7. Insert and modify diagrams

In this chapter

- Create diagrams
- Modify diagrams
- Create picture diagrams

Practice files

For this chapter, use the practice files from the Word2016SBS\Ch07 folder. For practice file download instructions, see the introduction.

Diagrams are graphics that convey information. Business documents often include diagrams to clarify concepts, describe processes, and show hierarchical relationships. Word 2016 includes a powerful diagramming feature called SmartArt that you can use to create diagrams directly in your documents. By using these dynamic diagram templates, you can produce eye-catching and interesting visual representations of information.

SmartArt graphics can illustrate many different types of concepts. Although they consist of collections of shapes, SmartArt graphics are merely visual containers for information stored as bulleted lists. You can also incorporate pictures and other images to create truly spectacular, yet divinely professional, diagrams.

This chapter guides you through procedures related to creating diagrams, modifying diagrams, and creating picture diagrams.
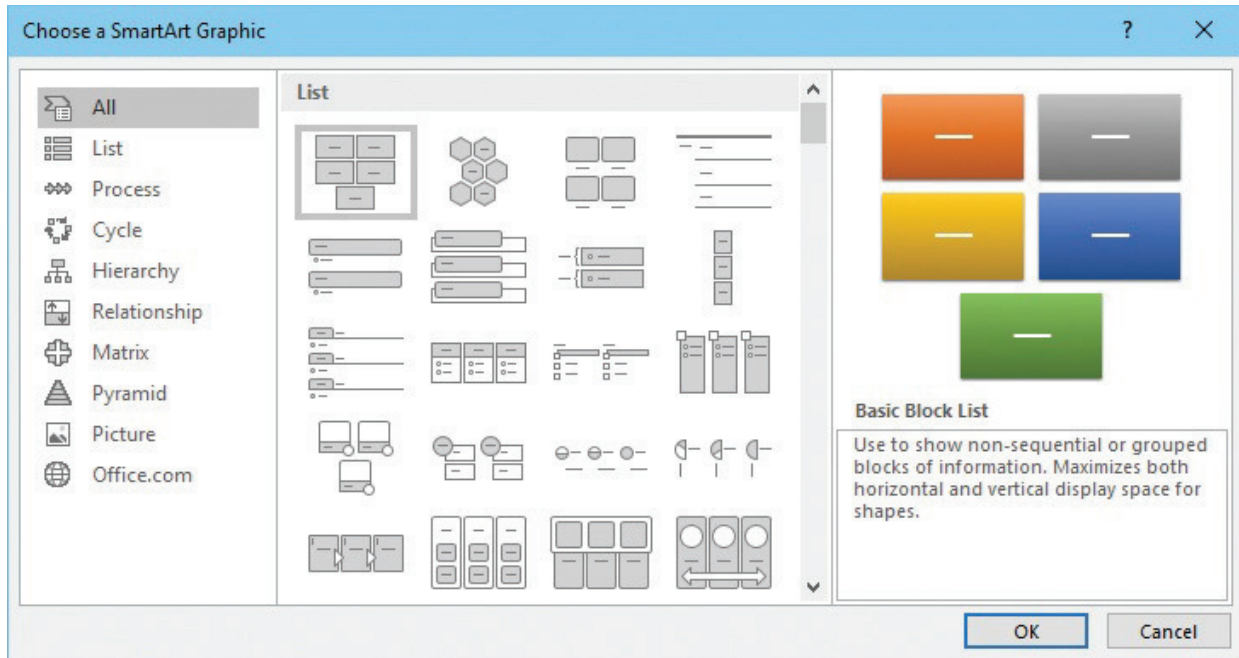
Create diagrams

Sometimes the concepts you want to convey to an audience are best presented in diagrams. You can easily create a dynamic, appealing diagram by using SmartArt graphics, which visually express information in predefined sets of shapes. You can use SmartArt graphics to easily create sophisticated diagrams that illustrate the following concepts:

- **List** These diagrams visually represent lists of related or independent information—for example, a list of items needed to complete a task, including pictures of the items.

- **Process** These diagrams visually describe the ordered set of steps that are required to complete a task—for example, the steps for getting a project approved.

- **Cycle** These diagrams represent a circular sequence of steps, tasks, or events, or the relationship of a set of steps, tasks, or events to a central, core element—for example, the looping process for continually improving a product based on customer feedback.

- **Hierarchy** These diagrams illustrate the structure of an organization or entity—for example, the top-level management structure of a company.

- **Relationship** These diagrams show convergent, divergent, overlapping, merging, or containment elements—for example, how using similar methods to organize your email, calendar, and contacts can improve your productivity.

- **Matrix** These diagrams show the relationship of components to a whole—for example, the product teams in a department.

- **Pyramid** These diagrams illustrate proportional or interconnected relationships—for example, the amount of time that should ideally be spent on different phases of a project.

The layout of content in a SmartArt diagram is controlled by a behind-the-scenes bulleted list. When creating a SmartArt diagram in Word, you choose a layout first, and then populate the associated list in a window called the Text pane.

The dialog box from which you choose the SmartArt graphic layout displays monochromatic representations of the layouts—this is only so that the colors don't confuse the process of choosing a layout. The actual colors of the SmartArt diagram are based on the color scheme of the document, and you can choose from several different color patterns. The categories in the left pane of the dialog box are not mutually exclusive, so some diagrams appear in more than one category.

Word 2016 includes about 200 SmartArt templates

✅ **TIP**

> After you create a SmartArt diagram, you can change its content,
> layout, and colors. For information about changing the diagram
> colors, see "Modify diagrams" later in this chapter.

Clicking a layout in the Choose A SmartArt Graphic dialog box displays a color
mockup of the diagram and information about any restrictions on the number of
entries or list levels that the layout supports.

✅ **TIP**

> You can find the layout information in the Text pane after you
> create the diagram. Sometimes the Text pane displays the layout
> name and description at the bottom; other times only the layout
> name is displayed. When this is the case, simply point to the layout
> name to display the layout description in a ScreenTip.
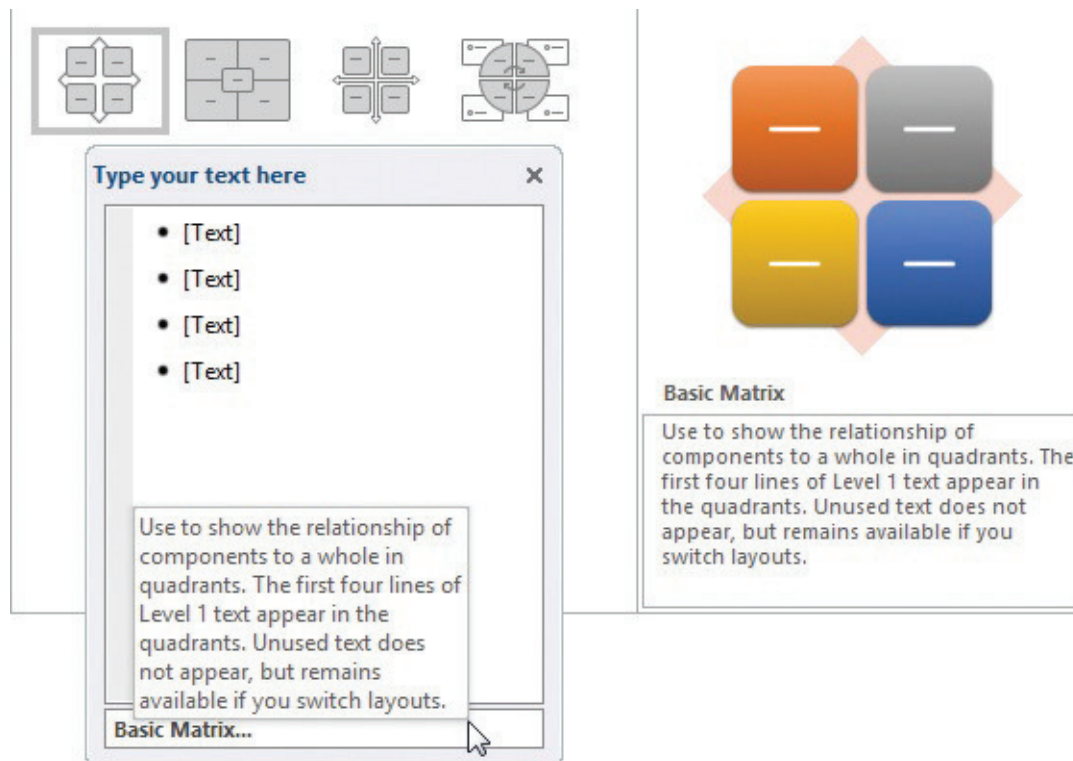
The detailed description of the selected SmartArt diagram can help you choose the right diagram for your needs

After you choose a layout, Word inserts the basic diagram into the document and displays the Text pane containing placeholder information. You can enter more or less information than is required by the original diagram.
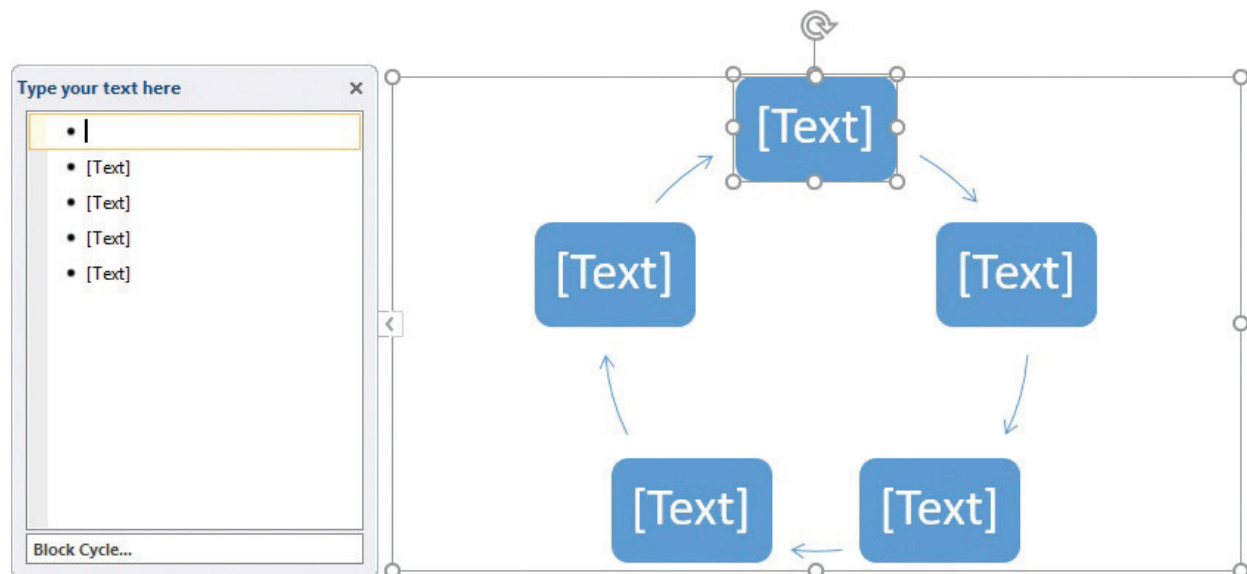

When you enter text in either the Text pane or the selected shape, that text also appears in the other location

You can insert and modify text either directly in the diagram shapes or in the associated Text pane. (You can hide the Text pane when you're not using it, and redisplay it if you need it.) The Text pane might display only a single-level bulleted list, or a multiple-level list if the diagram layout supports multiple levels. You can expand the diagram either by adding more list items or by adding more shapes. Some diagram layouts support a specific number of entries and others can be expanded significantly.
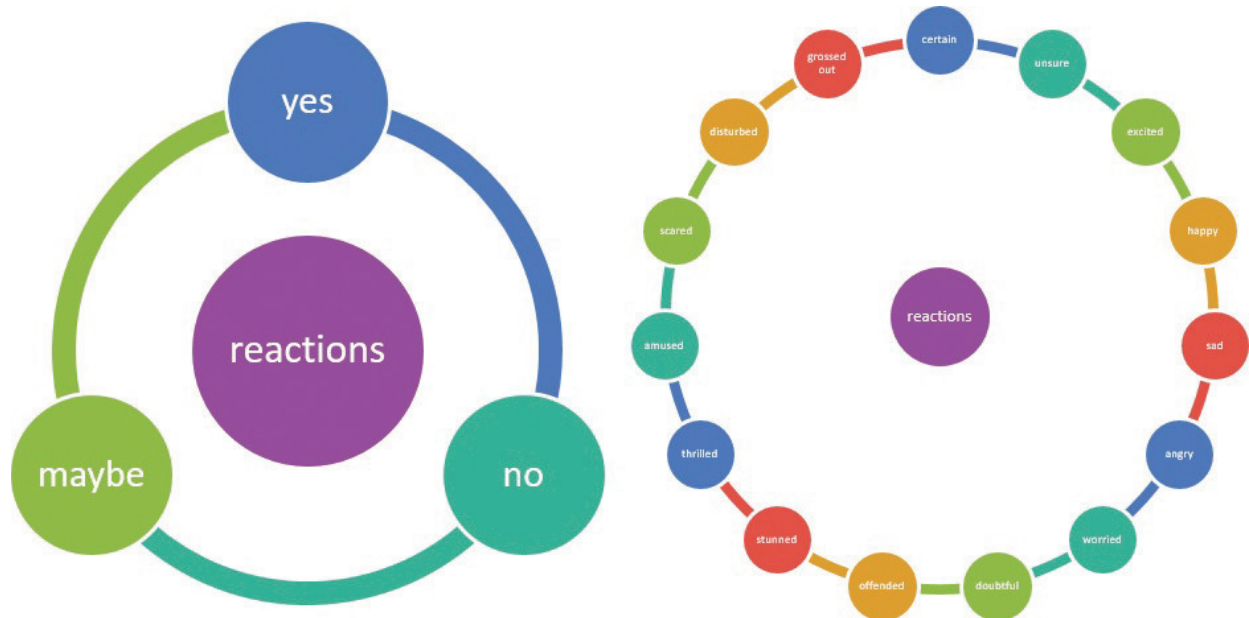
The number of items displayed by a diagram can be expanded or reduced to convey the precise meaning you want to convey

In layouts that support additional entries, the diagram shapes change to accommodate the content. Within a diagram, the shape size and font size always stay consistent. If a text entry is too long to fit a shape, the text size changes in all the shapes.
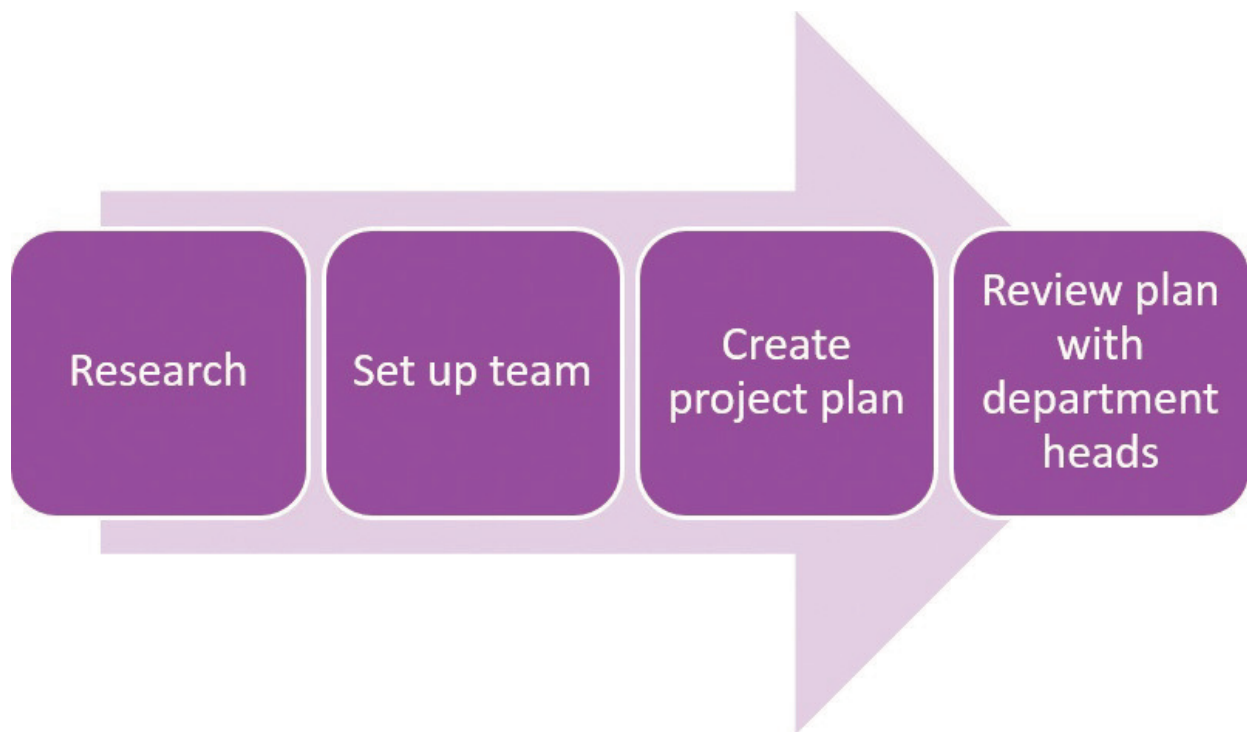
Word keeps your SmartArt diagrams looking professional by automatically adjusting text size as needed

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✅ TIP

You can move, resize, and wrap text around SmartArt graphics just as you can other types of images. For information about configuring image layout options, see "Arrange objects on a page" in Chapter 10, "Organize and arrange content."


To create a diagram in a document

1. Position the cursor in the document where you want to insert the diagram.

2. Do either of the following to open the Choose a SmartArt Graphic dialog box:

   • On the **Insert** tab, in the **Illustrations** group, click the **SmartArt** button.

   • Press **Alt+N+M**.

3. In the left pane, select a type of diagram. Then in the center pane, select a diagram layout thumbnail to view an example, along with a description of what the diagram best conveys, in the right pane.

4. Click **OK** to insert the selected diagram at the cursor.

To enter text into diagram shapes

1. If the **Text** pane isn't open, select the diagram, and then do either of the following:

    • Click the chevron on the left side of the diagram frame to open the Text pane.

    • On the **Design** tool tab for SmartArt (not the regular document Design tab), in the **Create Graphic** group, click the **Text Pane** button.

2. In the **Text** pane, select the first placeholder, and enter the text you want to display in the corresponding shape. Notice that the content you enter in the bulleted list appears immediately in the corresponding diagram shape. Then do any of the following:

    • Press the **Down Arrow** key to move to the next placeholder.

    • At the beginning of a list item, press **Tab** to increase the indent level of the current list item.

    • At the end of a list item, press **Enter** to add an item to the bulleted list and add a shape to the diagram.

    • Press **Delete** to remove an unused list item.

3. Repeat step 2 until you've entered all the diagram content.
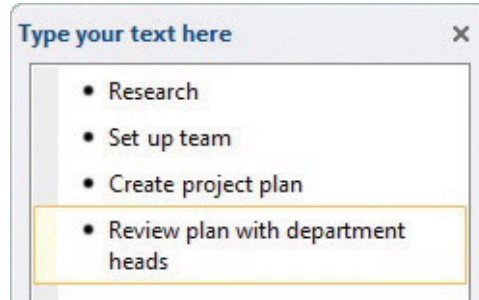
You can use the Text pane both to easily enter text and to quickly review your text for errors

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✅ **TIP**

For a clean look, don't use ending punctuation for the text that appears in the SmartArt graphic shapes.

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4. In the **Text** pane, click the **Close** button (the **X**).

Modify diagrams

After you create a diagram and add the text you want to display in it, you can

move and size it to fit the space, and format it to achieve professional-looking results.

If the diagram layout you originally selected doesn't precisely meet your needs, you can easily change to a different layout. Some layouts preserve information that doesn't fit, and others don't; a message at the bottom of the Text pane provides information so you can make an informed decision.
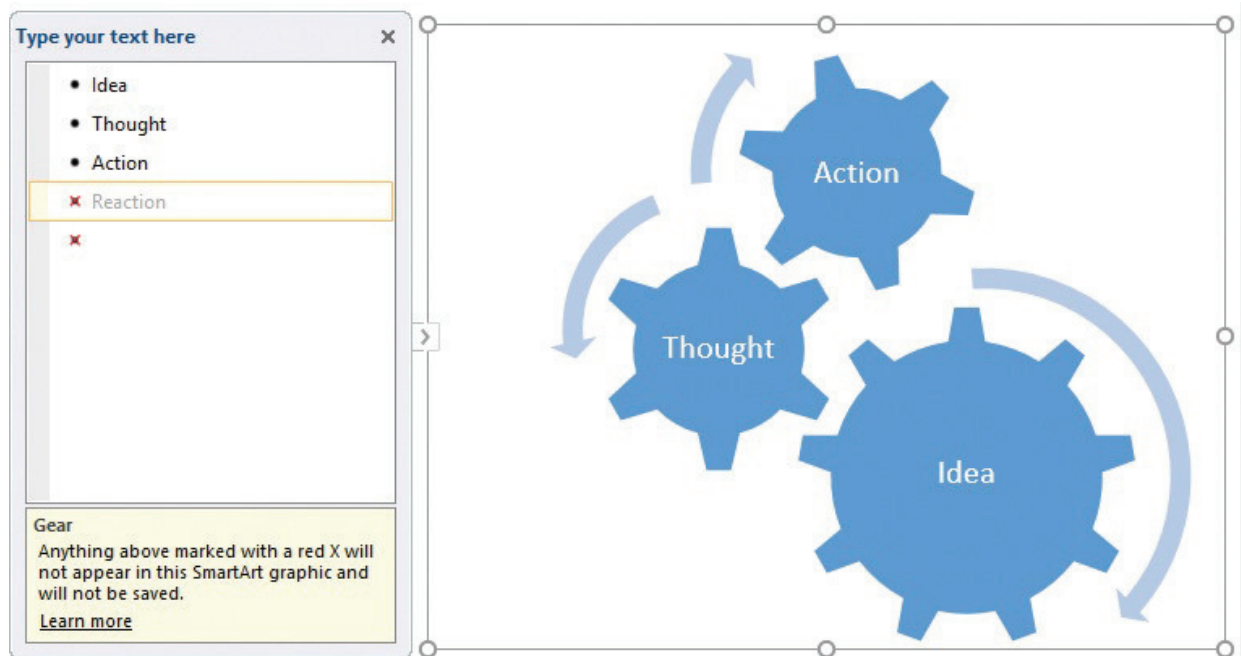
Some diagrams can support only a limited number of text entries

When a SmartArt graphic is active, the SmartArt Tools tab group on the ribbon includes two tabs: Design and Format.
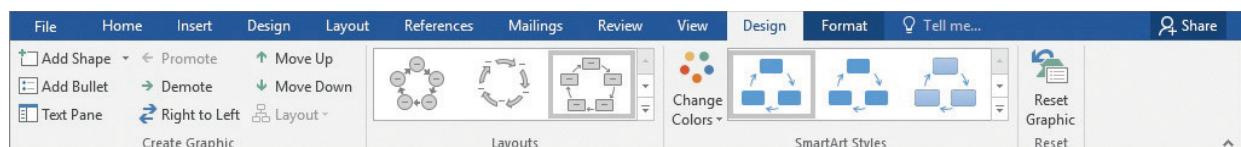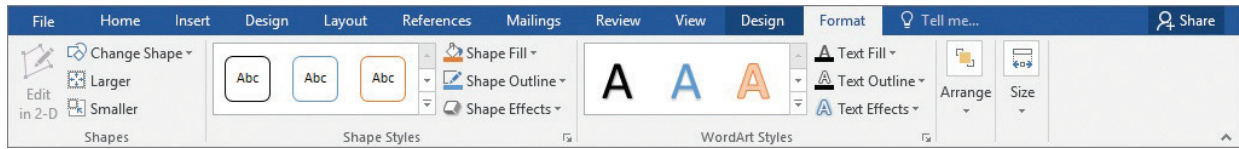

The Design tool tab for SmartArt graphics

You can make many changes directly on the diagram canvas, but if you prefer, you can also make changes from the ribbon. From the Design tool tab, you can make changes such as the following:

- Add, move, and change the hierarchy of shapes.
- Change to a different layout.
- Change the color scheme of the diagram.
- Change the effects applied to the diagram shapes.

■ Reset the diagram to its default settings.

The Format tool tab for SmartArt graphics

From the Format tool tab, you can make changes such as the following:

■ Change the shape of an individual diagram shape—for example, change a square to a star to make it stand out.

■ Change the size of an individual diagram shape.

■ Apply a built-in shape style.

■ Apply colors and effects to specific shapes.

■ Apply WordArt text effects to the text in a shape.

■ Position and resize the SmartArt graphic.

To add a shape to a SmartArt graphic

1. Select the diagram, and do either of the following:

• Open the **Text** pane. At the end of a list item, press **Enter** to add an item to the bulleted list and a shape to the diagram.

• On the **Design** tool tab, in the **Create Graphic** group, click the **Add Shape** button.

To remove a shape from a SmartArt graphic

1. Do either of the following:

• In the diagram, select the shape.

• In the **Text** pane, select the list item.

2. Press the **Delete** key.

To move a shape in a SmartArt graphic

1. Do either of the following:

• In the diagram, drag the shape to a different position.

• In the **Text** pane, drag the list item to a different position.

To change the hierarchy of shapes in a SmartArt graphic

⚠ **IMPORTANT**

You can promote and demote shapes only in SmartArt layouts that

You can promote and demote shapes only in SmartArt layouts that support multiple levels of content.

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1. In the diagram, select a shape.
2. On the **Design** tool tab, in the **Create Graphic** group, do either of the following:
   - Click the **Promote** button to increase the level of the selected shape or list item.
   - Click the **Demote** button to decrease the level of the selected shape or list item.

Or

1. In the **Text** pane, click at the beginning of a list item.
2. Do either of the following:
   - Press **Tab** to demote the list item (and the shape).
   - Press **Shift+Tab** to promote the list item (and shape).

To change a SmartArt graphic to a different layout

1. Select the diagram.
2. On the **Design** tool tab, in the **Layouts** group, click the **More** button to expand the **Layouts** gallery. This view of the gallery displays only the available diagram layouts for the currently selected diagram layout category.
3. In the **Layouts** gallery, do either of the following:
   - Click a thumbnail to change the diagram to the new layout in the same category.
   - At the bottom of the gallery, click **More Layouts** to display the Choose A SmartArt Graphic dialog box. Locate and select the layout you want to apply, and then click **OK**.

To change the color scheme of a SmartArt graphic

1. On the **Design** tool tab, in the **SmartArt Styles** group, click the **Change Colors** button to display the SmartArt coloring options in the current color scheme.
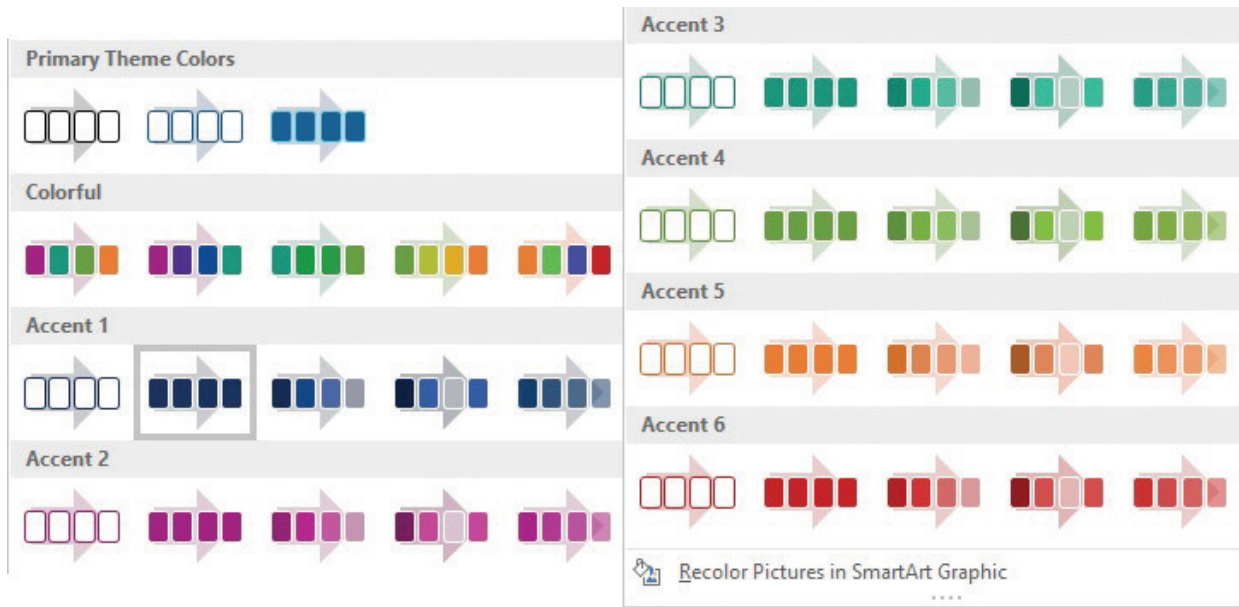
The options are based on the document color scheme

2. Point to any color set to display a live preview of that option. Click the color set that you like to apply it to the diagram.

To change the effects applied to the shapes in a SmartArt graphic

1. Select the diagram. On the **Format** tool tab, in the **Shape Styles** group, click the **Shape Effects** button.

2. On the **Shape Effects** menu, click an effect category. Then on the **Variations** menu, point to any thumbnail to display a live preview of the effect.

3. Click a thumbnail to apply that effect to the diagram.

To reset a SmartArt graphic to its default formatting

1. Select the diagram, and on the **Design** tool tab, in the **Reset** group, click the **Reset Graphic** button.

To change the shape of an individual diagram shape

1. Right-click the diagram shape you want to change, and then click **Change Shape**.

2. In the **Shape** gallery, click any shape to change the diagram shape.

To change the size of an individual diagram shape

1. Select the shape, and then do either of the following:

• Drag the sizing handle to the size you want.

• On the **Format** tool tab, in the **Size** group, set the **Height** and **Width**.

To apply colors and effects to specific shapes

1. Select a shape. On the **Format** tool tab, in the **Shape Styles** group, do any of the following:

    • From the **Shape Styles** gallery, apply a preformatted set of styles.

    • From the **Shape Fill, Shape Outline, or Shape Effects** menu, apply individual style formats.

To apply WordArt text effects to the text in a shape

1. Do either of the following:

    • Select the diagram to apply WordArt text effects to all the text in a diagram.

    • Select a shape to apply WordArt text effects to only the selected shape.

2. On the **Format** tool tab, in the **WordArt Styles** group, click the **More** button to display the WordArt Styles gallery.

3. In the **WordArt Styles** gallery, point to any thumbnail to display a live preview of the effect.

4. Click a thumbnail to apply the effect to the selected shape or shapes.

✔ TIP

For a custom WordArt effect, you can select the text fill color, the text outline color, and the text effect individually from the corresponding menus in the WordArt Styles group.
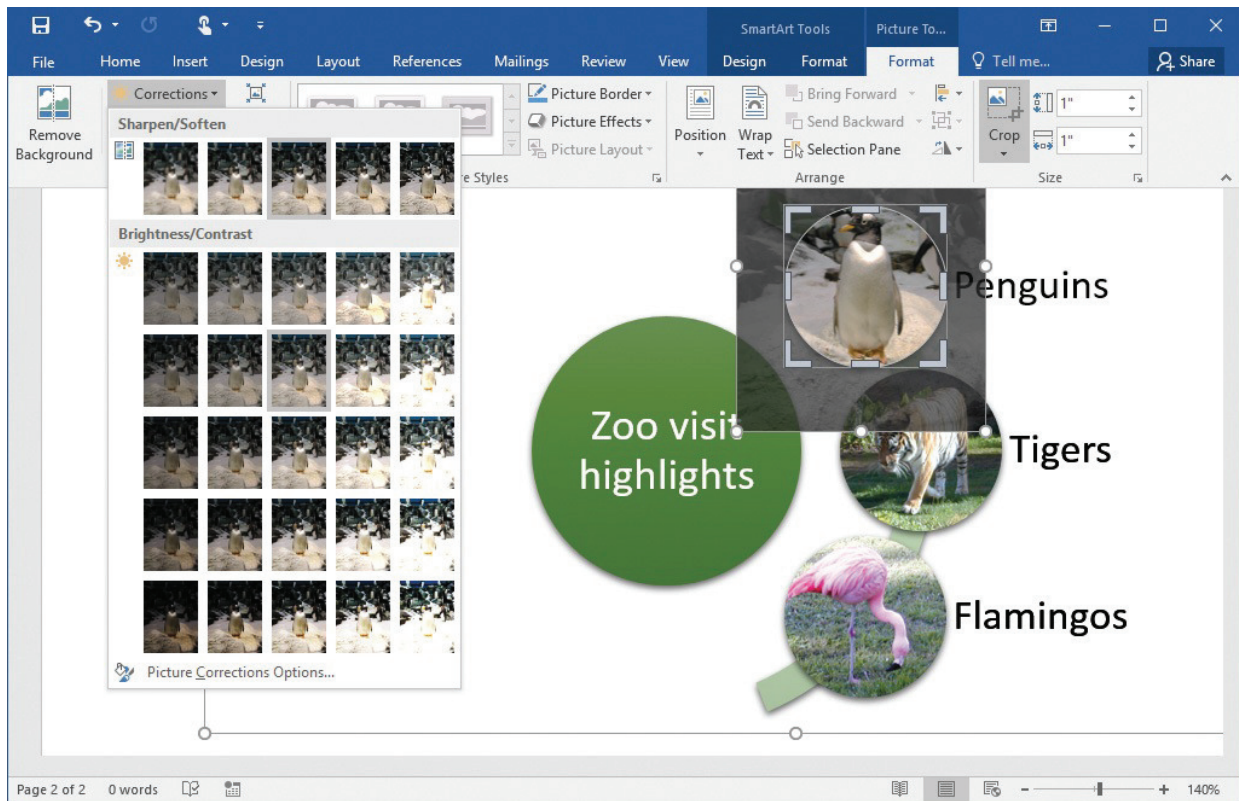
Create picture diagrams

Most SmartArt graphics present text information in shapes, but some can display pictures instead of, or in addition to, text. Most SmartArt graphic categories include some picture options, but picture diagrams are also available in their own category to help you locate them if you specifically want to create a diagram that includes pictures.

Diagrams that include spaces for pictures have "Picture" in the layout name

You can insert pictures into a SmartArt graphic from the same sources that you can insert them into a document: your computer or a connected storage location, a SharePoint library, a Facebook photo album, a OneDrive or OneDrive for Business storage folder, or the Internet. As always, take care when reusing pictures that you find on the Internet to ensure that you don't violate someone's copyright.

When you insert or select a picture in a SmartArt graphic, the SmartArt Tools tab group and the Picture Tools tab group are active. You can edit pictures that you insert in diagrams the same way you edit those you insert directly into documents.

You can magnify the picture within the diagram space, remove the picture background, or apply an artistic effect

To insert a picture diagram in a document

1. Position the cursor in the document where you want to insert a picture diagram.

2. On the **Insert** tab, in the **Illustrations** group, click the **SmartArt** button to open the Choose a SmartArt Graphic dialog box.

3. In the left pane, click **Picture** to display the picture diagram options. Then in the middle pane, click any thumbnail to display information about the diagram and the number of pictures you can use in it.
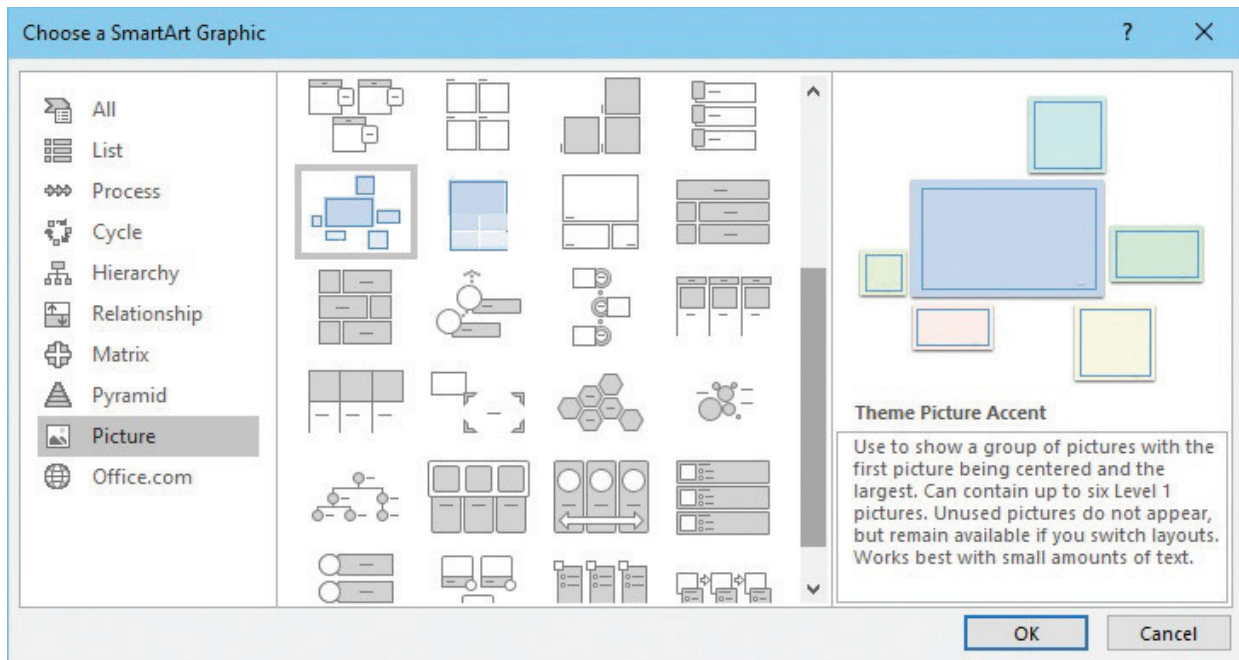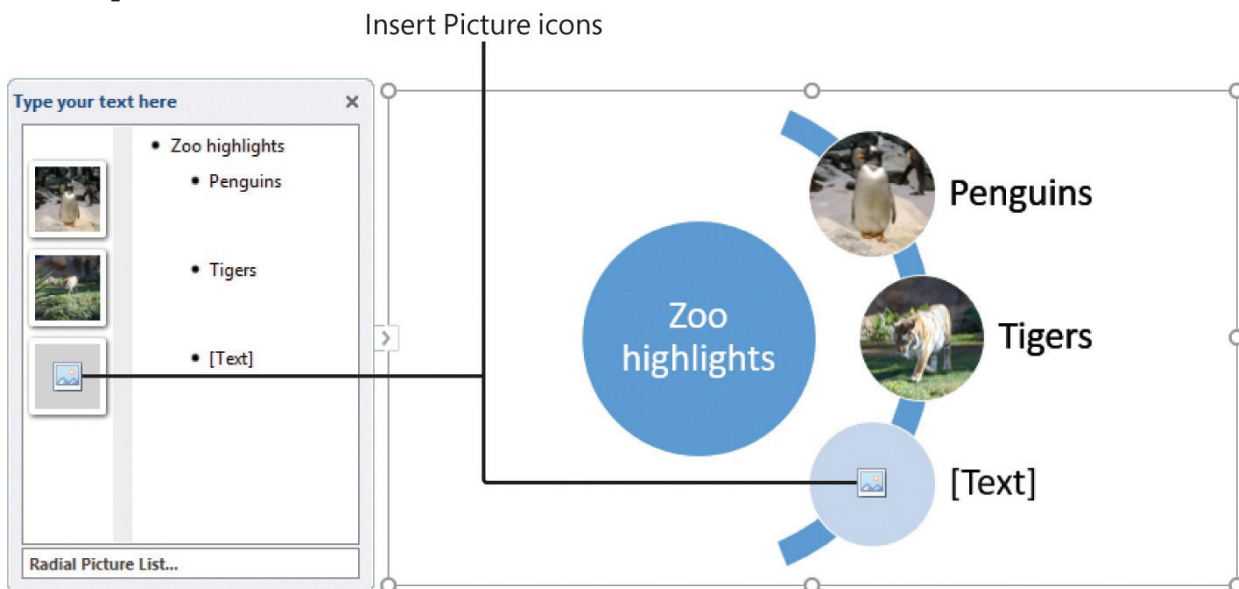
Picture diagram descriptions include information to help you decide how to best display your pictures

4. In the **Choose a SmartArt Graphic** dialog box, click **OK** to insert the selected picture diagram template.
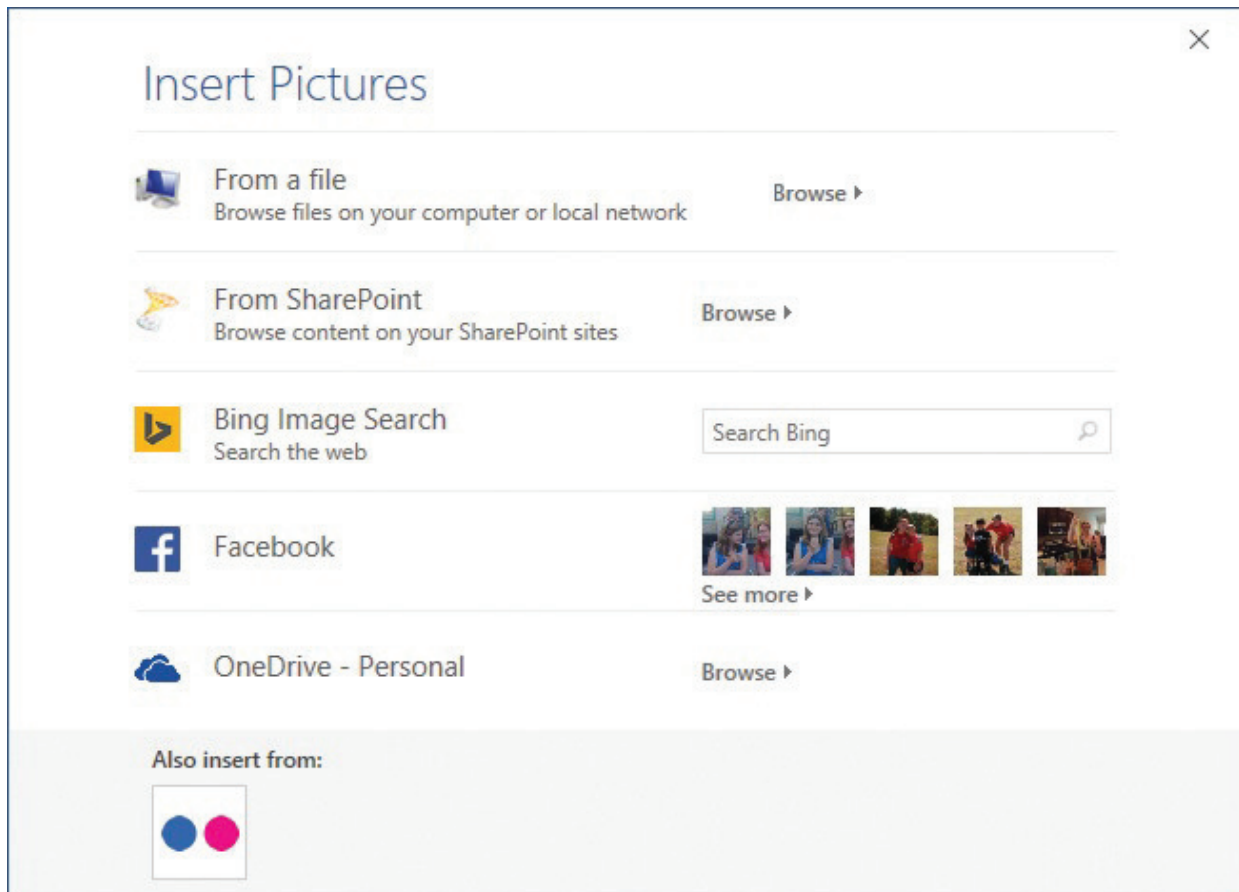
To replace a picture placeholder in a diagram

1. In the **Text** pane or in a diagram shape, click the **Insert Picture** icon to open the Insert Pictures window.

Word makes it easy to insert pictures in a picture diagram

2. In the **Insert Pictures** window, which displays the locations from which you can insert pictures into the diagram, click the source you want to use, or enter a term in the search box and then click the **Search** button.

The Insert Pictures window provides access to local and online resources

3. Browse to and select the picture you want to use. Then click the **Insert** button to replace the picture placeholder.

Skills review

In this chapter, you learned how to:

- Create diagrams
- Modify diagrams
- Create picture diagrams

Practice tasks

The practice files for these tasks are located in the Word2016SBS\Ch07 folder. You can save the results of the tasks in the same folder.

Create diagrams

Open the CreateDiagrams document, and then perform the following tasks:

1. Position the cursor below the existing page title.

2. Open the **Choose a SmartArt Graphic** dialog box, and review the available layouts. Click any layout that interests you to display information about it in the right pane.

3. Display the **Cycle** category of layouts. Click the **Hexagon Radial** layout, and then click **OK** to create the diagram in the document.

4. If the **Text** pane for the SmartArt graphic isn't already open, open it. Notice that the Text pane displays two levels of bullets. The first-level bullet populates the center hexagon and the second-level bullets populate the six surrounding hexagons.

5. In the **Text** pane, select the first bullet and then enter **My Health**. The words appear in the center hexagon.

6. In the **Text** pane, select the second bullet, enter **Physical**, and then press the **Down Arrow** key to move to the third bullet. The word appears in one of the outer hexagons.

7. Repeat step 6 to enter **Mental** and **Emotional** in the next two hexagons.

8. In the diagram, click one of the empty outer hexagon shapes to select it, and then click it again to activate the text insertion point. In the hexagon, enter **Financial**.

9. Repeat step 8 to enter **Social** and **Spiritual** in the final two outer hexagons.

10. Save and close the document.

Modify diagrams

Open the ModifyDiagrams document, and then perform the following tasks:

1. The Balance diagram on the page displays balance scales with up to four shapes stacked on each side. Select the **Balance** diagram. If the **Text** pane doesn't automatically open, open it.

2. In the **Text** pane, click at the end of the word *Family,* and then press **Enter** to create a new second-level bullet and add a corresponding shape to

the diagram. Notice that with three shapes on each side, the scale moves to show that the two sides are balanced.

3. In the new shape, enter **Sports**.

4. In the diagram, click the **Job** shape to select it.

5. From the **Design** tool tab, add a shape to the **Work** side of the diagram. In the new shape, enter **Household management**. Notice that the scale tips to show that there are more shapes on the **Work** side.

6. In the diagram, select the word *Life*. From the **Format** tool tab, apply a WordArt style of your choice. Then apply a WordArt style to the word *Work*.

7. Select the entire diagram. On the **Design** tool tab, display the **Change Colors** gallery, and click the thumbnail of the color and pattern you want to use.

8. Display the **SmartArt Styles** gallery. Point to each of the thumbnails to display a live preview of the style. Then apply the style you like best.

9. Open the **Text** pane, and move the **Troop leader** and **Coach** shapes from the **Work** side of the diagram to the **Life** side. Notice that when there is more content than the shape supports, the unused content is dimmed and preceded by an X.

10. Select the diagram and expand the **Layouts** gallery. Point to each of the other layouts to find one that you can use to illustrate this same information. Click the layout you like best.

11. Experiment with any other modifications you'd like to make to the diagram.

12. Save and close the document.

Create picture diagrams

Open the CreatePictograms document, and then perform the following tasks:

1. Position the cursor below the existing page title.

2. Open the **Choose a SmartArt Graphic** dialog box, and click the **Picture** category.

3. Click any picture diagram layout that interests you to display information about it in the right pane.

4. Click the **Bending Picture Blocks** layout, and then click **OK** to insert the diagram in the document.

5. Populate the diagram by inserting the **Chickens**, **Penguins**, and **Tiger** pictures from the practice file folder into the picture placeholders.

6. Enter the corresponding animal names next to the pictures.

7. Add a shape to the diagram. Insert the **Fish** picture and corresponding name in the new shape.

8. Select the four shapes that contain animal names. From the **Format** tool tab for SmartArt, apply a different shape style.

9. Close the **Text** pane, and then click the **Tiger** picture. From the **Format** tool tab for pictures, crop the picture so that the animal fills the width of the picture shape.

10. Make any other improvements to the graphics that you want.

11. From the **Design** tool tab, apply a color set and effects of your choice.

12. Save and close the document.