7 Insert and Modify Diagrams

In this chapter, you will learn how to

✔ Create diagrams.

✔ Modify diagrams.

✔ Create picture diagrams.

Diagrams are graphics that convey information. Business documents often include diagrams to clarify concepts, describe processes, and show hierarchical relationships. Microsoft Word 2010 comes with a powerful diagramming tool called *SmartArt* that you can use to create diagrams directly in your documents. By using ready-made diagram templates, you can produce sophisticated results tailored to your needs.

In this chapter, you'll insert a diagram into a document and specify its size and position. Then you'll change the diagram's layout, visual style, and color theme. Finally, you'll see how to use a diagram to arrange pictures in a document.

> **Practice Files** Before you can complete the exercises in this chapter, you need to copy the book's practice files to your computer. The practice files you'll use to complete the exercises in this chapter are in the Chapter07 practice file folder. A complete list of practice files is provided in "Using the Practice Files" at the beginning of this book.
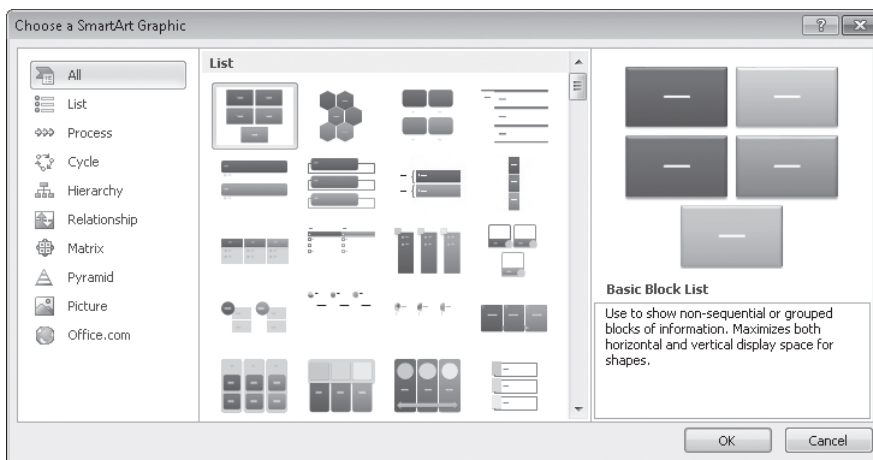
Creating Diagrams

When you need your document to clearly illustrate a concept such as a process, cycle, hierarchy, or relationship, the powerful SmartArt Graphics tool is available to help you create a dynamic, visually appealing diagram. By using predefined sets of sophisticated formatting, you can almost effortlessly put together any of the following diagrams:

● **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 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 e-mail, 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.

● **Picture** These diagrams rely on pictures instead of text to create one of the other types of diagrams—for example, a process picture diagram with photographs showing the recession of glaciers in Glacier National Park.

You select the type of diagram you want to create from the Choose A SmartArt Graphic dialog box. The categories are not mutually exclusive, meaning that some diagrams appear in more than one category.

The Choose A SmartArt Graphic dialog box.

After creating the diagram, you insert text by typing either directly in its shapes or in the associated Text pane. Depending on the diagram type, the text appears in or adjacent to its shapes.

In this exercise, you'll create a diagram, add text, adjust its size, and specify its position in relation to the document text and page margins.

➡ **SET UP** **You need the ServiceA_start document located in the Chapter07 practice file folder to complete this exercise. Open the ServiceA_start document, and save it as** *ServiceA*. **Then follow the steps.**

1. Click to the left of the **Gather information** heading, and then on the **Insert** tab, in the **Illustrations** group, click the **SmartArt** button.

   Keyboard Shortcut **Press and release Alt, N, and then M to open the Choose A SmartArt Graphic dialog box.**

   See Also **For more information about keyboard shortcuts, see "Keyboard Shortcuts" at the end of this book.**

   The Choose A SmartArt Graphic dialog box opens, displaying all the available graphics.

2. In the left pane, click each diagram category in turn to display only the available layouts of that type in the center pane.

3. In the left pane, click **Process**. Then in the center pane, click each process diagram layout in turn to view an example, along with a description of what the diagram best conveys, in the right pane.

   Tip **While you are exploring, keep in mind how much data your own diagrams might contain, and analyze which diagrams will ensure that the data will all fit on one page.**

4. When you finish exploring, click the third thumbnail in the sixth row (**Vertical Process**), and then click **OK**.

   The process diagram is inserted at the cursor, and the Design and Format contextual tabs are displayed on the ribbon.
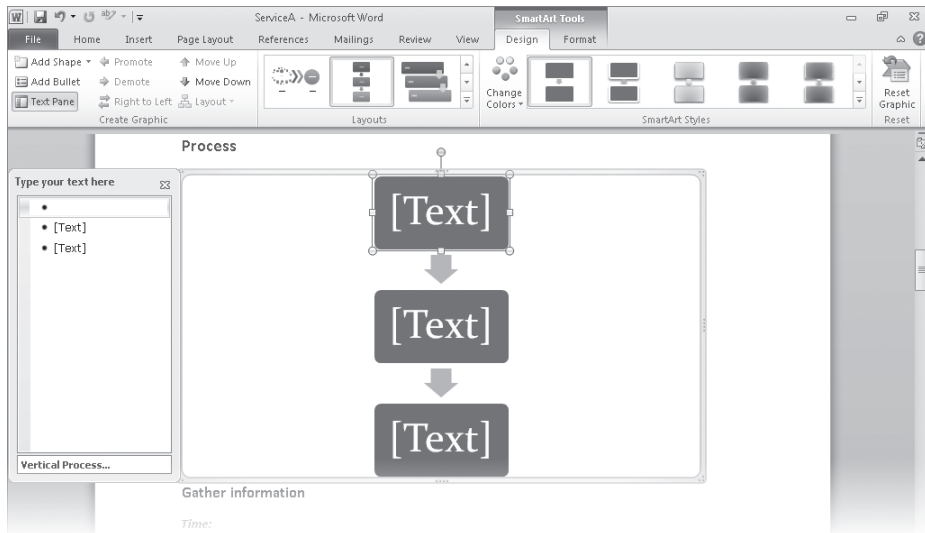
Three text placeholders appear in the diagram shapes and in the adjacent Text pane, where the text placeholders are formatted as a bulleted list.

Troubleshooting The appearance of buttons and groups on the ribbon changes depending on the width of the program window. For information about changing the appearance of the ribbon to match our screen images, see "Modifying the Display of the Ribbon" at the beginning of this book.

Depending on your screen resolution, you might see a description of the Vertical Process diagram at the bottom of the Text pane. If your Text pane looks like the one in our graphic, you can click Vertical Process to display the description.

Troubleshooting If the Text pane is not open, click the tab displaying left and right (open and close) arrows on the left side of the diagram frame. You can also display the Text pane by clicking the Text Pane button in the Create Graphic group on the Design contextual tab.
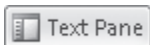
5. With the first bullet selected in the **Text** pane, type **Gather information**, and then press the Down Arrow key to move the cursor to the next placeholder.

Troubleshooting Be sure to press the Down Arrow key. If you press the Enter key, you'll start a new bullet, and if you press the Tab key, you'll turn the current bullet into a level-two bullet below the one above it.

As you type in the Text pane, the words also appear in the corresponding shape in the diagram.

Tip For a cleaner look, don't type any punctuation at the end of the text in diagram shapes.

6. Repeat step 5 for the remaining two placeholders, entering **Set up team** and **Plan project**.

7. With the cursor at the end of the third bulleted item in the **Text** pane, press Enter to extend the bulleted list and add a new shape to the diagram. Then type **Meet with department**.

   The widths of the shapes in the diagram adjust to accommodate the length of the bullet point you just typed.
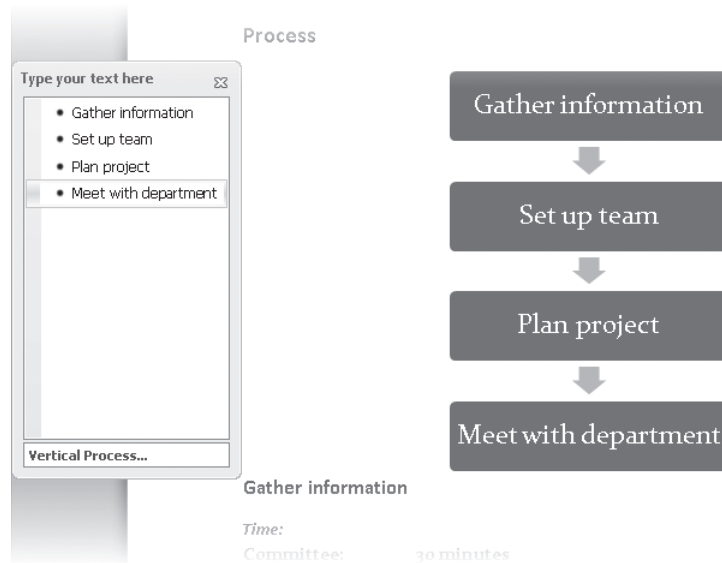
   *You can add as many shapes as you need.*

8. In the **Text** pane, click the **Close** button.

9. On the left side of the diagram frame, point to the sizing handle (the four dots), and when the pointer changes to a double-headed arrow, drag to the right past the diagram and into the white space, until the frame is approximately as wide as the shapes within the diagram.

   Troubleshooting Ensure that the pointer is a double-headed arrow before dragging. Point to the four dots, not to a blank part of the frame or to the Text pane tab on the left side of the frame.

10. If you can't see the diagram after you release the mouse button, scroll up in the document.

   The diagram now sits at the left margin of the document, with the *Gather information* heading to its right.
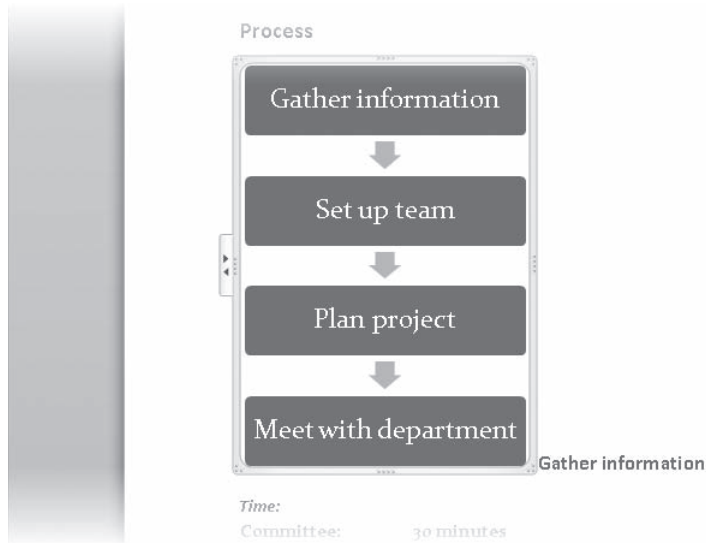
The diagram is anchored to the Gather information *heading and moves with it.*
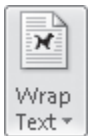
11. On the **Format** contextual tab, in the **Arrange** group, click the **Wrap Text** button, and then in the gallery, click **Square**.

   Troubleshooting Depending on your window size and screen resolution, you might need to click the Arrange button to display the Arrange group.

   See Also For information about text wrapping, see "Arranging Objects on the Page" in Chapter 10, "Organize and Arrange Content."

12. In the **Arrange** group, click the **Position** button, and then at the bottom of the gallery, click **More Layout Options**.

   The Layout dialog box opens with the Position page displayed. On this page are options for controlling where the diagram appears relative to other elements of the document.
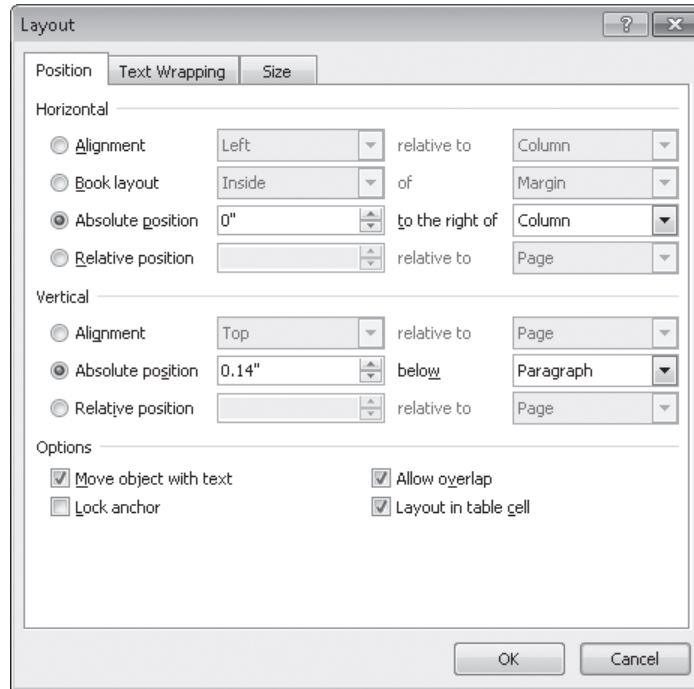
The Position page of the Layout dialog box.

13. In the **Horizontal** area, click **Alignment**. Then click the **Alignment** arrow, and in the list, click **Right**.

14. In the **Vertical** area, click **Alignment**. Leave the **Alignment** setting as **Top**, and then change the **relative to** setting to **Line**.

15. Click **OK**.

Instead of sitting at the left margin with text before and after it, the diagram now sits to the right of the text, without interrupting its flow.

16. In the lower-left corner of the diagram frame, point to the sizing handle. When the pointer changes to a diagonal double-headed arrow, drag up and to the right until the bottom of the diagram frame sits level with the last line of text in the **Community Service Committee** paragraph.

Tip You can precisely size the diagram by adjusting the Height or Width setting in the Size group on the Format contextual tab.

17. Click a blank area of the document.

The diagram now sits neatly to the right of the introductory text.
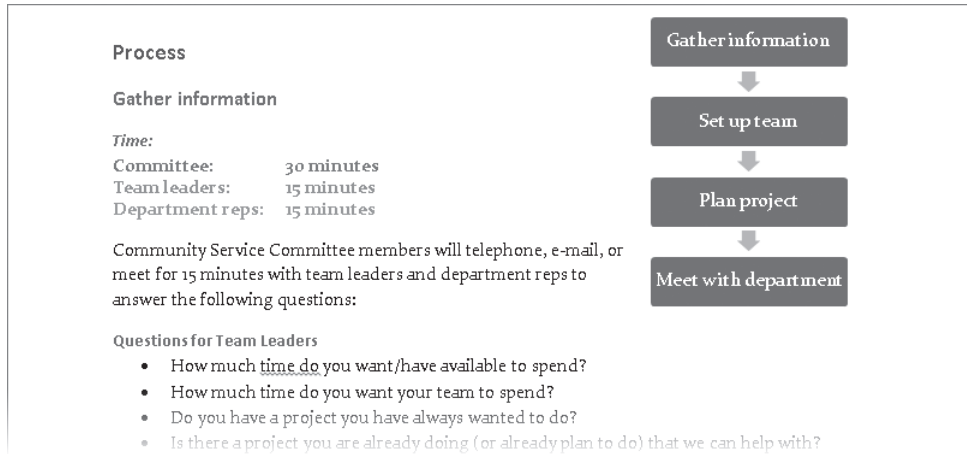
You can align and size the diagram to fit your text.

✖ **CLEAN UP Save the ServiceA document, and then close it.**

Modifying Diagrams

After you create a diagram, you can add and remove shapes and edit the text of the diagram by making changes in the Text pane. You can also customize the diagram by using the options on the SmartArt Tools contextual tabs.

You can make changes such as the following by using the commands on the Design contextual tab:

● Switch to a different layout of the same type or of a different type.

   Tip If you have entered more text than will fit in the new layout, the text is not shown, but SmartArt retains it so that you don't have to retype it if you switch the layout again.

● Add shading and three-dimensional effects to all the shapes in a diagram.

● Change the color scheme.

● Add shapes and change their hierarchy.

   Tip You can remove a shape and its text by selecting it and then pressing the Delete key. You can also rearrange shapes by dragging them.

You can customize individual shapes in the following ways by using the commands on the Format contextual tab:

● Change an individual shape—for example, you can change a square into a star.

● Apply a built-in shape style.

● Change the color, outline, or effect of a shape.

● Change the style of the shape's text.

You can use Live Preview to display the effects of these changes before you apply them. If you apply a change and then decide you preferred the original version, you can click the Reset Graphic button in the Reset group on the Design contextual tab.

Reset
Graphic

In this exercise, you'll change a diagram's layout, style, and colors. Then you'll change the shape and color of one of its elements, and customize copies of the diagram.

SET UP You need the ServiceB_start document located in the Chapter07 practice file folder to complete this exercise. Open the ServiceB_start document, and save it as *ServiceB*. **Then follow the steps.**

1. If necessary, adjust your view of the document so that the entire diagram sits in the bottom half of your screen.

2. Click a blank area inside the diagram frame to activate the diagram as a whole.

   Troubleshooting Be sure to click a blank area away from any shapes. If a shape in the diagram is surrounded by handles, that shape is selected, either for editing or for manipulation, instead of the diagram as a whole.

3. On the **Design** contextual tab, in the **Layouts** group, click the **More** button.

   The Layouts gallery appears, showing the other available Process diagram layouts.
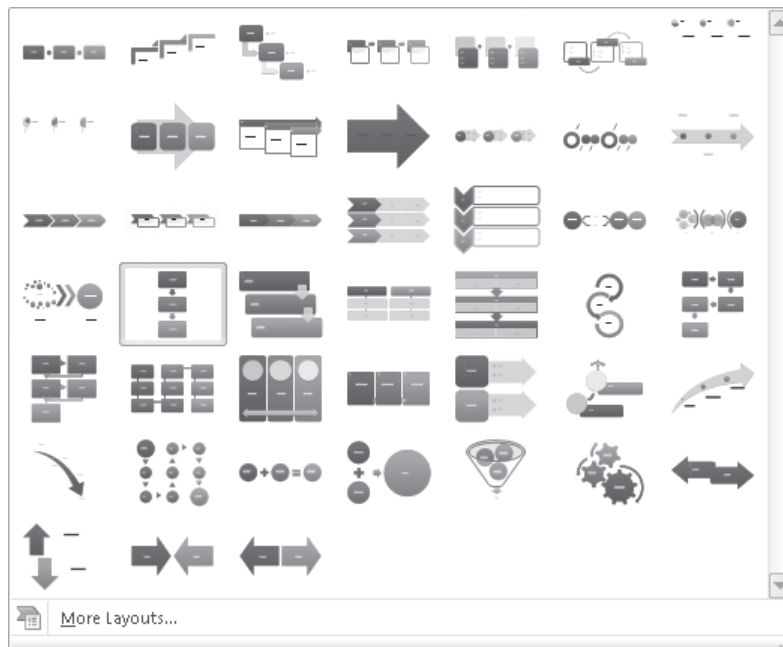

You can switch to any of these layouts.

> **Tip** If a gallery has a sizing handle (three dots) in its lower-right corner, as this one does, you can drag the handle upward to reduce the height of the gallery. You can then see more of the document and the gallery at the same time.

4. In the **Layouts** gallery, point to each thumbnail to preview the diagram with that layout.

   Because changing the layout does not change the width of the diagram frame, some of the horizontal layouts create a very small diagram.

5. In the **Layouts** gallery, click the last thumbnail in the fourth row (**Basic Bending Process**).

   The diagram changes to two columns with arrows indicating the process flow.
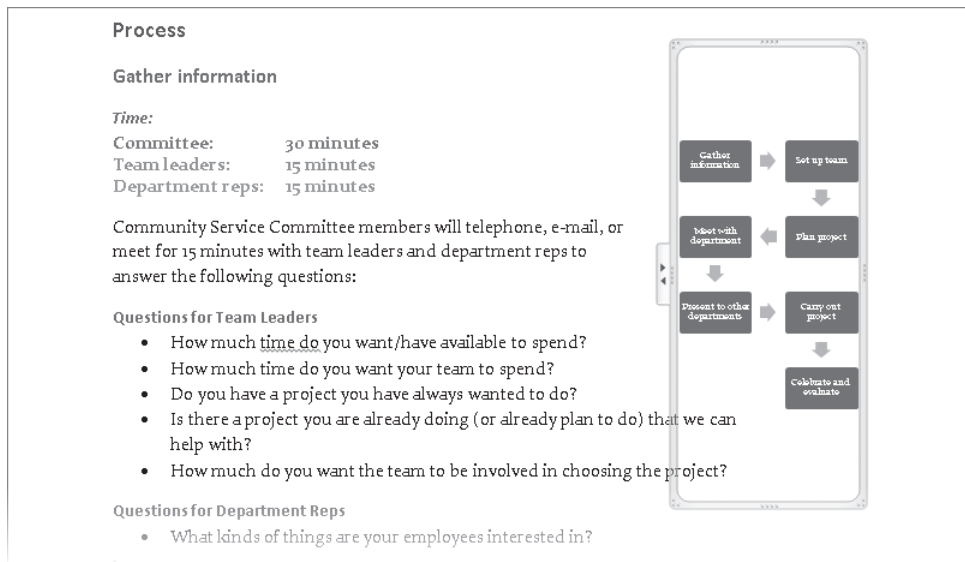
The Basic Bending Process diagram.

6. Point to the sizing handle on the left side of the diagram's frame, and when the pointer changes to a two-headed arrow, drag the frame to the left until the diagram occupies a bit less than half the page width.

   When you release the mouse button, the shapes in the diagram expand to fill the resized frame.

7. On the **Design** contextual tab, in the **SmartArt Styles** group, click the **More** button.

   The SmartArt Styles gallery appears.
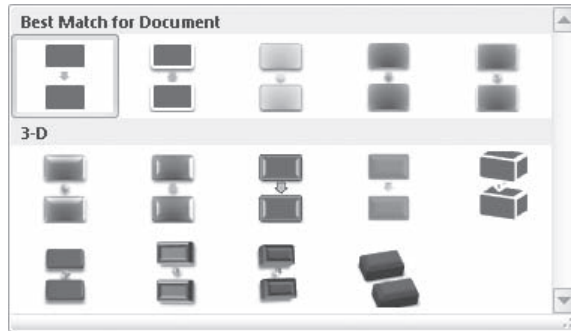
You can apply two-dimensional or three-dimensional styles.

8. In the gallery, point to each style, noticing the changes to your diagram. Then under **3-D**, click the first thumbnail in the first row (**Polished**).
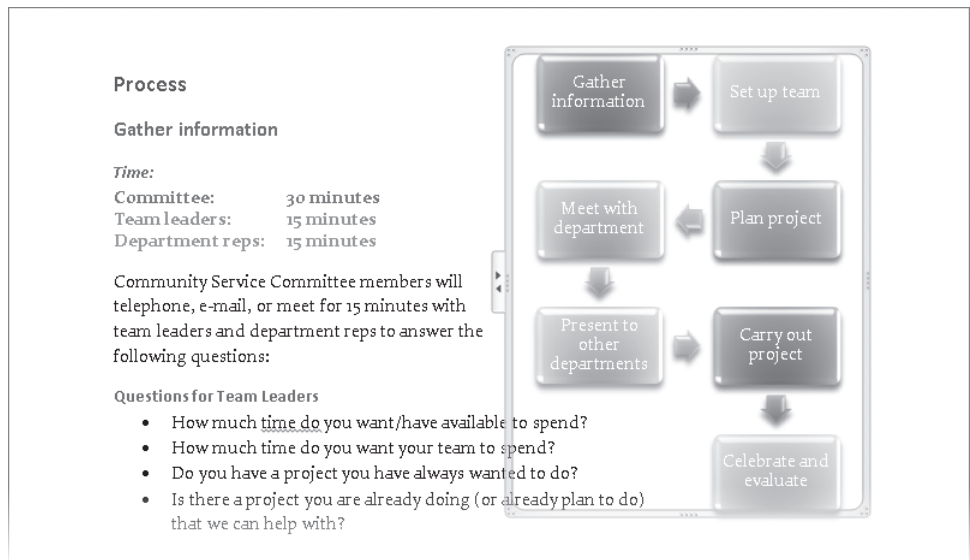

9. In the **SmartArt Styles** group, click the **Change Colors** button.

   The Colors gallery appears, offering sets of different colors or of different shades of the same color.

10. Preview a few color combinations, and then under **Colorful**, click the first thumbnail (**Colorful – Accent Colors**).

    In the document, you can see that the new diagram colors coordinate with the text colors.
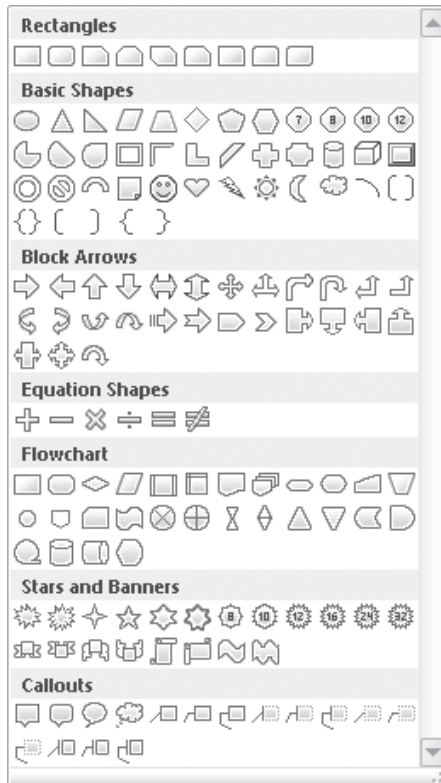

The diagram shapes have a new style and new colors.

11. In the upper-left corner of the diagram, click the **Gather information** shape (not its text), and then on the **Format** contextual tab, in the **Shapes** group, click the **Change Shape** button.
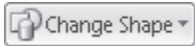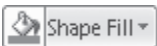
The Shapes gallery appears, showing all the available built-in shapes.

You can use any of these shapes in a diagram.
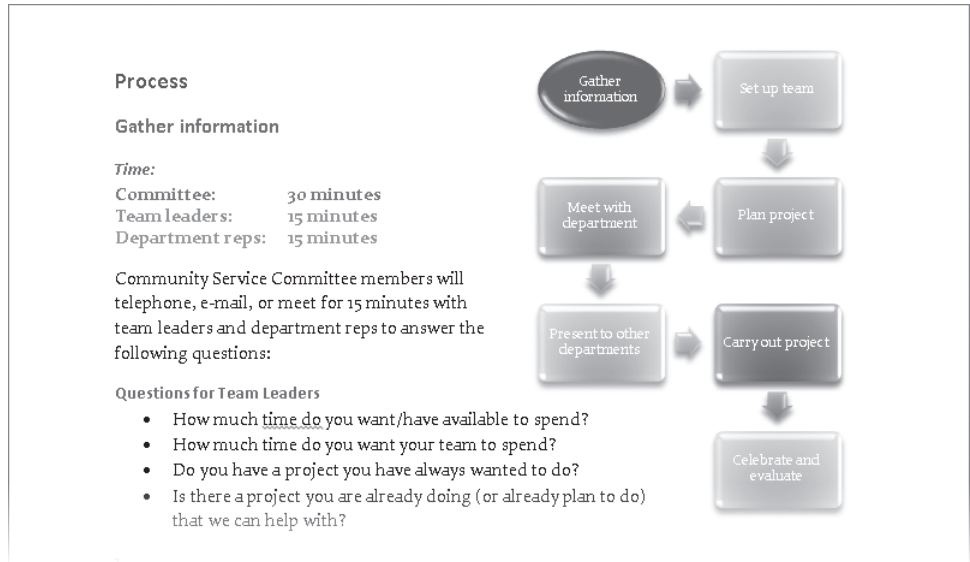
12. Under **Basic Shapes**, click the first shape in the first row (**Oval**).

The selected shape changes from a rectangle to an oval.

13. Without changing the selection, in the **Shape Styles** group, click the **Shape Fill** button. Then under **Standard Colors** in the palette, click the first box (**Dark Red**).

14. Click away from the diagram.

You can now see the results.

Process

Gather information

Time:
Committee: 30 minutes
Team leaders: 15 minutes
Department reps: 15 minutes

Community Service Committee members will
telephone, e-mail, or meet for 15 minutes with
team leaders and department reps to answer the
following questions:

Questions for Team Leaders
- How much time do you want/have available to spend?
- How much time do you want your team to spend?
- Do you have a project you have always wanted to do?
- Is there a project you are already doing (or already plan to do)
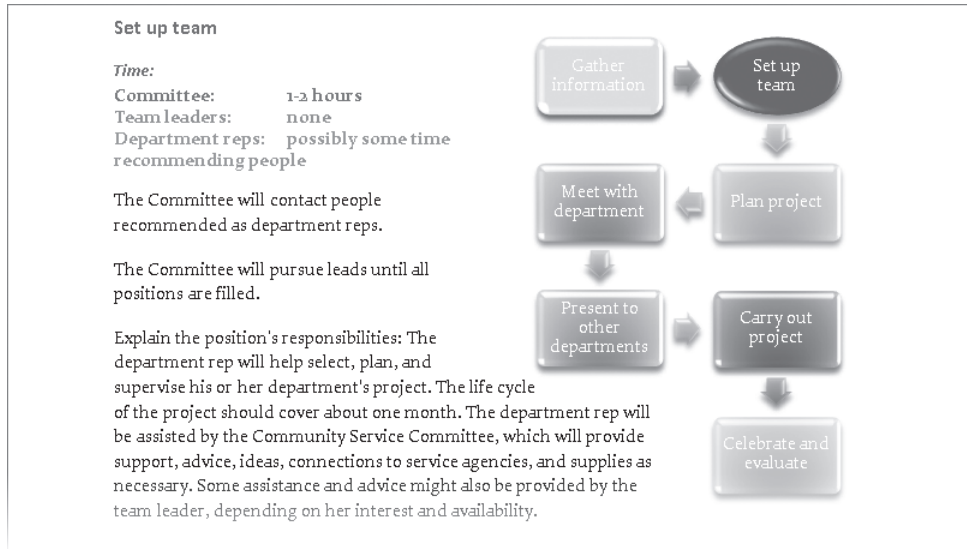 that we can help with?

*The shape that corresponds with the heading to the left of the diagram is now accentuated
with a different shape and color.*

15. Click a blank area within the diagram to select it. Then on the **Home** tab, in the
Clipboard group, click the **Copy** button.

16. Scroll down the document, click to the left of the **Set up team** heading, and in the
Clipboard group, click the **Paste** button to paste in a copy of the diagram.

17. On the **Format** tab, in the **Arrange** group, click the **Position** button, and then click
More Layout Options to display the **Layout** dialog box. Ensure that the **Horizontal**
setting is **Alignment**, **Right relative to Column** and the **Vertical** setting is
Alignment, **Top relative to Line**. Then click **OK**.

18. Click the **Gather information** shape (not its text). In the **Shapes** group, click the
Change Shape button, and under **Rectangles**, click the second shape (**Rounded
Rectangle**). Then in the **Shape Styles** group, click the **Shape Fill** button, and under
Theme Colors in the palette, click the third box (**Light Turquoise, Background 2**).

The shape corresponding to the previous heading is now muted to show that it
has already been discussed.

19. Click the **Set up team** shape (not its text), and change its shape to **Oval**. Then
change its fill color to **Dark Red**.

The diagram now corresponds with the adjacent topic.

Set up team

Time:
Committee: 1-2 hours
Team leaders: none
Department reps: possibly some time
recommending people

The Committee will contact people
recommended as department reps.

The Committee will pursue leads until all
positions are filled.

Explain the position's responsibilities: The
department rep will help select, plan, and
supervise his or her department's project. The life cycle
of the project should cover about one month. The department rep will
be assisted by the Community Service Committee, which will provide
support, advice, ideas, connections to service agencies, and supplies as
necessary. Some assistance and advice might also be provided by the
team leader, depending on her interest and availability.

The red oval shape reflects the heading to the left, and the previous topic is a muted color.

20. If you want, repeat steps 15 through 19 to insert a customized copy of the diagram adjacent to each of the remaining headings in the Process section.

> **Tip** Sometimes headings appear too close together, or a heading might appear too close to the bottom of the page, to accommodate a series of diagrams neatly. In that case, insert a page break (press Ctrl+Enter) to push each heading to a new page before inserting the diagram.

✖ **CLEAN UP** Save the ServiceB document, and then close it.

Creating Picture Diagrams

The SmartArt Graphics tool that comes with Word 2010 includes a sophisticated new category of diagrams that are designed to hold pictures. You can use these diagrams for business uses such as creating organization charts with pictures as well as names and titles or for personal uses such as creating a page of family photographs.

In this exercise, you'll create a page of photographs. You'll size and position the photographs and then enter and format accompanying captions.

SET UP You need the Garden, Park, Pond, and Woods pictures located in the Chapter07 practice file folder to complete this exercise. Create a blank document, and save it as *Westbury* in the folder where you usually save your practice files. Then follow the steps.

1. On the **Page Layout** tab, in the **Page Setup** group, set the orientation to **Landscape**, and set the margins to **Narrow**. Then if necessary, set the zoom percentage so that you can see the entire page on your screen.

2. At the top of the document, type **Westbury**, and press Enter. Select the text, and then on the **Home** tab, in the **Font** group, click the **Text Effects** button. Then in the gallery, click the second thumbnail in the last row (**Gradient Fill - Orange, Accent 6, Inner Shadow**). Finally, set the size to **72**.

3. Press the Down Arrow key, and on the **Insert** tab, in the **Illustrations** group, click the **SmartArt** button. In the left pane of the **Choose a SmartArt Graphic** dialog box, click **Picture**. Then in the middle pane, double-click the first thumbnail in the first row (**Accented Picture**).

    The template for the selected diagram is inserted at the cursor.
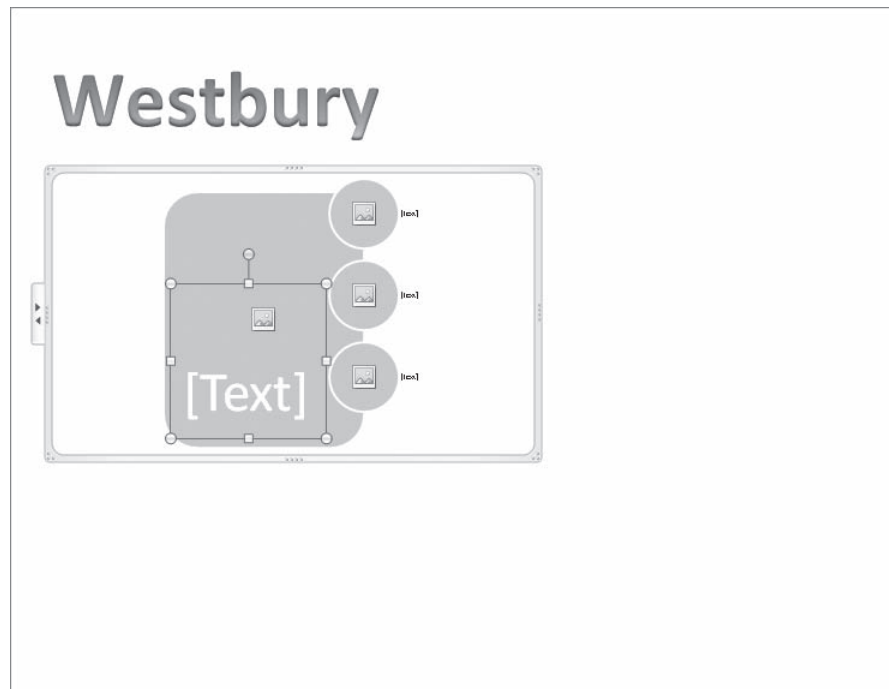
The Accented Picture diagram, ready for you to enter pictures and captions.

4. Click a blank area inside the diagram frame, and then on the **Format** contextual tab, in the **Size** group, change the **Height** setting to **5.75** and the **Width** setting to **9**.

   Tip You don't have to type the inch marks; Word will add them for you. After you enter a Size setting, pressing Enter implements your changes.

5. Click a blank area of the biggest shape, and then in the **Size** group, change the **Height** setting to **5** and the **Width** setting to **8**. Then drag the shape down and to the left until it sits in the lower-left corner of the diagram frame.

6. Click a blank area of the top circle, and then in the **Size** group, use the up arrows in the **Height** and **Width** settings to increase the size to **1.7"**. Repeat this step for the other two circles.

   Troubleshooting Don't type the sizes; use the arrows. Sometimes the shapes don't hold precise measurements when you type them.

7. Drag the top circle to the upper-right corner of the diagram frame, drag the middle circle to the right to align with the frame, and drag the bottom circle to the lower-right corner of the frame.

   The diagram now occupies most of the page.
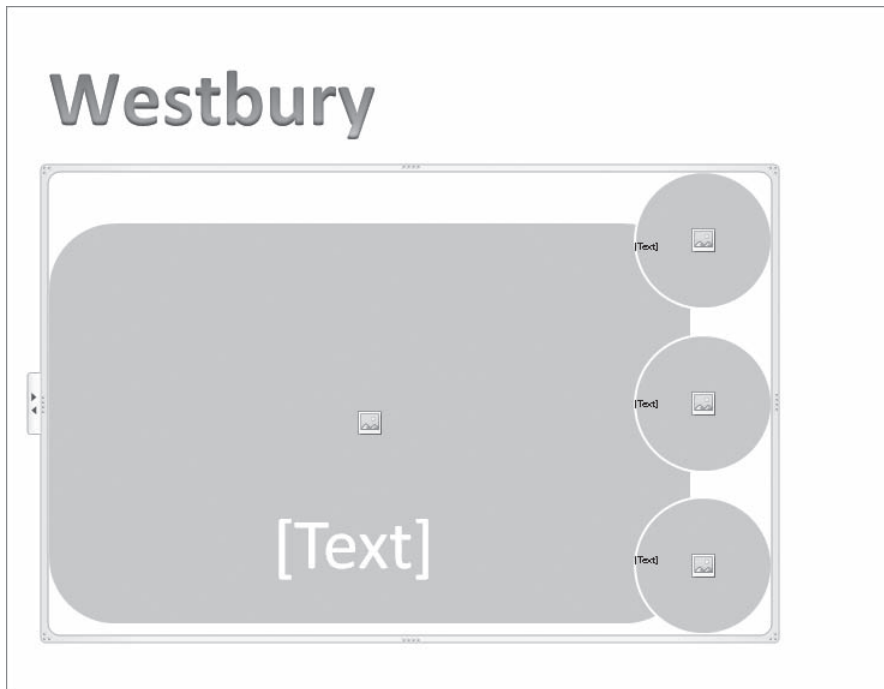
The picture placeholders have been sized and positioned to fit the available space.

8. In the biggest shape, click the **Insert Picture** icon.

   The Insert Picture dialog box opens.

9. Navigate to your **Chapter07** practice file folder, and then double-click **Park**.

10. Repeat step 9 to insert the **Garden** picture in the top circle, the **Pond** picture in the middle circle, and the **Woods** picture in the bottom circle.

11. Open the **Text** pane, and replace the placeholder bullet points with **Park**, **Garden**, **Pond**, and **Woods**.

    The captions appear on the diagram in the position and format specified by the diagram template.
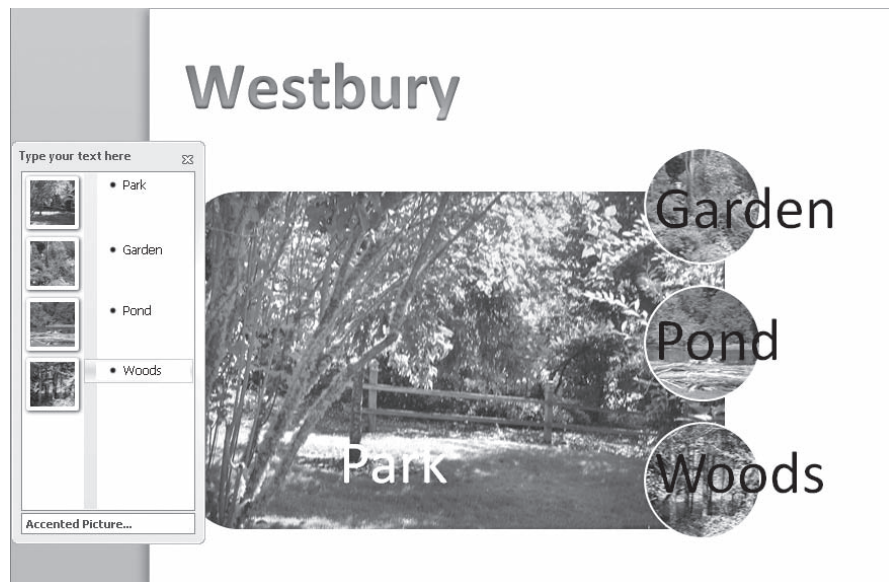

The pictures now have captions.

12. In the **Text** pane, double-click the **Park** bullet point, and then on the **Home** tab, in the **Font** group, apply the **Gradient Fill – Orange, Accent 6, Inner Shadow** text effect and set the size to **40**. Repeat this step for the **Garden**, **Pond**, and **Woods** bullet points. Then close the **Text** pane.

13. To balance the slide, on the **Page Layout** tab, in the **Page Setup** group, click the **Margins** button, and at the bottom of the gallery, click **Custom Margins**. Then in the **Page Setup** dialog box, increase the **Left** margin to **1.25**, and click **OK**.
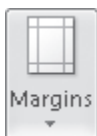
    Troubleshooting If Word displays a message that one of the margins is outside the printable area of the page, in this case you can click Ignore. If you were going to print this page, you would want to fix the problem.

14. Make any additional adjustment to achieve a balanced slide.

We indented the title by 1 inch and removed the space after it.
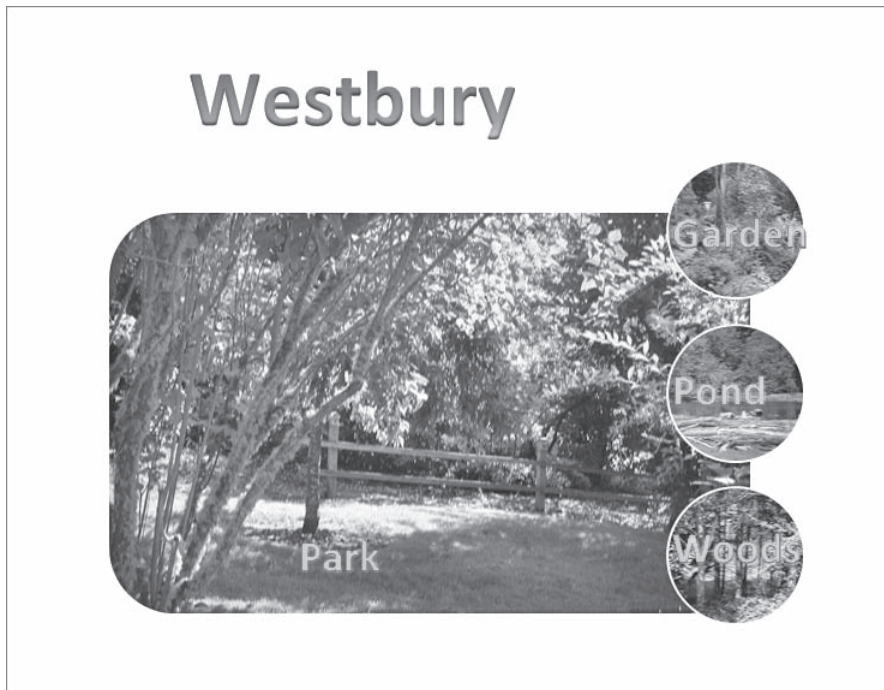

The final picture diagram.

❌ **CLEAN UP** Save the Westbury document, and then close it.

Key Points

- You can easily create a sophisticated diagram to convey a process or the relationship between hierarchical elements.

- Diagrams are dynamic illustrations that you can customize to produce precisely the effect you are looking for.

- You can use a picture diagram to neatly lay out pictures on a page.

Chapter at a Glance

Insert charts,
page 223
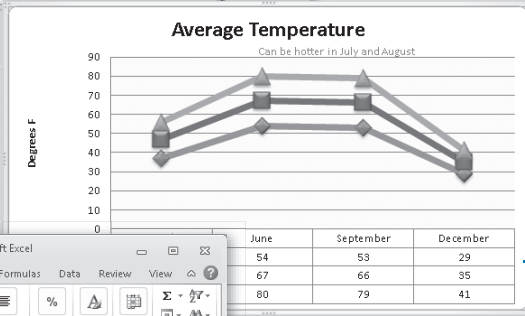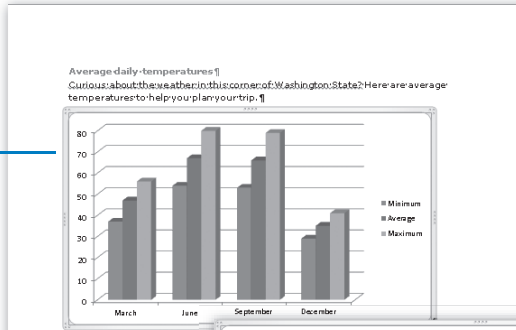
Modify charts,
page 230

Use existing data in charts,
page 237