Using Graphs, Charts, and Tables

Main Ideas

1. Bar graphs, line graphs, pie charts, and tables are useful for making comparisons and showing relationships.
2. Time lines, flowcharts, and causation charts are often used by geographers and historians.

Why It Matters Today

Lists of names, facts, statistics, and similar types of information are often clearest when presented visually. Use current events sources to find a news article that includes a chart or graph to present information. What is the visual's purpose?

Key Terms

- **statistics**
- **bar graph**
- **line graph**
- **pie chart**
- **time line**
- **flowchart**
- **causation chart**

The Geographer's World

In the spring of 2010, the U.S. government began taking a census, or count, of the population. To ensure that everyone was counted, the government hired census takers, like Texan Patrick Huck. In their work, Huck and other census takers collected a huge amount of data. The government then organized all this information for research and public use.

TEKS: 8A, 10B, 11D, 21B, 21C, 21H, 22A

*my*Notebook

Use the annotation tools in your eBook to take notes on the different ways you can visually present statistical information.

★ Using Graphs

Sometimes the best way to convey an idea or information is graphically, or with pictures. Geographers and historians have many tools, such as graphs, for presenting information visually. Graphs make it easier to compare facts and see the relationships between them. They are also useful for showing statistics—information in the form of numbers.

A bar graph is useful in comparing information about different places or time periods. Bar graphs use bars of different lengths to represent numbers and percentages. The bars may extend sideways or stand on end. Each graph has a horizontal axis and a vertical axis. The horizontal axis is the line across the bottom of the graph. The vertical axis is the line along the side. One axis has a number scale giving the value shown by the bars. The other axis may represent another variable, such as a time period. Colors sometimes define the bars instead of labels. A legend explains what each color means. The bar graph in the chapter review makes it easy to see which Texas city has the largest population.

A **line graph** indicates a trend, or pattern. It may show if something is increasing, decreasing, or staying about the same over time. Like bar graphs, line graphs have a horizontal and a vertical axis. The line graph below provides a simple visual record of population changes in Texas.

Reading Check **Finding the Main Idea** How are graphs useful to geographers and historians?
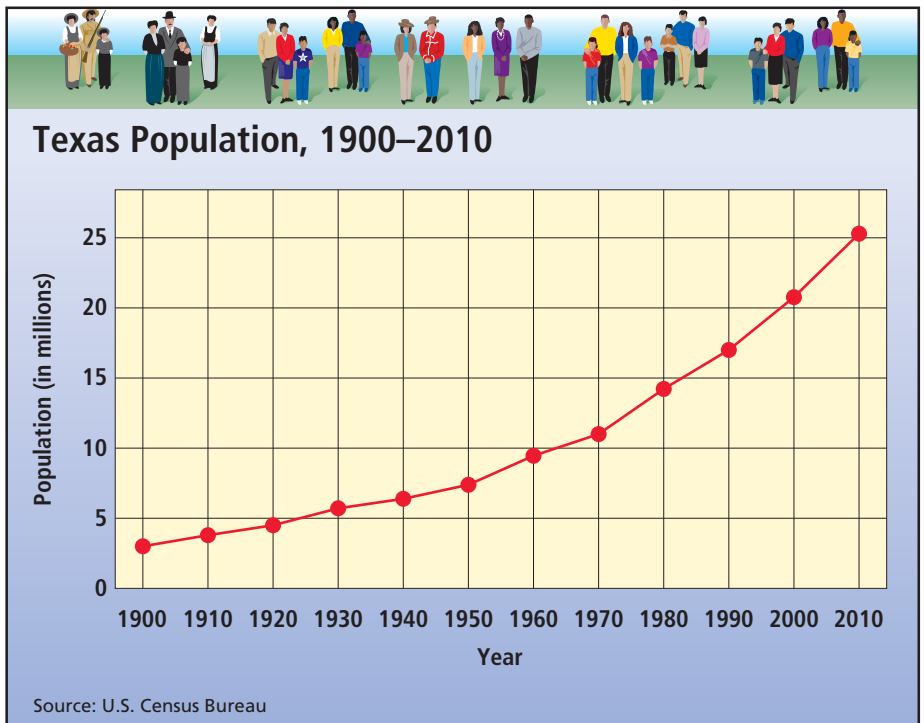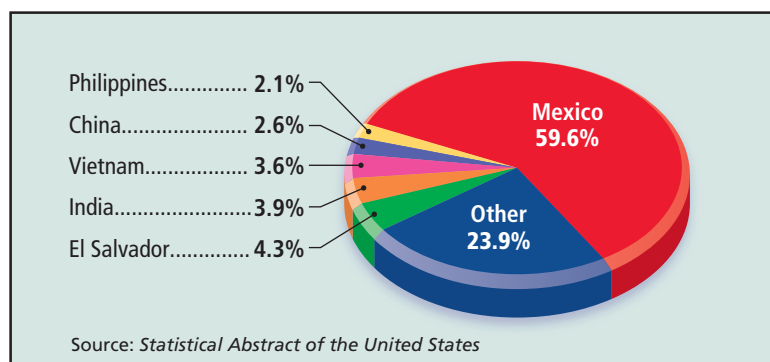
★ Using Charts, Tables, and Databases

A **pie chart**—or circle graph—shows how the parts of a whole are divided. The pie—or circle—represents the whole item or total amount. The pie pieces—or segments of the pie—represent a percentage of the whole. To make pie charts easier to read, segments are often colored. A legend may be used to define each color. The pie chart on the next page shows the origins of immigrants to Texas in 2011. The circle represents the total number of immigrants. Each segment represents the percentage of immigrants from one part of the world. A pie chart clearly summarizes a large amount of information.

Tables and databases help organize and categorize information. They are particularly useful when information is both descriptive and statistical. The table on this page lists names and statistical information. The database of Texas counties in the back of this book lists data about all of the counties in Texas. Both tables and databases use grids with columns and rows of boxes. Each box is called a cell. Labels often appear at the top of each column and at the left of each row.

Texas Population Growth, 2000–2010

Texas Counties	Population Growth
Harris	20.3%
Bexar	23.1%
Tarrant	25.1%
Travis	26.1%
Collin	59.1%

Interpreting Tables
During the 2000s, many Texas counties experienced large population growth. What was the difference in population growth between Collin and Harris Counties?

Texas Population, 1900–2010

Interpreting Graphs The population of Texas has grown every 10 years since 1900. How have Texas population patterns changed since 1960?

Texas Population, 1900–2010

Source: U.S. Census Bureau

Origin of Immigrants to Texas, 2011

Philippines.............. **2.1%**
China..................... **2.6%**
Vietnam................. **3.6%**
India.......................**3.9%**
El Salvador.............. **4.3%**

Mexico
59.6%

Other
23.9%

Source: *Statistical Abstract of the United States*

Interpreting Charts New immigrants from Asian and Latin American countries have added to the diversity of Texas. What percentage of immigrants to Texas came from Asian countries?

Charts show the relationship between different subjects. A **time line** shows the sequence of events. Time lines are useful for studying how one event may have led to or caused later events. A **flowchart** uses boxes, arrows, and sometimes images to show a series of activities or steps. For example, a flowchart could describe the steps it takes to turn trees into paper. Although it is similar to a flowchart, a **causation chart** focuses on cause and effect. These charts can take several forms. They may use pictures or diagrams to show the causes and effects of events. Some causation charts have boxes and arrows pointing out the effects of an event or idea. Others show events as steps or as a ladder. When an event has many causes or effects, a web diagram is useful. In a web, an event appears in the center. Its causes or effects surround it. In general, most charts contain information that is difficult to show in graphs or tables or to describe in text.

Reading Check **Analyzing Information** When might a geographer or historian choose to use a pie chart or a table instead of a line or bar graph?
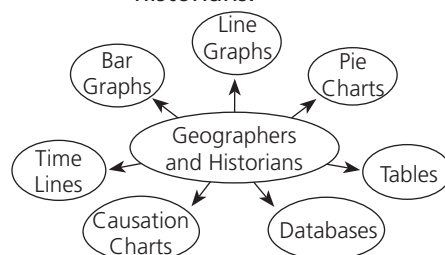
Section 3 Review

1. Define and explain:
- statistics
- bar graph
- line graph
- pie chart
- time line
- flowchart
- causation chart

2. Categorizing
Copy the web diagram below. Use it to explain how different charts, graphs, and tables help geographers and historians.

Line Graphs
Bar Graphs
Pie Charts
Time Lines
Geographers and Historians
Tables
Causation Charts
Databases

3. Finding the Main Idea
  a. Why do people use graphs?
  b. Describe three types of charts and explain their primary uses.

4. Writing and Critical Thinking   *my* **WriteSmart**
Drawing Inferences and Conclusions Imagine that you are writing a newspaper article about a drought. Create a thematic chart, table, or database for your article. Consider the following:
- the causes, events, and results
- the farmers, crops, and geography

The Geographer's Tools **15**