Graphics serve five functions:

• They can catch the reader’s attention and interest.
• They can help you communicate information that is difficult to communicate with words.
• They can help you clarify and emphasize information.
• They can help nonnative speakers of English understand the information.
• They can help communicate information to multiple audiences with different interests, aptitudes, and reading habits.
Graphics offer five benefits that words alone cannot:

- Graphics are indispensable in demonstrating logical and numerical relationships.
- Graphics can communicate spatial information more effectively than words alone.
- Graphics can communicate steps in a process more effectively than words alone.
- Graphics can save space.
- Graphics can reduce the cost of documents intended for international readers.
An effective graphic has five characteristics:

- It should serve a purpose.
- It should be simple and uncluttered.
- It should present a manageable amount of information.
- It should meet the reader’s format expectations.
- It should be clearly labeled.
Follow these six principles in creating honest graphics:

- Cite your source and obtain permission.
- Include all relevant data.
- Begin the axes in your graphs at zero—or mark them clearly.
- Do not use a table to hide a data point that would be obvious in a graph.
- Show items as they really are.
- Do not use color or shading to misrepresent an item’s importance.
Follow these five guidelines for integrating graphics and text:

- Place the graphic in an appropriate location.
- Introduce the graphic in the text.
- Explain the graphic in the text.
- Make the graphic clearly visible.
- Make the graphic accessible.
The process of creating graphics includes four steps:

• planning
• creating
• revising
• citing
As you plan the graphics, consider these four aspects of the document:

- audience
- purpose
- the kind of information you want to communicate
- physical conditions
In creating graphics, choose one of the following four approaches:

• using existing graphics
• modifying existing graphics
• creating graphics on a computer
• having someone else create the graphics
Use color effectively

- Don’t overdo it.
- Use color to emphasize particular items.
- Use color to create patterns.
- Use contrast effectively.
- Take advantage of any symbolic meanings colors may already have.
- Be aware that color can obscure or swallow up text.
Use color to establish patterns
Use color to create effective contrast

The text is hard to read because of insufficient contrast.

Effective contrast makes the text easier to read.
Choose the category of technical information you want to communicate:

- numerical information
- logical relationships
- process descriptions and instructions
- visual and spatial characteristics
These five kinds of graphics help you illustrate numerical information:

- tables
- bar graphs
- pictographs
- line graphs
- pie charts
These two kinds of graphics help you illustrate logical relationships:

• diagrams
• organization charts
These five kinds of graphics help you illustrate instructions and descriptions:

- checklists
- tables
- flowcharts
- logic boxes
- logic trees
These four kinds of graphics help you illustrate visual and spatial characteristics:

- drawings
- maps
- photographs
- screen shots
A typical table has these parts:

<table>
<thead>
<tr>
<th>TABLE 19-1</th>
</tr>
</thead>
</table>

**Effective Tax Rates**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total effective tax rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All households</td>
<td>22.2%</td>
<td>20.9%</td>
<td>21.5%</td>
<td>22.6%</td>
<td>23.0%</td>
<td>19.8%</td>
</tr>
<tr>
<td>Bottom quintile</td>
<td>8.0%</td>
<td>9.8%</td>
<td>8.9%</td>
<td>6.3%</td>
<td>6.4%</td>
<td>4.8%</td>
</tr>
<tr>
<td>Top quintile</td>
<td>27.5%</td>
<td>24.0%</td>
<td>25.1%</td>
<td>27.8%</td>
<td>28.0%</td>
<td>25.0%</td>
</tr>
<tr>
<td><strong>Effective income tax rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All households</td>
<td>11.0%</td>
<td>10.2%</td>
<td>10.1%</td>
<td>10.2%</td>
<td>11.8%</td>
<td>8.5%</td>
</tr>
<tr>
<td>Bottom quintile</td>
<td>0.0%</td>
<td>0.5%</td>
<td>-1.0%</td>
<td>-4.4%</td>
<td>-4.6%</td>
<td>-5.9%</td>
</tr>
<tr>
<td>Top quintile</td>
<td>15.7%</td>
<td>14.0%</td>
<td>14.4%</td>
<td>15.5%</td>
<td>17.5%</td>
<td>13.9%</td>
</tr>
<tr>
<td><strong>Effective payroll tax rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All households</td>
<td>6.9%</td>
<td>7.9%</td>
<td>8.4%</td>
<td>8.5%</td>
<td>7.9%</td>
<td>8.4%</td>
</tr>
<tr>
<td>Bottom quintile</td>
<td>5.3%</td>
<td>6.6%</td>
<td>7.3%</td>
<td>7.6%</td>
<td>8.2%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Top quintile</td>
<td>5.4%</td>
<td>6.5%</td>
<td>6.9%</td>
<td>7.2%</td>
<td>6.3%</td>
<td>7.2%</td>
</tr>
<tr>
<td><strong>Effective corporate tax rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All households</td>
<td>3.4%</td>
<td>1.8%</td>
<td>2.2%</td>
<td>2.8%</td>
<td>2.4%</td>
<td>2.0%</td>
</tr>
<tr>
<td>Bottom quintile</td>
<td>1.1%</td>
<td>0.6%</td>
<td>0.6%</td>
<td>0.7%</td>
<td>0.5%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Top quintile</td>
<td>5.7%</td>
<td>2.8%</td>
<td>3.3%</td>
<td>4.4%</td>
<td>3.7%</td>
<td>3.4%</td>
</tr>
<tr>
<td><strong>Effective excise tax rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All households</td>
<td>1.0%</td>
<td>0.9%</td>
<td>0.9%</td>
<td>1.0%</td>
<td>0.9%</td>
<td>0.8%</td>
</tr>
<tr>
<td>Bottom quintile</td>
<td>1.6%</td>
<td>2.2%</td>
<td>2.0%</td>
<td>2.4%</td>
<td>2.3%</td>
<td>2.3%</td>
</tr>
<tr>
<td>Top quintile</td>
<td>0.7%</td>
<td>0.7%</td>
<td>0.6%</td>
<td>0.7%</td>
<td>0.5%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

The top panel of this table shows the total effective federal tax rate on all households and on the top and bottom quintiles of the income distribution. The other panels show the effective tax rates of various other types of federal taxes.
Follow these nine guidelines for creating effective tables:

• Indicate the units of measure.
• In the stub (the left-hand column), list the items being compared.
• In the columns, arrange the data clearly and logically.
• Do the math.
• Use dot leaders if a column contains a “blank” spot: a place where there are no appropriate data.
Follow these nine guidelines for creating effective tables (cont.):

• Don’t make the table wider than it needs to be.
• Minimize the use of rules.
• Provide footnotes where necessary.
• If you did not generate the information yourself, indicate your source.
Horizontal and vertical bar graphs look like this:

**Figure 1. Horizontal graph**

**Figure 1. Vertical graph**
Follow these six guidelines for creating effective bar graphs:

• Make the proportions fair.
• If possible, begin the quantity scale at zero.
• Use tick marks (marks along the axis) to signal the amounts.
• Arrange the bars in a logical sequence.
• Place the title below the figure.
• Indicate the source of your information if you did not generate it yourself.
This is an effective bar graph:

**Figure 1. Tri-County Inflation Rate This Year to Date**
There are five variations on the basic bar graph:

- grouped bar graph
- subdivided bar graph
- 100-percent bar graph
- deviation bar graph
- stratum graph
This is an effective pictograph:

Number of Internet Hosts, 2005–2009

2005

2006

2007

2008

2009

Each symbol represents 10 million hosts
This pictograph is misleading:

Figure 3. Housing Starts in the Tri-State Area, 2007 and 2008
Balance clarity and drama in graphics:

Really young vs. really old
The most rapidly growing group of Americans is aged 80 or above.

It’s projected that by the time the youngest becomes age 65 in 2029, almost 20% of Americans will be elderly—2.5 times the proportion in 1950.
Follow these three guidelines for creating effective line graphs:

- If possible, begin the quantity scale at zero.
- Use reasonable proportions for the vertical and horizontal axes.
- Use grid lines—horizontal, vertical, or both—rather than tick marks when your readers need to read the quantities precisely.
Follow these seven guidelines for creating effective pie charts:

• Restrict the number of slices to six or seven.
• Begin with the largest slice at the top and work clockwise in order of decreasing size.
• Include a miscellaneous slice for very small quantities.
• Label the slices (horizontally, not radially) inside the slice.
Follow these seven guidelines for creating effective pie charts (cont.):

• To emphasize one slice, use a bright, contrasting color or separate the slice from the pie.
• Check to see that your software follows the appropriate guidelines for pie charts.
• Don’t overdo fill patterns.
• Check that your percentages add up to 100.
Follow these five guidelines for presenting photographs effectively:

- Eliminate extraneous background clutter that can distract your reader.
- Do not electronically manipulate the photograph.
- Help the reader understand the perspective.
- If appropriate, include a common object to give readers a sense of scale.
- If appropriate, label components or important features.
Line drawings can have three advantages over photographs:

• Line drawings can focus the reader’s attention on desired information better than a photograph can.
• Line drawings can highlight information that might be obscured by bad lighting or a bad angle in a photograph.
• Line drawings can be easier for readers to understand than photographs are.
Line drawings can have a unique advantage over other graphics.

The artist wants to show the hazards and the safety features associated with baby cribs. Only a diagram could show all of them, because there is no real crib that looks like the one in the drawing.

Note the close-up to show the detail.
Here are phantom, cutaway, and exploded views:

a. Phantom view  b. Cutaway view  c. Exploded view
Use these four techniques to show motion:
Follow these six principles in creating effective graphics for multicultural readers:

• Be aware that reading patterns differ.
• Be aware of varying cultural attitudes toward giving instruction.
• Deemphasize trivial details.
• Avoid culture-specific language, symbols, and references.
• Portray people very carefully.
• Be particularly careful in portraying hand gestures.