool to bring up the **Theme Colors** menu and, from the **Shape Fill > Theme Colors** dialog box, select the option for **More Fill Colors...** then, from the **Standard Colors** palette, fill the **oval** shape with any color you like and click **OK**

Notice how the oval shape *completely obscures* the part of the rectangle that it overlaps.

Select the **Shape Fill** tool to bring up the **Theme Colors** menu and, from the **Shape Fill > Theme Colors** dialog box, select **More Fill Colors...**, then in the **Standard Fill Colors** dialog box, drag the **Transparency slider box** about **half way across** so you have a **50% or so transparency** (Fig. 3.21), then click on **OK**

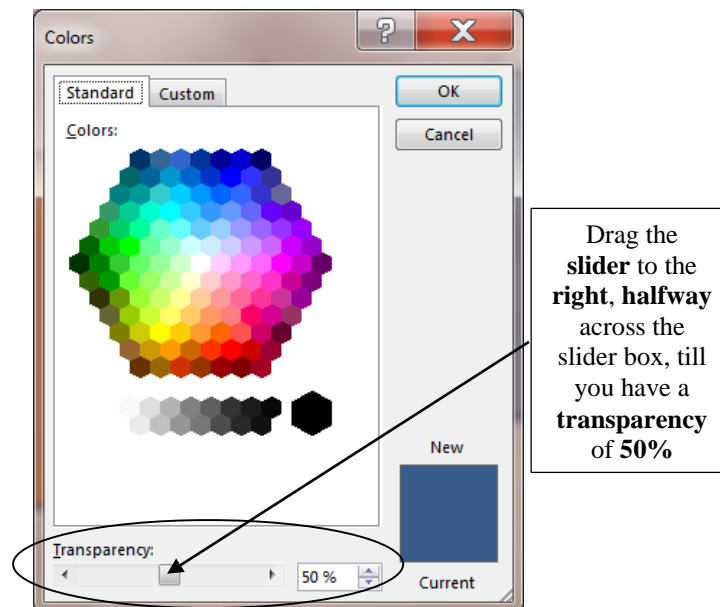


Fig. 3.21 Making a shape transparent

The oval shape now looks like a piece of glass or transparent plastic or sheer material, partially revealing the object that is behind it (Fig. 3.22). Neat, huh?

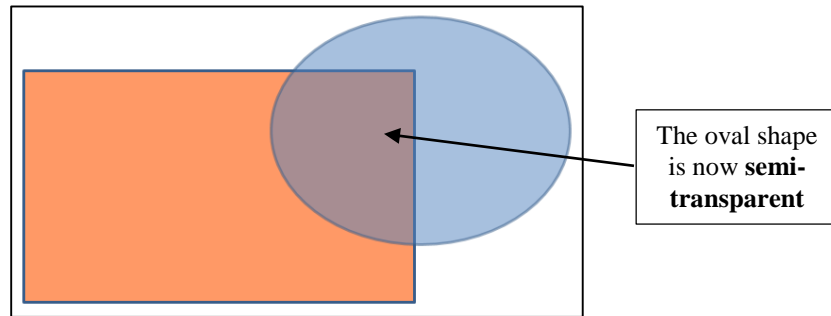


Fig. 3.22 The oval shape is now semi-transparent

Bear in mind that the purpose of this lesson is to show you the many drawing tools in *Office 2016* and let you practice with them. It's up to you now to use them with creativity and skill to produce art work of all kinds for use in your profession.

If the 256 colors of the Standard Colors palette aren't enough for you, you can use the Custom Colors palette instead (Fig. 3.23).

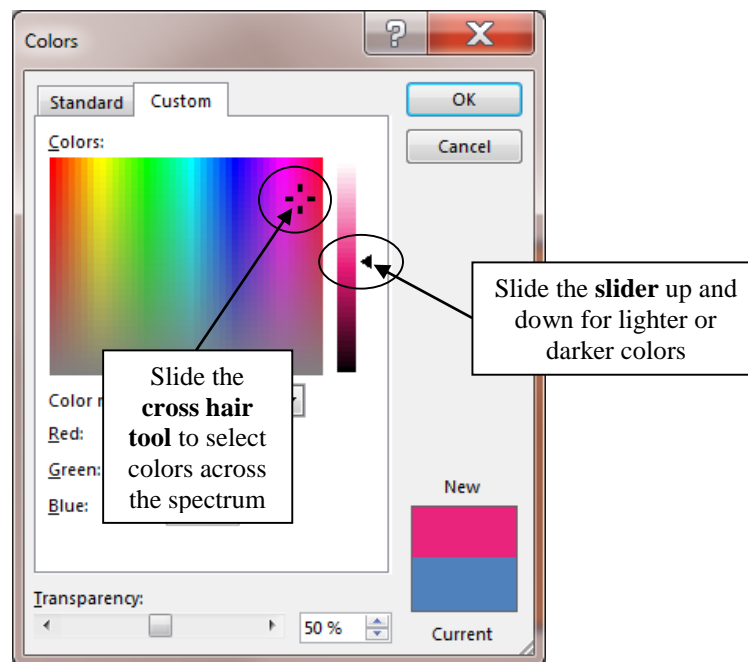


Fig. 3.23 The *Office 2016* Custom Colors palette

The Custom Colors palette lets you to choose from any of over *16 million different colors*! That's because the Custom colors palette uses 24 bits to store the colors in the computer memory. It's called 24-bit color. The computer uses a mix of 24 microscopic on-off switches to store the code for any one of 16+ billion different colors—hundreds of thousands of shades of green or blue or pink, for example. Let's try the Custom Colors palette now.

Spend a couple of minutes in the **Custom Colors** palette illustrated in Fig. 3.23 above, using the **color mixers** (the **cross hair** and the **slider**) to practice mixing a few of the multitude of colors available to you

## Fill Effects

There also are *Fill Effects* as well as *Colors*, to help you improve the appearance of the objects you draw.

For example, there are different *gradients* you can use to fill shapes with smoothly graded shades of color, as well as different *textures* such as marble, slate, wood, cloth or canvas and different *patterns*. You also can fill shapes with any picture you want—pictures that you may have taken yourself or which you might find amongst collections of pictures and other art work that are freely available online. Let's check out *Gradient* effects first.

### Gradients

When we talk about “gradients” we mean the way you can fill drawing objects (rectangles, ovals, etc.) with graded shades of the same color. You'll quickly see what this means as you complete the following exercise.

Click to select the **rectangle shape** on the page, then in the **Drawing Tools > Format Ribbon** bring up the **Shape Fill > Theme Colors** menu and select the option for **Gradient**

This will bring up the pop up menu of Gradients (Fig. 3.22).

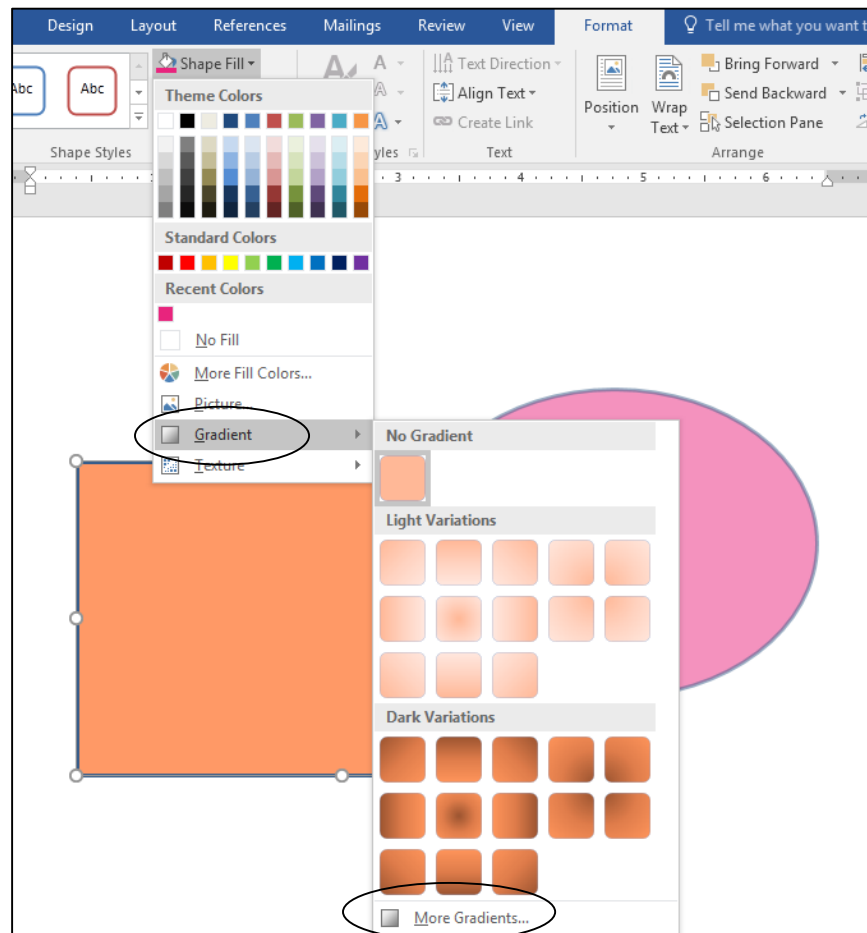


Fig. 3.22 The Gradients dialog box

**Live Preview** some of the **gradient styles** now to see how they look in your **rectangle** shape (still partly obscured by the oval shape), then **click** on any one of the **gradient styles** to select it

Again, in the **Drawing Tools > Format Ribbon** bring up the **Shape Fill > Theme Colors** menu and select **Gradient > More Gradients...** (see Fig. 3.22 above)

This will bring up the *Format Shape* frame on the right hand side of the *Word* window (Fig. 3.23).

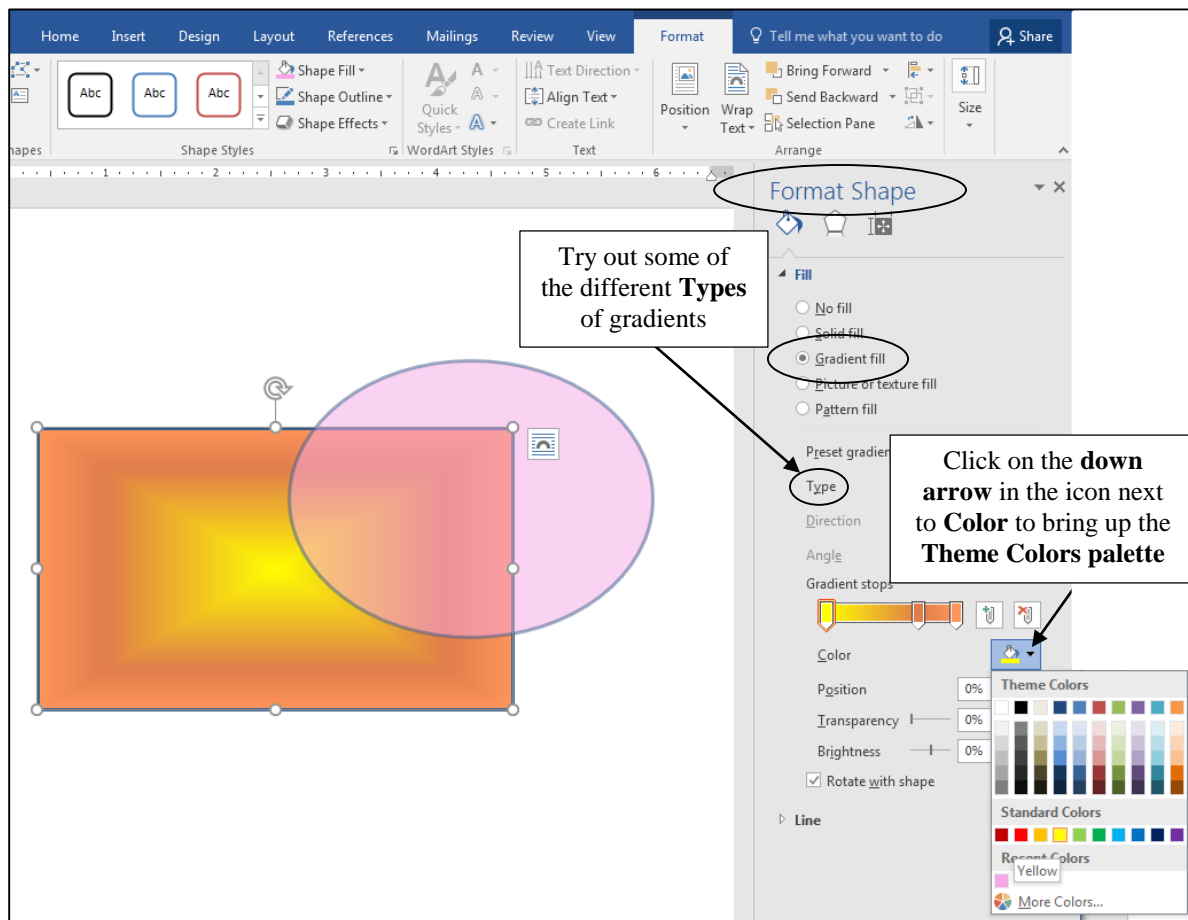


Fig. 3.23 The Format Shape dialog box

With the **Rectangle shape** still selected, in the **Format Shape** frame, make sure the **radio button** next to **Gradient Fill** is selected (which it should be by default—Fig. 3.23)

Now click on the **down arrow** in the icon next to **Color** to bring up the **Theme Colors palette** (Fig. 3.23 again) and select any color you like, then click on **OK**

Notice that this gives you a mix of *two colors* in the gradient.

Try out some of the gradients **Types** when you combine two colors like this; play around with all the tools in the Format Shape frame to check them out

**Close (x out of)** the **Format Shape Frame** when you are done

The more artistic you are, the more skillfully you will be able to apply these effects. Even if you don't think you are artistic, you'll be surprised what you can come up with.

### Textures

This time, click on the **oval** shape to select it, bring up the **Shape Fill > Theme Colors** menu again, and select the **Texture** option

**Live Preview** the textures in the **oval shape** and then **click** to select a texture for your oval shape (Fig. 3.24)

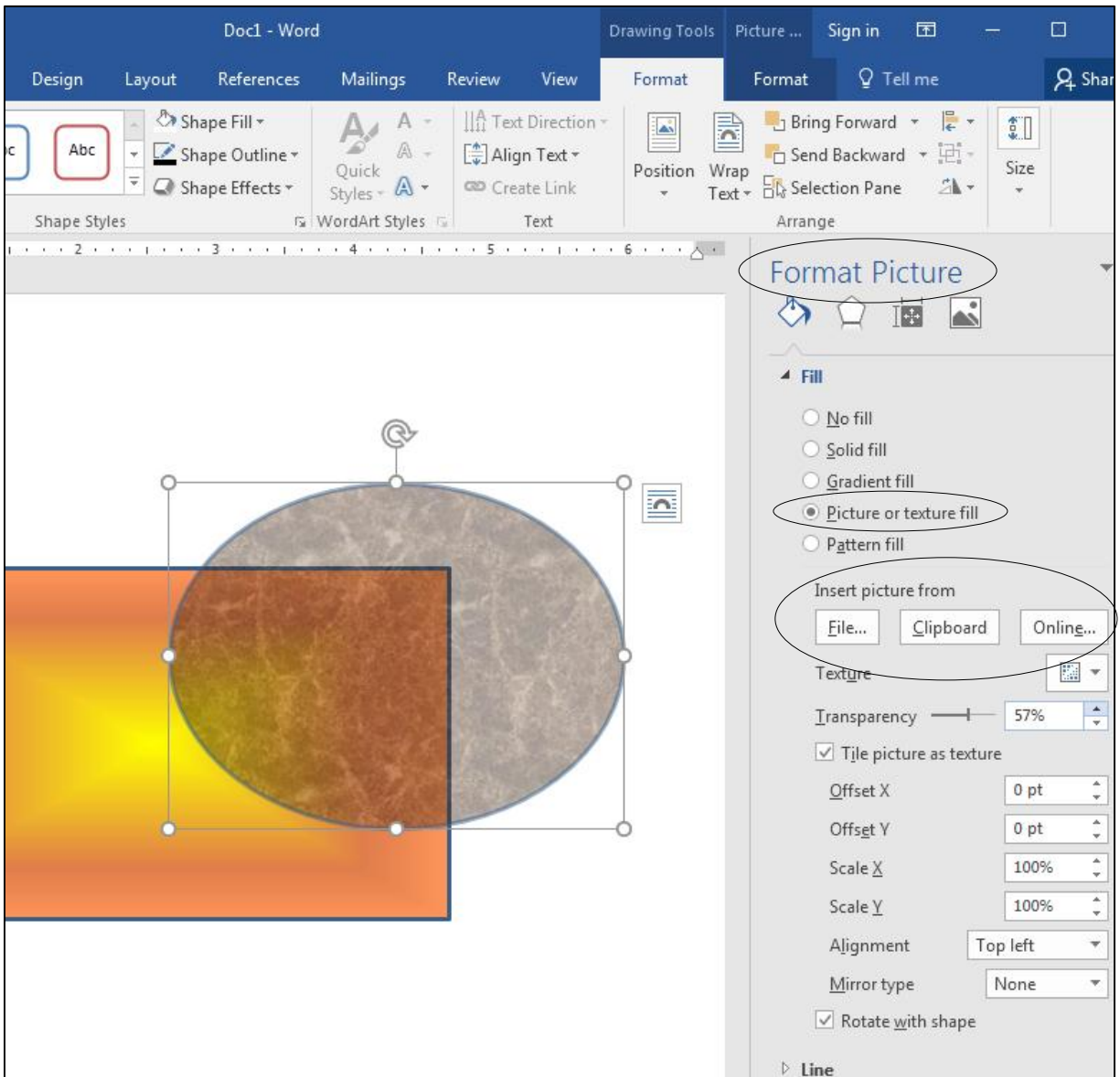


Fig. 3.24 Filling a shape with a semi-transparent texture

If you want to use more effects on the texture you've chosen, you would click on *More Textures...*

Click on the **oval** shape, bring up the **Shape Fill > Theme Colors** menu again, select the **Texture** option, then click on **More Textures...** to again bring up the **Format Shape** dialog box (Fig. 3.24 above).

## Pictures

Notice (Fig. 3.24 on previous page) that you also can import a texture as a picture from either a *File* on your computer, or from the *Clipboard*, or from *Online*. For this exercise, we'll use a picture already saved in the *Work File for Office 2016* folder on your USB drive.

To fill a shape with a picture, as illustrated in Fig. 3.25, you would click on the *File...* button to select a picture from those you already have on disk.

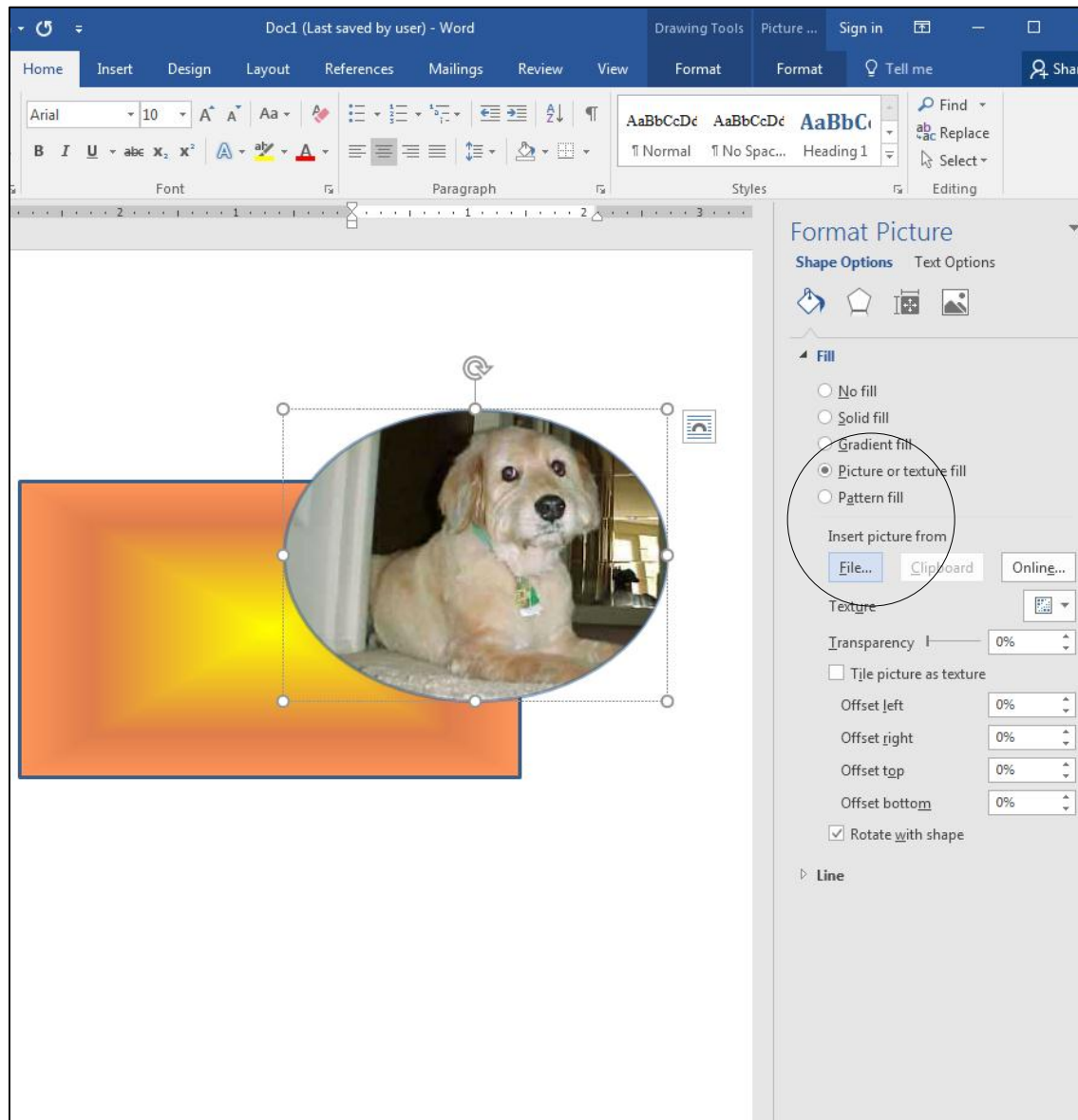


Fig. 3.25 Filling a shape with a picture

In the **Format Picture frame**, click on the **File...** button then, in the **Insert Picture dialog box**, navigate to your **USB drive > Work Files for Office 2016 > Miscellaneous Files** folder and **double click** on the file named **Benji** to **Insert** it into the **Oval shape**

If the picture of Benji looks distorted, **grab one of the Oval's corner handles** and adjust the shape so that it successfully accommodates the picture



### Picture Borders and Effects

Notice that there are *two* Format Ribbons at the top of the window—one for *Drawing Tools* and the other for *Picture Tools* because of the Picture that you just inserted in the oval (Fig. 3.26).

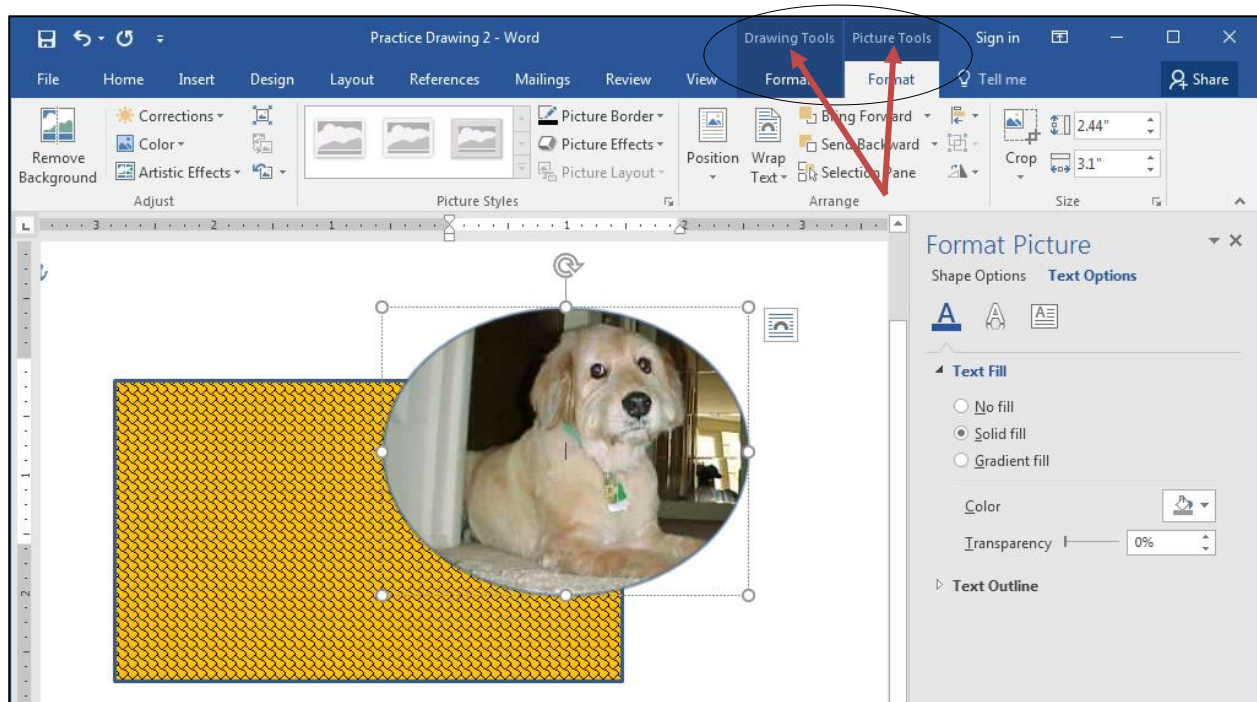


Fig. 3.26 The Two Format Ribbons—one for Drawing Tools and the other for Picture tools

Click on **Picture Tools > Format Ribbon > Picture Styles** and try out the **Picture Border** and **Picture Effects** tools—try and reproduce something similar to Fig. 3.27—if you select something you don't like, just do **Ctrl+z** to undo and try again; have fun 😊



Fig. 3.27 Using the Picture Border and Picture Effects tools



### Shape Effects

All that remains is to try out the various Shadow Styles and 3-D Effect tools. These are located in the *Drawing Tools Format Ribbon* and are accessed from the Shape Effects menu. It'll be best to see the effect of these tools if you have both shapes selected.

Hold down the **Shift** key and click on each of the shapes in turn to select **both shapes** together

It will also be a good idea for this exercise to slide the rectangle/oval objects down the page so you can see what you're doing when the menus pop up.

With the mouse pointer positioned on the shapes (the pointer becomes a **cross hair**), **drag down** to move both shapes halfway down the page

In the **Drawing Tools > Format Ribbon > Shape Styles Group**, select the **Shape Effects** tool to bring up the **Shape Effects** menu

Now **Live Preview** the various **Shadow/Reflection/Glow/Soft Edges/Bevel effects** and the **3-D** options by **rolling over the menu** with the mouse to check out what you can do; click on any effect to select it for your shapes

Notice how the shadows or 3-D effects are the same for both the selected objects. This is a good way to add consistent shading and depth to a drawing you're creating.

**Save** the file (**Practice Drawing 2**) before proceeding with the tutorial (later in the lesson you'll be sending it to your instructor)

### Patterns

Start by selecting both shapes.

Hold down the **Shift** key and **keep it down** while clicking on the **oval** shape and then on the **rectangle** shape

Notice that you can see the handles around both shapes now. This allows you to make changes to both shapes at the same time.

In the **Drawing Tools > Format Ribbon** bring up the **Shape Fill > Theme Colors** menu, and select **Gradient** or **Texture**, then roll the mouse pointer down to the bottom of the sub-menu and click on **More Gradients...** or **More Textures...** to bring up the **Format Shape** frame (Fig. 3.28)

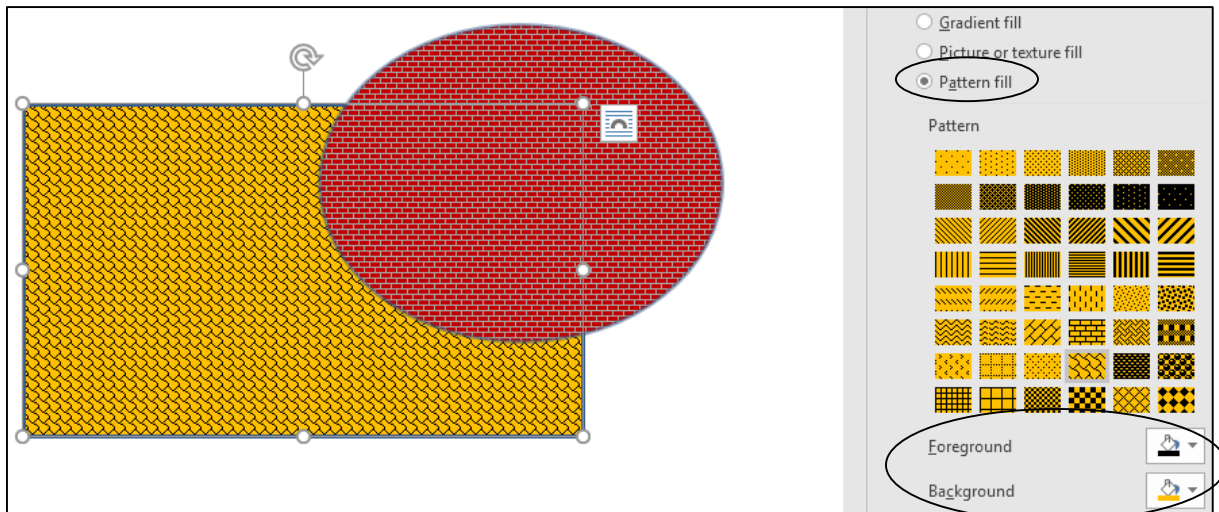


Fig. 3.28 The Pattern Fill palette

This time, in the **Format Shape** dialog box, click in the **radio button** next to **Pattern Fill** to display the set of pre-defined patterns you can use to fill a shape (Fig. 3.28 previous page)

Initially, the pattern options displayed in the Frame are all in black and white, but you can vary the foreground and background colors of the patterns by clicking on the foreground and background color buttons, as illustrated in Fig. 3.28 above.

Try some of the **patterns** now, selecting different **foreground** and **background** colors before clicking on **OK** to select the different patterns in the oval and rectangle shapes

**Save** the file (**Practice Drawing 3**) in the **Work Files for Office 2016 > Data Files > Drawing Documents** folder before proceeding with the tutorial

### 3.6 GROUPING, ORDERING, AND ALIGNING OBJECTS

You've probably noticed that when you use the *Office* drawing tools to put one shape, or drawing object, on top of another, it stays where it is unless and until you move it. It overlaps the other drawing object, like the oval and rectangle shapes in the previous exercises. But the rectangle and oval are not glued or fused together. Each drawing object has a life of its own on the screen, even if it looks as if it's part of some other drawing object.

Other art programs, such as *Paint*, work more like an artist's easel, where the paint or medium—such as oil on canvas, tempera on panel, watercolor on paper, and so forth, create an overall image that is impossible to physically sub-divide into separate parts.

With the Drawing Tools, every object you create is always a separate entity from the other objects on the page, even if they overlap. You can *group* objects together if you want, as we'll see in a moment. When you group them, they effectively become one object as long as they are grouped. But you also can *ungroup* them whenever you please.

This is because all the drawing objects are like pieces of a jigsaw puzzle or a deck of cards. You can group the jigsaw pieces by fitting them together, or you can group the cards in a deck by gathering them into a pack of cards. Or you can ungroup them by scattering them to the winds. Let's see how this works in *Office 2016*.

It will be easiest to do the next exercise if you zoom out on the page. This will allow you to view the whole page on the screen if you can't already do so.

Use the **zoom** tool (Fig. 3.29)—the slider in the **lower right corner** of the *Office 2016* window—to **zoom out to 50%** of the page's normal size

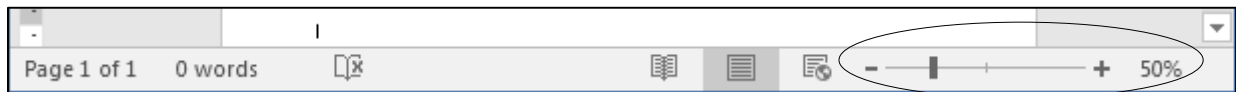


Fig. 3.29 The *Office* Zoom tool

There, now you can see the whole page on the screen, so you'll have no need to scroll and you'll see what you're doing while you complete the exercises that follow. You should still the two shapes on the page—the rectangle and the oval. But let's get rid of the photo in the oval (if you didn't already do so).

Click on the **oval shape** and **fill it** with a **basic color** of your choice

You need a new name for this next drawing exercise, so in the **File** menu select **Save As...**, navigate to your **USB drive > Work Files for Office 2016 > Data Files Folder > Drawing Documents** folder, name the file **Practice Drawing 4**, and hit **Save**

In the **Insert Ribbon > Illustrations Group > Shapes** menu > **Basic Shapes** select the **Hexagon (six-sided shape)**

Draw a **hexagon** (not too big) so that some part of it **overlaps** either the oval or the rectangle or both, but **doesn't actually hide** either the **oval** or the **rectangle**—make sure you can still see at least a piece of **all three shapes**

Fill the hexagon with **any color** you like (ideally **different** from the oval and rectangle colors)

Now use the **Shape Styles > Shape Outline** tool to increase the thickness (**weight**) of the hexagon's border to at least **6pt**, and use the **Shape Styles > Shape Outline > Theme Colors** tool to select a **different color** for the border

Repeat the same steps to draw a small **parallelogram** (slide your mouse pointer over the shapes and the system will tell you which is a parallelogram or trapezoid), **trapezoid**, **diamond**, and **triangle** (again making sure none of the objects actually hides any of the others completely—you should be able to see a piece of all seven (7) shapes when you're done

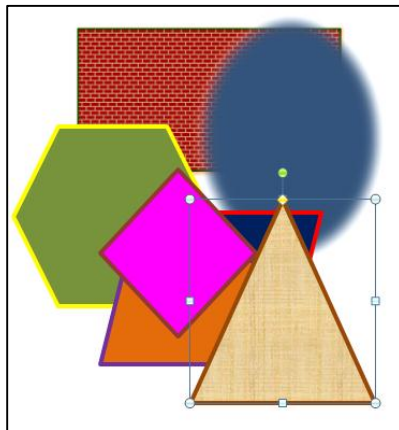


Fig. 3.30

Next, fill each of the five shapes you just added with a different color, gradient, texture, or pattern (**Shape Styles > Shape Fill > Theme Colors**)—something like Fig. 3.30 above

So now you should have on your page (screen) seven different shapes with seven different fill colors and various other effects. The reason you need to be able to see at least a piece of each shape is to make it easier for you to do the next exercise. If you wanted to, you could completely cover one shape with another. It just depends what you want to do.

No doubt your page now looks like a work of abstract art! So let's save it (Practice Drawing 4) so that you can email it in to your instructor at the end of the lesson along with the other practice drawings.

**Save** the contents of the page (**Practice Drawing 4**) before proceeding with the next step in this exercise

### Grouping drawing objects

You need a new name for this next drawing exercise, so in the **File menu** select **Save As...**, navigate to your **USB drive > Work Files for Office 2016 > Data Files Folder > Drawing Documents folder** on your disk drive (USB drive), name the file **Practice Drawing 5**, and hit **Save**

Right now, all the objects are separate—ungrouped. Let's group them into three groups.

First, click anywhere **off all the shapes** so that none of them is selected

Using the mouse, and holding the **Shift** key down, click on the **oval** shape and the **rectangle** shape

Now, **right click** anywhere **on the two selected shapes** and, in the context menu that pops up, select the **Group > Group** option

Check your drawings now and notice that the oval and rectangle shapes have just one set of handles. Now you can treat them as one object and move them around on the screen as one object, independently of the other objects.

Grab the **oval and rectangle shapes** with the mouse and slide them over to the **right edge** of the page

Complete the following steps to create groups of the other objects.

Again, click anywhere **off all the shapes** so that none of them is selected

Using the mouse, and holding the **Shift** key down, click on the **trapezoid** shape and the **Triangle** shape, **right click** on the **two selected shapes** and, in the context menu, select the **Group > Group** option

Next, slide the **trapezoid and triangle shapes** up towards the **top center** of the page and click anywhere **off all the shapes** so that none of them is selected

Using the mouse, and holding the **Shift** key down, click on the **remaining 3 independent shapes**—the **hexagon** shape, the **parallelogram** shape, and the **diamond** shape—**right click** on the **three selected shapes** and, in the context menu, select the **Group > Group** option

Slide this final group of shapes down towards the **left center** of the page

Check your drawings, click on **each group in turn**, and **slide them around** on the page

Notice that each group now has just one set of handles and that they move as a group. You can even rotate them as a group.

Try this now by clicking on any of the three groups, grabbing the **Rotate handle** and **rotating** the grouped shapes

This is often very useful when you create a complicated drawing using several objects, like lines and shapes, and you want to move them around a few items at a time, or all together or rotate them

as one object or as several specific objects, and so on. Just group them all together, and Bob's your Uncle! You'll have another chance to practice this when you do the Skill Consolidation exercises at the end of the lesson.

### Resizing objects

This is easy.

Click on any of **the shapes** to select a group and grab hold of one of the corner handles (not the rotate handle) and drag in to make the group smaller

Do the same thing to reduce the size of the other two groups, then drag the oval and rectangle group to the **top right corner** of the page, the trapezoid and triangle to the **lower center**, and the hexagon, diamond and parallelogram to the **top left corner**

Your drawing should now look a bit like figure 3.31.

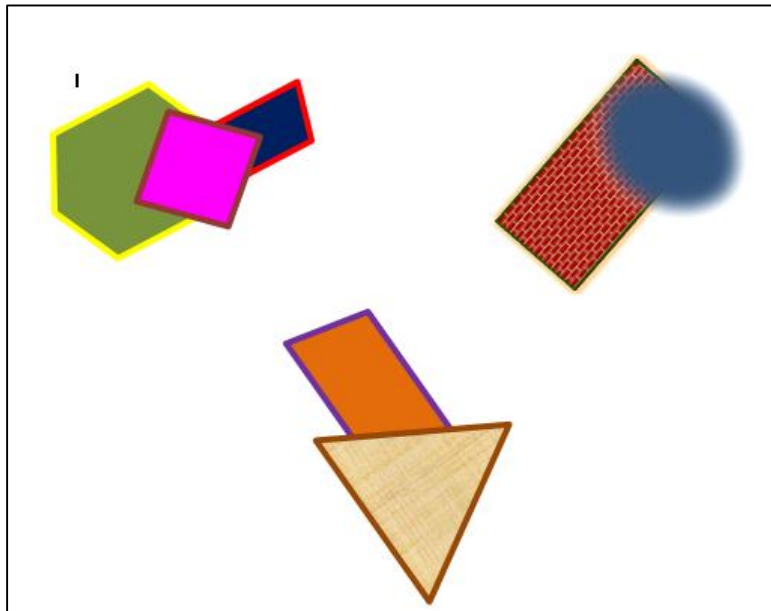


Fig. 3.31

**Save** the contents of the page (**Practice Drawing 5**)

### Aligning drawing objects

You need a new name for this next drawing exercise, so in the **File menu** select **Save As...**, navigate to your **USB drive > Work Files for Office 2016 > Data Files Folder > Drawing Documents folder** on your disk drive (USB drive), name the file **Practice Drawing 6**, and hit **Save**

The Drawing Tools come with some useful alignment and rotation tools which save you dragging drawing objects into place on the page when your goal is to align them symmetrically on the right or left, or to rotate them 90°, and so forth. The following steps show you how to do this.

Click anywhere **off all the shapes** so that none of the three groups of shapes is selected

Now locate and click on the **parallelogram-diamond-hexagon group**

In the **Format Ribbon > Arrange Group**, select **Align** to bring up the Align menu (Fig. 3.32)

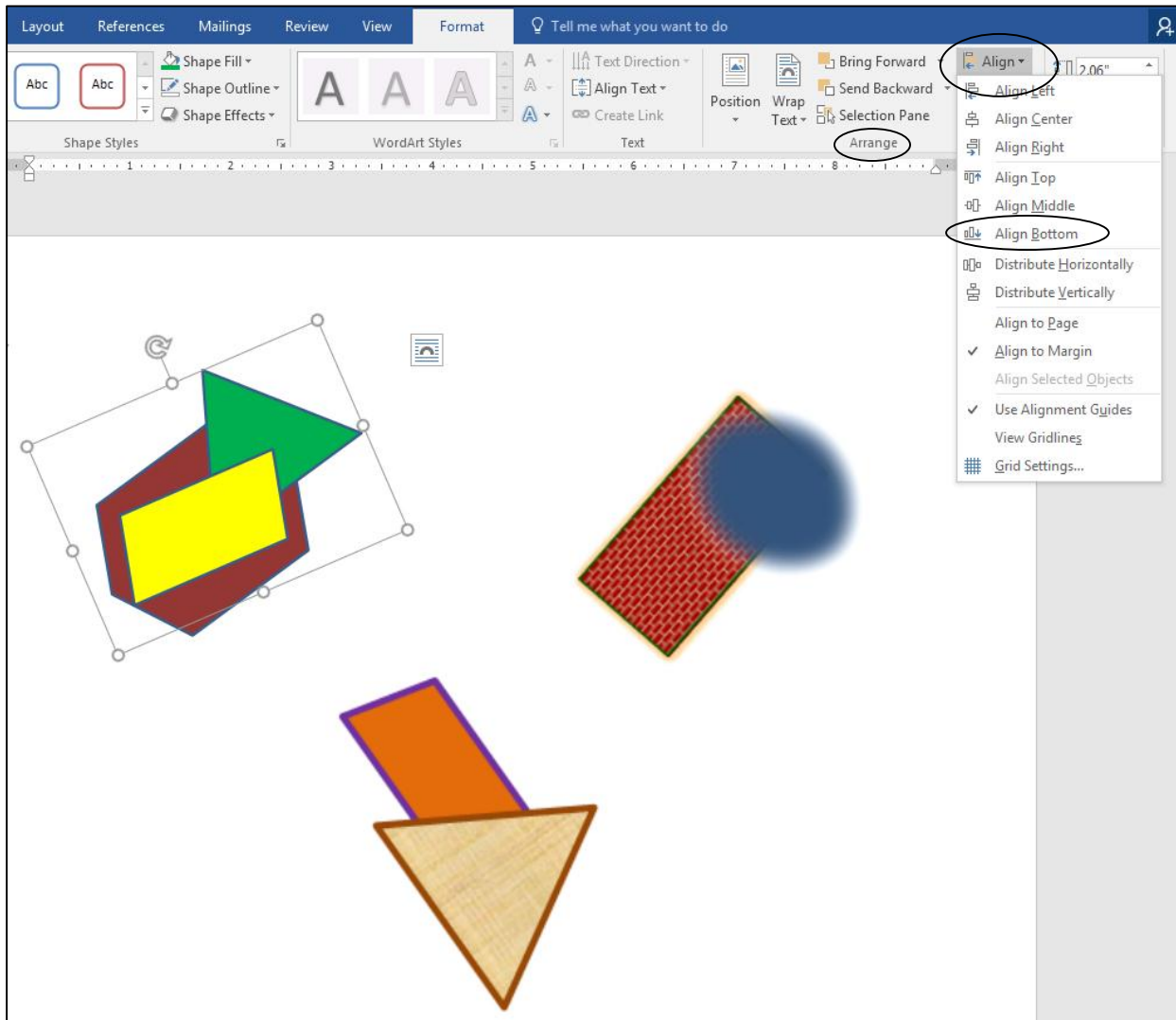


Fig. 3.32 The Align tool in the Arrange Group

Select the option to **Align Bottom**, and notice how the three shapes are shifted to the bottom of the page

Now select **Align Right** and notice how the selected objects are **snapped** to the **right edge** of the page

Now click on the **rectangle-oval** group and select **Align center** and notice how the selected objects are **snapped** to the **center** of the page

Try this on your own now with **the remaining objects** and **Align** them in various ways until you are familiar with how the alignment options work

End up by aligning the **oval-rectangle group top and center**, the **hexagon-diamond-parallelogram group middle and center**, and the **triangle-trapezoid group bottom and center** on the page



You can align all the objects at once, or you can align them one, two, or three at a time. It just depends on what you want to do.

### Rotating drawing objects

In the Arrange Group of the Drawing Tools Format Ribbon, there also is a selection of rotation tools (Fig. 3.33).

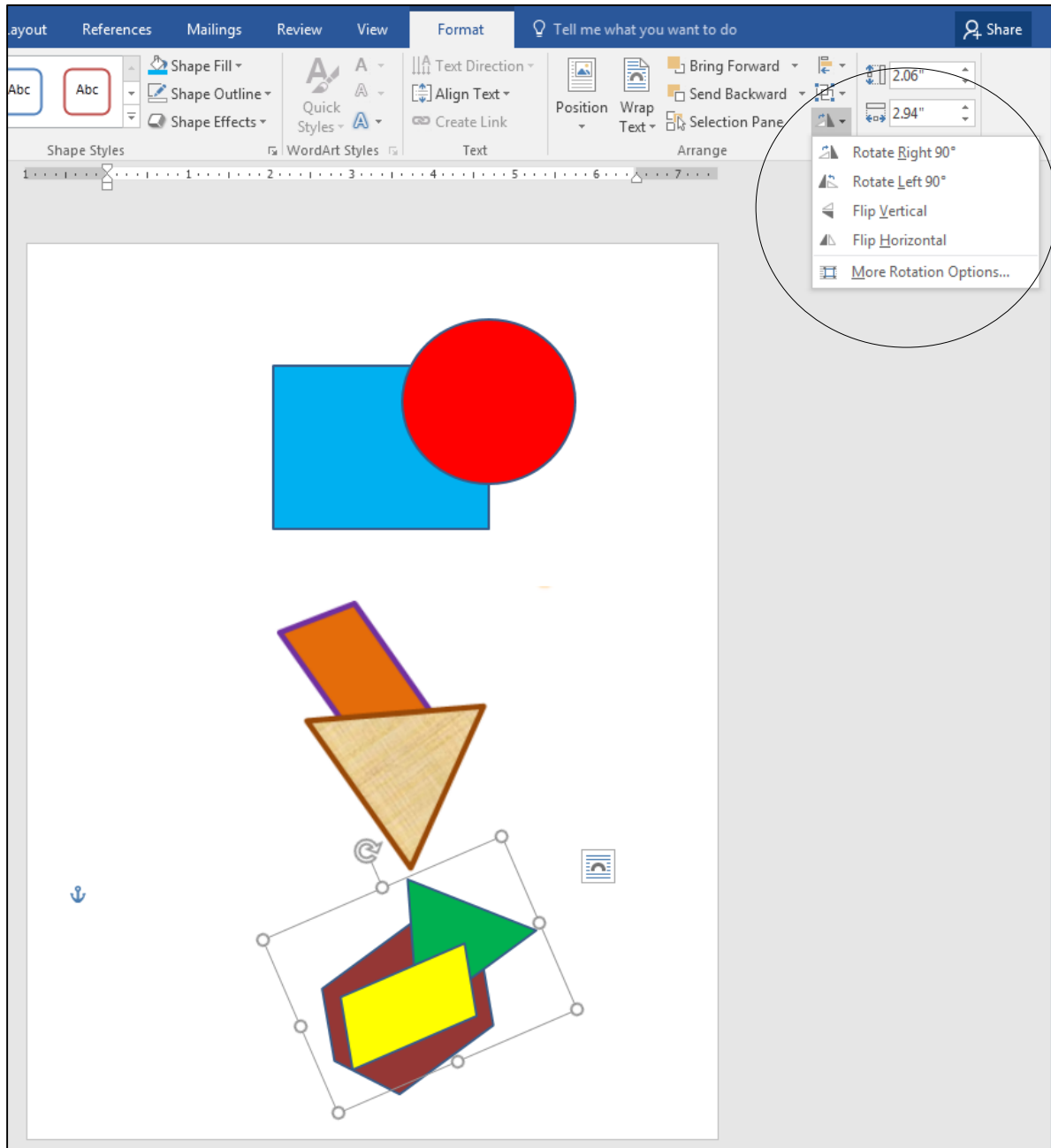


Fig. 3.33 Rotation tools

Click on **each group** of shapes in turn and **rotate** or **flip** them any way you want to familiarize yourself with these **Rotation tools**



**Save** the contents of the page (**Practice Drawing 6**) before proceeding with the next step in this exercise

### Ungrouping objects

This is easy, too.

You need a new name for this next drawing exercise, so in the **File menu** select **Save As...**, navigate to your **USB drive > Work Files for Office 2016 > Data Files Folder > Drawing Documents folder** on your disk drive (USB drive), name the file **Practice Drawing 7**, and hit **Save**

First, click anywhere **off all the shapes** so that none of them is selected

Click on the **oval-rectangle** shape, **right click** on it and, from the context menu, select **Grouping > Ungroup**

Look at the oval and rectangle shapes now and notice that all the handles for each shape have reappeared.

Now click anywhere **off the oval-rectangle shapes** so that neither of them is selected, then click on **just the oval shape** and notice that it is now independent of the rectangle shape

Repeat this to **ungroup all** the other objects—be sure to ungroup them all for the sake of the following exercises; it'll also give you extra practice and, as you know so well, **Practice makes perfect!**

### Ordering the drawing objects

The order of the shapes right now should still be the same as the order in which you created them. So the rectangle is in the back, the oval on top of the rectangle, and so forth. Think of the objects as layered one of top of the other—even if they aren't actually touching. But because you've moved them all around, they may no longer all be touching each other. So let's slide them all back on top of each other in the middle of the page so you can see how the ordering function works.

Rearrange all the shapes so they are **overlapping** each other in the center of the page (something like in Fig. 3.34)

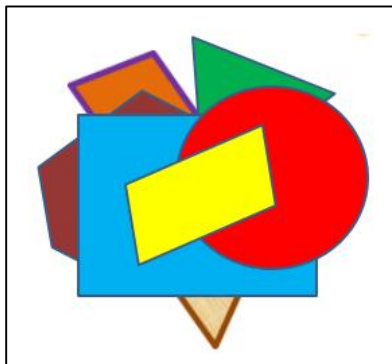


Fig. 3.34 Drawing objects layered on top of each other

Notice how they are all still layered in the order that you originally created them, so the last object created (in Fig. 3.34 it happens to be the parallelogram) is on top.

You can rearrange (re-order) objects backward (down) or forward (up) in the layers. To do this, you select the object you want to re-order and then select the appropriate option in the Draw menu. Time to try this out; then you'll see how it works.

Click to select the **top** shape first, **right click** on it, then from the **context menu**, select **Send to Back > Send Backward**

This drops the top shape back behind the immediate next shape in the pile of shapes (or deck, if you think of the shapes as a deck of cards).

Select the new **top** shape again, **right click** on it then, from the **context menu**, select **Send to Back > Send to Back**

Now the top shape is moved all the way to the bottom of the deck. You can bring objects forward or send them back, either one layer at a time, or all the way forward or all the way back in one go.

Try this now with **several** of the objects, using **each one of the Order options** till you get the hang of it, then **Save** the file (**Practice Drawing 7**) when you're ready to move on

### 3.7 WORKING WITH TEXT AND *WordArt*

It will be easiest to start over with a new *Word* document for this part of the tutorial.

In the **File menu** select **Close** to close **Practice Drawing 7**, then in the **File menu** select **New > Blank Document**

In the **File menu** select **Save As...**, navigate to your **USB drive > Work Files for Office 2016 > Data Files Folder > Drawing Documents folder** on your disk drive (USB drive), and name the file **Practice Drawing 8**, then hit **Save**

#### Using the Text Box tool

In the **Insert Ribbon > Illustrations Group** click on the **Text Box** tool (Fig 3.35)

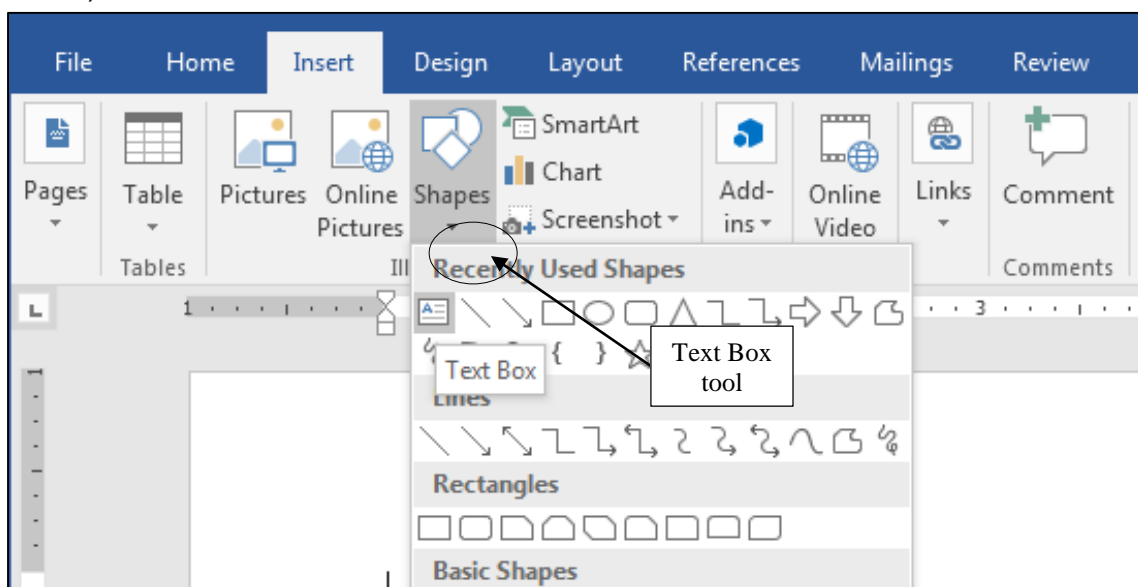


Fig. 3.35 Text Box tool

On the blank page, the cursor becomes a crosshair (+).

Hold down the **left** mouse button and **drag** to create a **text box** about **3"** (3 inches) **square** (Fig. 3.36)

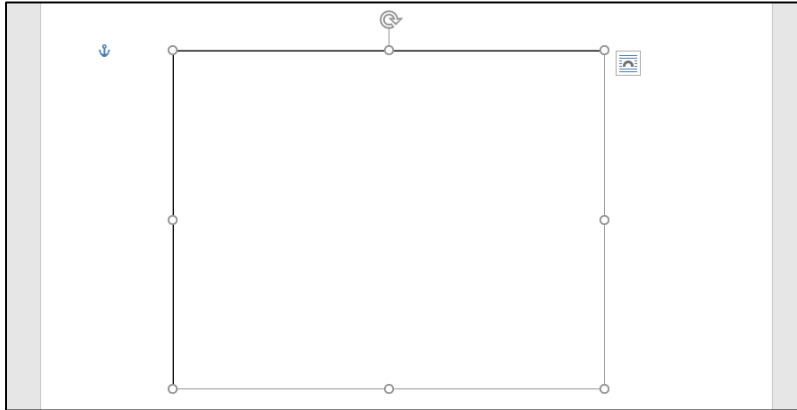


Fig. 5.36 Drag to describe (create) an empty text box on the page

Type into the text box **the following text**:

The beauty of the drawing tools is that they give you lots of control over your art work and make it relatively easy for you to create sophisticated designs. You won't be an expert by the time you're done with this lesson, but you will probably have a much better idea of what you're doing. It's up to you to use the tools A LOT till you become an expert.

Use the **handles** to **stretch** the **Text box** up and down and from side to side and notice that you can make the Text Box **any shape you want** as long as it fits the contents you have put inside it

Bear in mind that the text box is a drawing object, so it can be manipulated using any of the tools in the Drawing Tools > Format Ribbon.

If necessary, position the **tip of the mouse pointer** anywhere on the **outside border** of the text box and click once to **select the Text Box** (you can see the **handles** around it)

With the **tip** of the mouse pointer on the outside border (but **NOT** on one of the handles) hold down the **left mouse button** and **drag** the **text box** to the right or left or up or down—you decide where you want its final position on the page to be

Now, in the **Drawing Tools Format Group** select **Shape Fill** and, in the drop down menu of **Theme Colors**, **Live Preview** any of the colors and watch as the Text Box is transformed

Notice that, for the sake of readability, the text is automatically adjusted from black to white depending on how dark the background color is.

Next, in the **Drawing Tools Format Group** select **Shape Outline** and, in the drop down menu of **Theme Colors**, select **No Outline** then, in the **Home Ribbon > Paragraph Group**, select **Right Aligned** for the text

Fig. 37 illustrates how such a text box can be integrated into a handout. All the objects—pictures and Text Boxes—can be arranged anywhere on the page as independent objects that can be grouped or ungrouped, moved forward or backward, depending on how you want the page to look.

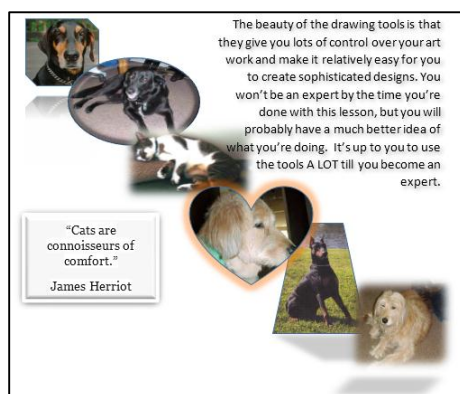


Fig. 3.37 A simple handout

Page layout skills such as this, where you have a piece of writing in a text box and where you need to lay it out as part of a page, are the kind of thing teachers need to know how to do. You will undoubtedly be putting together handouts for your students. Maybe you'll produce a class magazine or, even better, maybe you'll supervise your students when they produce a class magazine under your direction. The text box is a useful tool for explaining the contents of diagrams, as illustrated in Fig. 3.38.

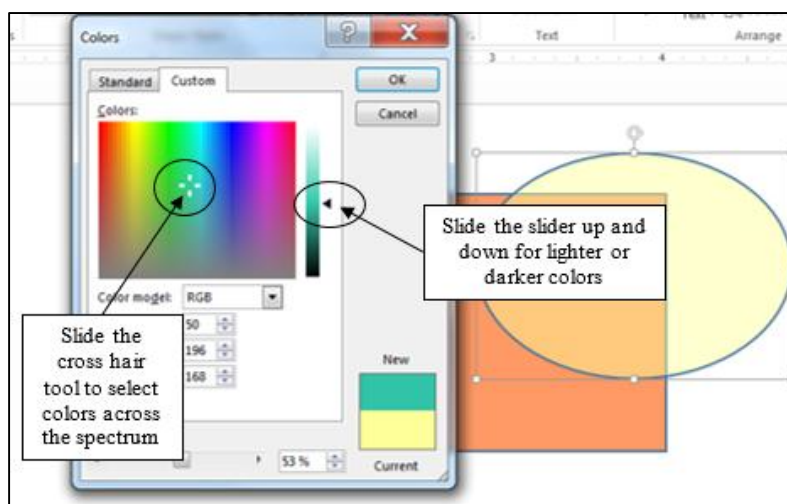


Fig. 3.38 Using text boxes to explain components of a handout or illustration

### Using the WordArt tool

WordArt is a set of graphic fonts that add a touch of flair or pizzazz to your text. The best way to see what this involves is to try it for yourself.

Click to put the cursor at the **beginning** of the text in the **Text Box** you created for the last exercise (before the words **The beauty of these drawing tools...**), then **align** the text back to the **left margin** and change the **Shape Fill color** back to **White**

Hit **Enter twice** to move the text **down two lines**, then click at the **top left** just **inside the text box** to put the cursor there

Doing this may push the last line or two of your text below the edge of the Text Box, so...

...if necessary, grab **any one of the handles** at the **bottom** of the text box and **drag down** to make the box big enough to accommodate all of the text in the text box (the **cursor** should still be in the **top left corner** of the Text Box)

Now, in the **Insert Ribbon > Text Group**, click on the **WordArt** tool (see Fig. 3.39)

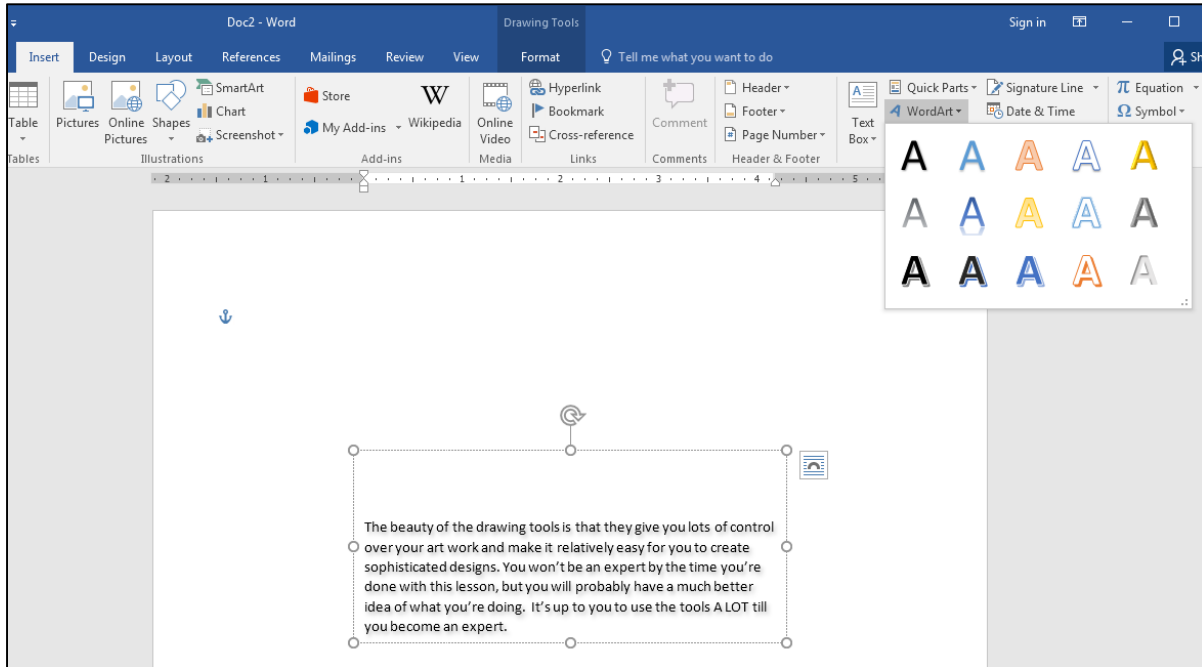


Fig. 3.39 The WordArt Gallery

This brings up the WordArt Gallery from which you can choose whichever style of font graphics appeals to you.

Take a look at the various word art **styles** in the **WordArt Gallery**, then select one that you like by **double clicking** on it (you can easily change it later if you change your mind)

A *WordArt Text* box appears on the screen where you positioned the cursor (Fig. 3.40).

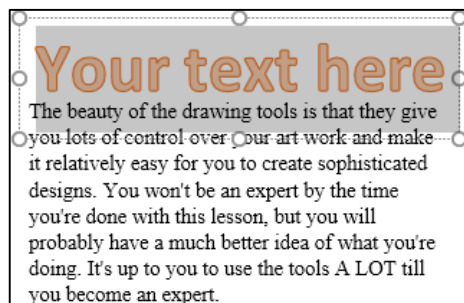


Fig. 3.40 WordArt text box

Type your **First and Last name** then, with the **tip** of the mouse pointer, click on the **edge** of the **WordArt** box, hold down the **left** mouse button, and drag your name so that it's **centered** in the box over the paragraph of text

There are a couple of other things you can do with the WordArt tools. Let's try some of them now.

**Click** again on the edge of the **WordArt** text box that has **your name**, then, in the **Drawing Tools Format Ribbon > WordArt Styles Group**, click on **Text Fill**, then **Live Preview** the various colors for the text of your name

Do the same for the **Text Outline** and **Text Effects** tools—Use the Text Fill, Text Outline, and Text Effects tools to edit your **WordArt name**, change the style, color, or size of the **WordArt**

Fig. 3.41 shows how your name might look when you are done.

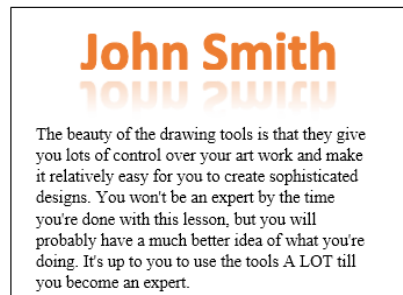


Fig. 3.41 WordArt example

**Save** the final version of this exercise (**Practice Drawing 8**)

Using the Word Art tools, and with very little effort on your part, you can create class handouts, banners, certificates, and other visual materials which can be eye-catching, tasteful, and instructive, too.

### 3.8 WORKING WITH *SmartArt*

*Word*'s drawing tools include a tool called *SmartArt*, for creating different types of diagrams, lists and charts, including the traditional hierarchy chart. Fig. 3.42 illustrates the various diagram types.

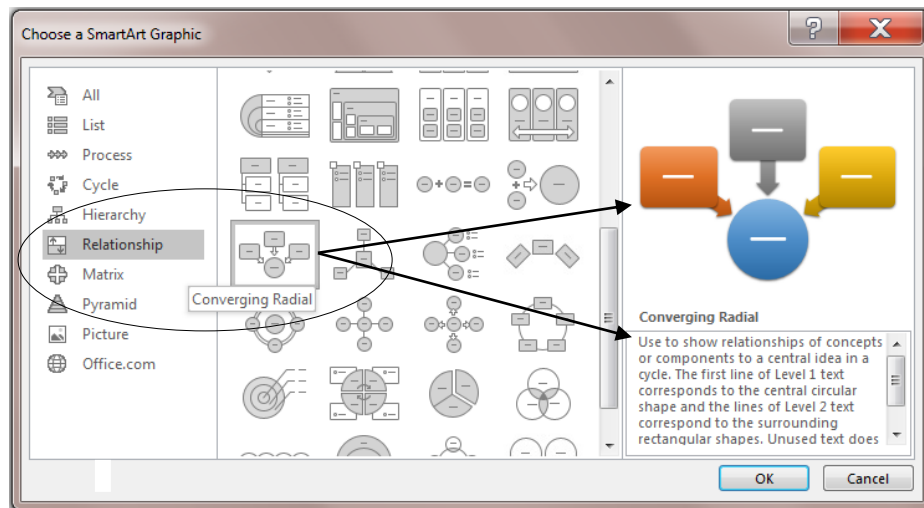


Fig. 3.42 Converging Radial Relationship Diagram available as *SmartArt*

It is beyond the scope of these tutorials to teach you when to apply each of these tools in actual projects. But, it will be useful for you to learn how to create such diagrams so that, when you need one of them for teaching or administration or classroom management, you will know what to do.

Again, it will be easiest to start over with a new Word document for this part of the tutorial.

In the **File menu** select **Close**, then in the **File menu** select **New > Blank Document**

You need a new name for this next exercise, so in the **File menu** select **Save As...**, navigate to your **USB drive > Work Files for Office 2016 > Data Files Folder > Drawing Documents folder**, name the file **Practice Drawing 9**, then hit **Save**

Let's start with a Relationship chart.

In the **Insert Ribbon > Illustrations Group** click on the **SmartArt** tool then, in the **SmartArt** dialog box, click to select the **Relationship** set of diagrams

In the **center frame** of the **SmartArt** dialog box, scroll down to locate the **Relationship > Converging Radial** diagram template, and click on it to select it (Fig. 3.42 on previous page)

Notice, in the *right hand frame* of the dialog box, that there is an illustration of the type of diagram you have selected, along with an explanation of the selected diagram type.

Now, **double click** on the **Converging Radial template** to transfer the template onto the blank page you just opened

On the screen/page you should now see a Converging Radial Diagram template with the basic components of the diagram set up ready for you to provide text to go with the shapes, as illustrated in Fig. 3.43.

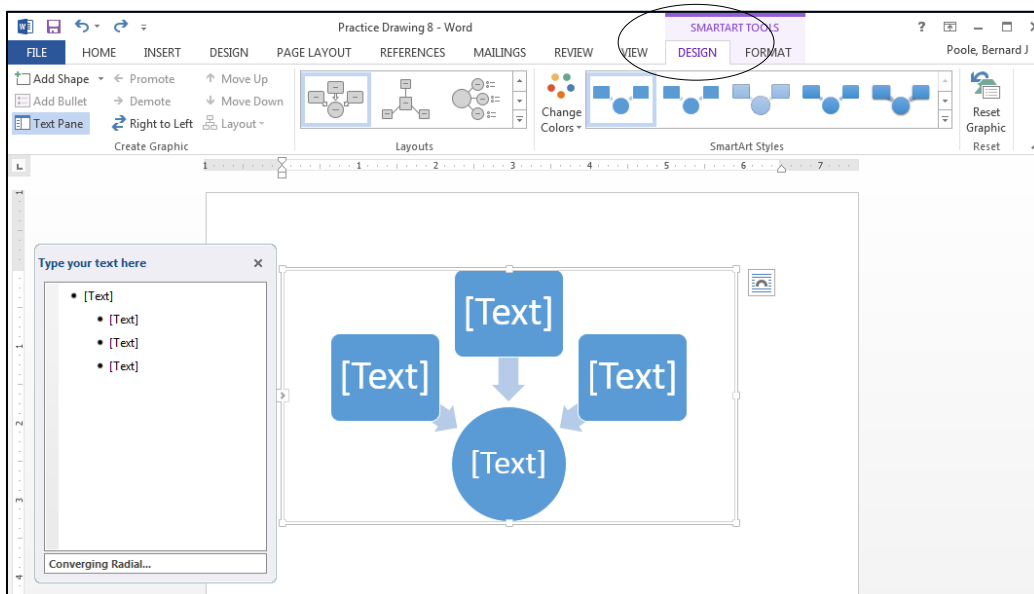


Fig. 3.43 Basic Converging Radial diagram template

Wherever you see the object **[Text]** in the diagram, you would type whatever you wanted to show a converging relationship between objects such as plant or animal species, or between personnel in an organization, or between any other kind of information and even between ideas.



For example, Fig. 3.45 shows a converging relationship between Fruits and Veggies, Exercise, Relaxation, Good Relationships and Good Health.

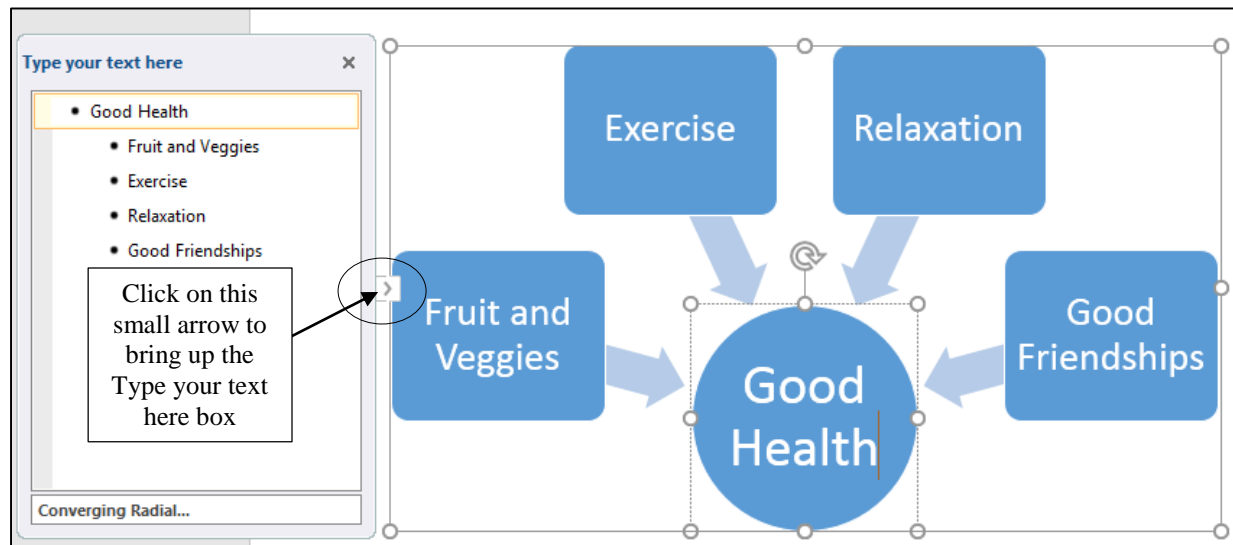


Fig. 3.45 “A picture is worth a thousand words...”

When you think about it, there are very few ideas or concepts that cannot be represented in diagrammatic form. The beauty of it is that concepts and ideas represented diagrammatically are easier to grasp and understand. As they say: “A picture is worth a thousand words.”

The best way to find out what you can do with diagrams like this is by discovery, so try the following exercises.

Click on the **small arrow** on the **left edge** of the box surrounding the diagram (Fig. 3. 45) to bring up the **Type your text here** box, then go ahead and, in the text entry box, enter the data shown in Fig. 3.45 for this **Good Health Relationship Diagram** (to type the **fourth item** in the list—**Good Friendships**—just hit the **Enter** key after you type **Relaxation**)

Notice, as you type the text it also appears in the appropriate box in the diagram itself. Clicking to the right or left of the diagram de-selects it (removes the border around it). This allows you to see how the diagram would look on an overhead display or in a handout. Clicking *on* the diagram restores the border so that you can continue to edit the diagram and make changes to it. Try this now.

Click to the **right** of the diagram—the box around the diagram is gone and the diagram is ready to display or to print out

Click **back on the diagram** anywhere—the box around the diagram and the accompanying text entry box are back, and you can make changes

Let’s make some changes now.

Click in the **Type your text here** box at the end of the last item in the list (at the end of the text **Good Relationships**), hit **Enter**, then type the new item **Routine Medical Checkups**

Get the idea? You just added a 5<sup>th</sup> Good Health Relationship to the diagram. You can change the appearance of any of the shapes and fonts, too.

Click to **close** the **Type your text here box**, then **right click** on the **central shape** in the **Converging Relationship** diagram (the **Good Health circle**) and, from the **context menu**, select **Format Shape...** (the last item in the pop up menu)

This brings up the Format Shape frame on the right side of the screen (Fig. 3.46).

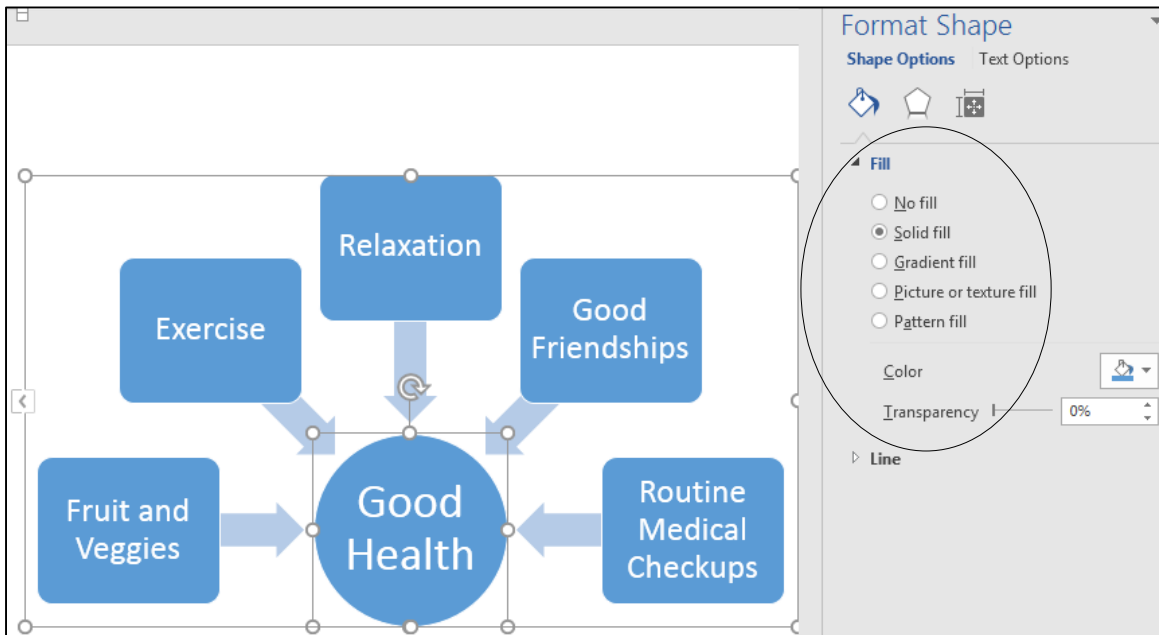


Fig. 3.46 The Fill tools in the Format Shape frame

Use the tools in the **Format Shape** frame to create a **different** format (**Fill**, **Line Color**, **Line Style**, **Shadow**, and **3-D Format**) for **each** of the **six shapes** in the **Good Health Converging Relationship diagram**—so each shape in the diagram will have a *different* format from the other shapes (Fig. 3.47)

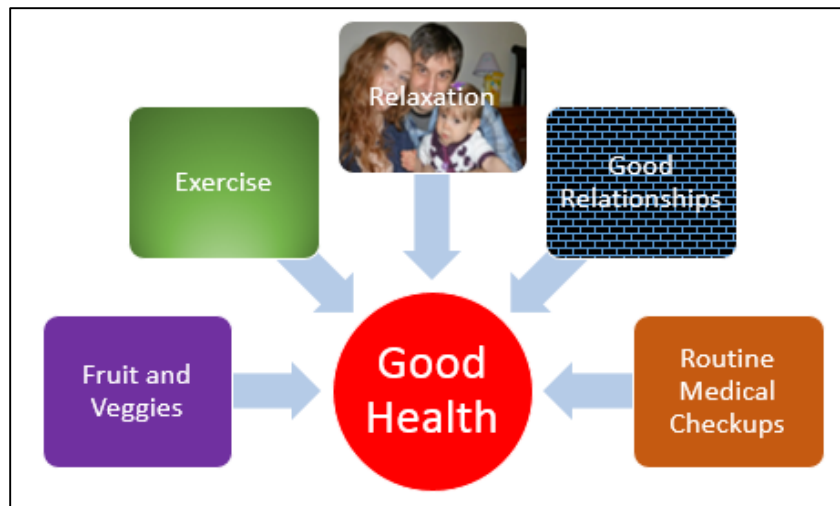


Fig. 3.47 Example of a Converging Relationship diagram

**Save** the diagram (**Practice Drawing 9**) when you're done experimenting with each of the shapes

As you do these exercises, you should be noticing how to build a chart from scratch, adding new shapes at the same or lower levels by either positioning the cursor in one of the bracketed items in the text entry box on the left and then hitting the *Enter* key, or by right clicking on a shape and, from the context menu selecting *Add Shape*.... Try this now.

**Right click** on any box other than the **Good Health circle**, then in the context menu, select **Add Shape > Add Shape After**

In the new box shape, type the text: **Clean air**

Easily done. You also can delete shapes, of course. Try deleting a shape now.

Click on any of the boxes in the **Good Health Relationship diagram** (but *not* on the *text* in the box) and, with the box selected, hit the **Del(ete)** key on the keyboard to remove it

Simple. Notice that the *SmartArt* tool readjusts the objects in the diagram so they look balanced. To enter text into a shape, just click on the text in the shape and type away, just as you would do if you were working in a word processor—which, of course, you are!

### Adding a new *SmartArt* diagram

We are going to create a *SmartArt* diagram on a new page. Let's do this now.

Click anywhere **immediately to the right** of the **Good Health Relationship** diagram to **deselect** it and at the same time position the cursor after the diagram

Now in the **Insert Ribbon > Pages Group** select **page break** to go to a **new page**

In the **Insert Ribbon > Illustrations Group** click on the **SmartArt** tool, then, in the **SmartArt Graphics gallery** of diagrams, click in the **left hand frame** on the **Hierarchy** option, and locate and **double click** on the **Organization Chart** option

You should now see a template with the basic components of an organization chart, as illustrated in Fig. 3.48.

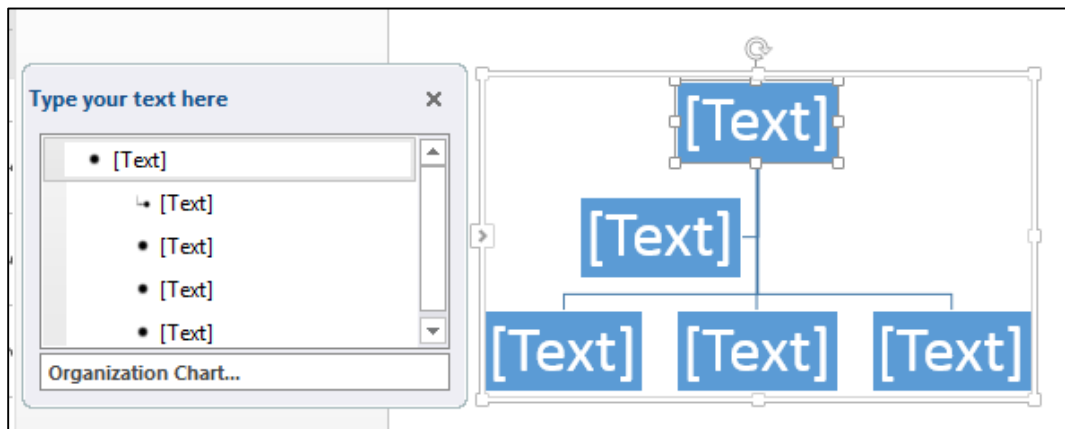


Fig. 3.48 The template for an organization chart

It's easy to add shapes (boxes) to the chart by *right clicking* on any shape and selecting the option to add a shape from the context menu that pops up. The best way in general to find out what you can do with an organization chart is by discovery, so try the following exercises.

Click on the **topmost** chart shape (which would usually be the boss of the organization), then **right click** in the box, and in the **context menu** select **Add Shape > Add Assistant**

This puts a second (Assistant) shape immediately below the top level of the organization.

Now, **right click** on the top level box to **Add Shape > Add Assistant**

Notice how this affects the chart. You're describing the organization in diagrammatic form.

Do the same with **at least 2** of the shapes at the **Assistant level** of the chart, adding **2** more shapes at the **same level** and **2** more shapes **below**, then add **at least 2 shapes** at a **4<sup>th</sup> level** of the chart

Visit **each box** in the Organization Chart and fill in hypothetical titles for an organization—start with **President** or **CEO** in the top box, then move on down through the chart, creating your own hierarchy of organizational personnel

**Save** the diagram (**Practice Drawing 9**) when you're done

Get the idea? You build a chart from scratch, adding new shapes on the fly, at the same or lower levels, simply by inserting them using the context menu. You can also delete shapes, of course, though you can't delete the topmost shape. Try deleting some shapes now.

Click to select **any shape below the top level**, then hit the **Del(ete)** key

Simple. To enter text into a shape, just click on the shape and type away. As you can see, the Organization Chart tools make it easy to create a basic, yet elegant, professional-looking organization chart. If you think about it, this type of chart would work well for a genealogical chart, where you would add shapes above and below for different generations of a family.

### Chart design

You also can vary the look-and-feel—the *design*—of your chart, and format the shapes with colors and styles that suit your sense of design. Fig. 3.49 illustrates such an organization chart.

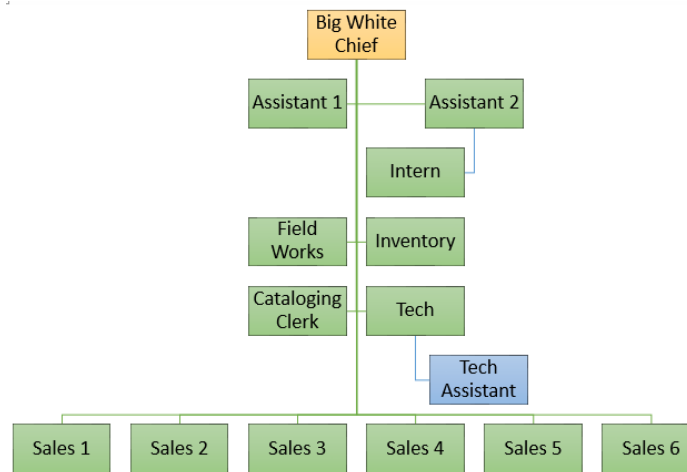


Fig. 3.49 A stab at a simple organization chart

The best way to learn this is to try it out.

Right click on the **topmost shape** in the Organization Chart and, from the context menu, select **Format Shape...**

This brings up the Format Shape frame (Fig. 3.46 on page 129).

Use the tools in the **Format Shape frame** to select a format (**Fill, Line Color, Line Style, Shadow**, etc.) for the shapes at **each level** of the **diagram**—so the **Boss** would have a different look than the **Assistants**, and so on down the line

**Save** the diagram (**Practice Drawing 9**) when you're done experimenting with each of the shapes

### Discovery is the best way to learn

Let's spend some time now experimenting with a few of the other *SmartArt Graphics* templates.

Click to the **right** of the **Organization Chart** example to **deselect** it, then in the **Insert Ribbon > Pages Group** select **page break** to go to a new page

Start with an example of a List diagram.

In the **Insert Ribbon > Illustrations Group** click on the **SmartArt** tool then, in the **SmartArt graphics** dialog box, **double click** on any one of the 40 **templates** in the **gallery** and check out how it looks on the page

**Add a couple of shapes** to the diagram, and **Insert a page break** when you're done

Next **double click** on any one of the **Process diagrams**, check out how it looks on the page, add a couple of shapes, and **Insert a page break** when you're done

Now, inserting a **page break** between each one, **double click** to create a **Cycle diagram**, followed by a **Matrix diagram**, and lastly a **Pyramid diagram**, in each case adding a couple of shapes or levels or cells

**Save** the document (**Practice Drawing 9**) when you have created the **seven** different diagrams (on seven different pages)

Now send **all 9** of the **Practice Drawings** to your instructor **as attachments** in a **single email**

## LOOKING BACK

You have practiced using the drawing tools that are built into *Word*. If this has been the first time you've used these tools, you may have found them awkward at first, since manipulating them involves a new set of skills. But like everything else, the more you use the tools, the more skilled you will become. This lesson is merely an introduction and overview.

The beauty of these drawing tools is that they give you significant amounts of control over any kind of object on a computer screen. Very few people ever actually learn about the kind of skills you have learned in this lesson. Yet there are many, many other computer drawing/graphics skills that you have yet to learn. These tools make it easy to create sophisticated designs—once you know how to use them. That's what this tutorial is all about. You won't be an expert by the time

you're done, but you will have at least some idea what you're doing. It's up to you to use the tools till you become an expert, and then you'll make them really sing!

## LOOKING FORWARD

Lesson 7 will give you the opportunity to further practice your word processing skills by integrating them with other *Office* components, including mail merge. But first, in Lessons 4 and 5, you will learn about the *Excel* Spreadsheet component of *Office 2016*—where you will also learn about the tools for creating Graphs and Charts.

You should be starting to feel reasonably comfortable using the computer. No doubt you find some of the work tedious, especially that process of backing up all your data. This is because you are learning the computing skills. When you become proficient with the hardware and software, you will find that you can complete your work quickly and be more productive with regard to many of the activities of your profession. You should indeed by now be striking out on your own, already using *Word* to support your work in the classroom.

You have a responsibility to establish the best possible learning environment for your students. The best teachers lead by example. If you have worked your way through the first two of these tutorials, you have increased the chances that your students will benefit from an enriched learning experience, because of your increased facility with, and enthusiasm for, the computer. Your use of the computer as a learning tool will overflow into your classroom. Well done!

## SKILL CONSOLIDATION

Complete as many exercises as you can so as to reinforce what you have learned in Lesson 3.

1. Make a list of at least 10 handouts or other documents that are relevant to the school environment for the creation of which you would use the drawing tools.
2. Team up with a group of your classmates and use the *Word* drawing tools to create at least 5 of the documents from the list you drew up in Exercise 1. Save them on disk.
3. Open a new blank page and in Page Setup select **Landscape** orientation. Complete the following tasks:
  - Start a new page and draw a perfect square, fill it with color, and make the line color the same as the fill color.
  - Draw a perfect circle, fill it with a different color from the square, and make the line color the same as the fill color.
  - Move the circle on top of the square and adjust the size of the circle so it fits exactly inside the square where the border of the circle touches the border of the square at four points, north, south, east, and west.
  - Group the circle and the square, then rotate the grouped object 45 degrees, so that the shape resembles a diamond.
  - Use the AutoShape of an Octagon to draw an octagon large enough to completely cover the diamond, fill it with a different color from either the square or the circle, and make the line color the same as the fill color.
  - Move the Octagon shape to the back. Select all the objects and center them on the page. Group the objects.

- Use Word Art to write the following title for the drawing: A Circle inside a Square inside an Octagon. Save the drawing with the name **Geometric Shapes**.
4. Open a new blank page and in Page Setup select **Landscape** orientation. Draw a picture of a house, including the following items (with colors and effects of your choosing):
    - Draw the house with at least two windows and a front door and a separate roof (you'll need to use the *freeform drawing tool* for the angled roof so that you can fill it with color and a pattern). The roof has shingles, the walls are of brick or siding (unless you want to draw a log cabin!).
    - A front lawn with shrubs and flowers here and there
    - At least two trees
    - The sky with a couple of clouds scudding by...
    - Save the drawing with the name **House**.
  5. Open a new blank page and in Page Setup select **Landscape** orientation. Draw a picture of a technology-ready classroom. Use clip art, if you want, for the objects in the classroom, including the items in the list that follows (with colors and effects of your choosing). Arrange the desks and so forth according to your own concept of the ideal classroom. Save the drawing with the name **House**.
    - Desks for 20 students
    - At least 6 computer workstations (position them so the teacher can easily see the screens)
    - A desk for the teacher
    - A separate computer workstation for the teacher
    - A reading center
    - Any other items you would want to include in your ideal classroom.
  6. Use the AutoShapes menu to draw at least ten (10) Basic Shapes and use an associated Callout to name each of them. Fit everything on one side of an 8 ½" by 11" page. Use either Portrait or Landscape orientation. Color the shapes, fonts and callouts with Fill Colors, Font Colors, and Line Colors.
  7. Open a new blank page and in Page Setup select **Landscape** orientation. Then complete the following tasks:
    - In the top left corner of the page, draw a self-portrait, using colors and so forth
    - Add a callout that looks like it's coming from your mind (see figure below)
    - Select all the parts of your drawing and group them together as one object
    - Copy the object, then duplicate it 8 times as illustrated in the figure below
    - In the callouts, add the text of any story you like
    - Save the strip cartoon with the name **Strip Cartoon**

