

Select an Appropriate Display

MAIN IDEA

Select an appropriate display for a set of data.

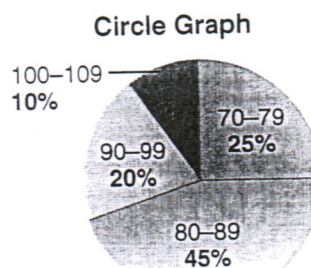
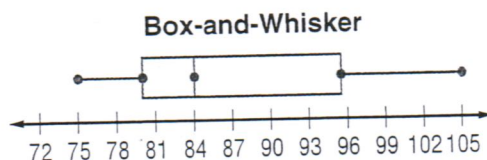
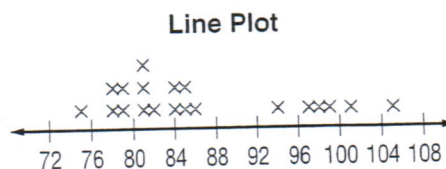
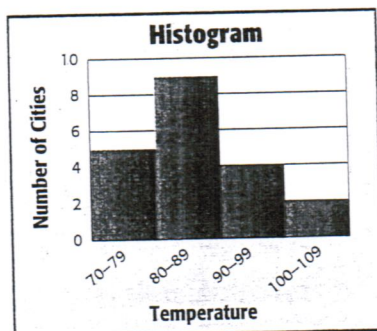
Math Online

glencoe.com

- Extra Examples
- Personal Tutor
- Self-Check Quiz

GET READY for the Lesson

WEATHER Mr. Watkin's class charted the high temperatures in various cities. The following graphs are four ways they displayed the daily high temperatures.



1. Which display(s) show how many cities had a temperature of exactly 79° F?
2. Which display(s) show the interval of temperatures for half of the cities?

As you decide what type of display to use, ask the following questions.

- What type of information is this?
- What do I want my graph or display to show?

EXAMPLE Select an Appropriate Display

- 1 SCHEDULES** Select an appropriate display to show the parts of a day taken up by many activities. Justify your reasoning.

Since the display will show the parts of a whole, a circle graph would be an appropriate display to represent this data.

CHECK Your Progress

Select an appropriate display.

- a. the population of the United States arranged by age intervals
- b. the spread of the average top speeds of 100 selected cars

Study Tip

Look Back

You can review bar graphs on p. 749, line graphs on p. 749, and Venn diagrams in Lesson 3-3.

Statistical Displays

Concept Summary

Type of Display	Best Used to...
Bar Graph	show the number of items in specific categories
Box-and-Whisker Plot	show measures of variation for a set of data
Circle Graph	compare parts of the data to the whole
Histogram	show frequency of data divided into equal intervals
Line Graph	show change over a period of time
Line Plot	show how many times each number occurs in the data
Stem-and-Leaf Plot	list all individual numerical data in condensed form
Venn Diagram	show how elements among sets of data are related

EXAMPLE

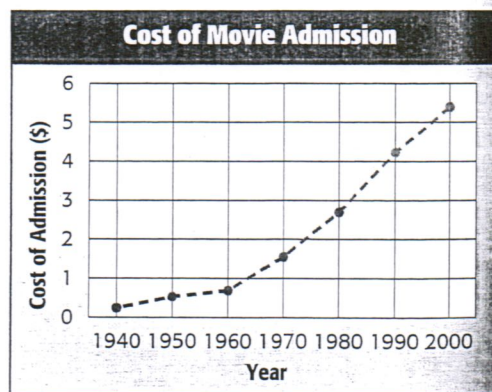
Construct an Appropriate Display

- 2 MOVIES Select an appropriate type of display for the data below to predict the average movie admission charge in 2010. Justify your reasoning. Then construct the display.

Movie Admission							
Year	1940	1950	1960	1970	1980	1990	2000
Cost of Admission (\$)	0.24	0.53	0.69	1.55	2.69	4.23	5.39

Source: New York Times Almanac

These data deal with changes over a period of time. A broken line graph would be an appropriate display to show the change over time.



Real-World Link

In 2006, the motion picture industry made \$9.49 billion in movie ticket sales.

Source: The Hollywood Reporter



CHECK Your Progress

- c. OCEANS The table lists the areas in square miles of five oceans. Select an appropriate type of display to compare the areas of the oceans. Then construct the display.

Ocean Areas	
Ocean	Area (sq. mi)
Arctic	5,427,000
Atlantic	29,637,900
Indian	26,469,900
Pacific	60,060,700
Southern	7,848,300

Source: Info Please

CHECK Your Understanding

Example 1 (p. 617) Select an appropriate display for each situation. Justify your reasoning.

- the number of students ordering yearbooks by grade
- the sales of a particular brand of shoes compared to the total

Example 2 (p. 618) 3. **SCHOOL** Select an appropriate type of display for showing how the data varies. Justify your reasoning. Then construct the display.

Test Scores Period 4															
98	77	89	63	71	79	81	96	81	85	81	92	77	68	72	
74	85	72	85	92	91	73	85	77	78	67	91	88	74	88	

Practice and Problem Solving

HOMEWORK HELP

For Exercises	See Examples
4-9	1
10-13	2

Select an appropriate display for each situation. Justify your reasoning.

- the number of cell phone subscribers for the past 5 years
- point totals for the top 10 NASCAR drivers
- the portion of a family's budget assigned to each category
- the median of the exam scores for one class
- gas mileage for 2008 cars
- number of Americans who speak Spanish, French, and/or German

Select an appropriate display for each situation. Justify your reasoning. Then construct the display.

10.

Favorite Sports for Girls (ages 6-17, in millions)	
Bicycling	10.1
Walking/Hiking	9.0
Bowling	8.9
Volleyball	7.6
Basketball	6.2
Soccer	6.2
In-Line Skating	5.5

Source: World Almanac for Kids

11.

Average Height of Females	
Age (years)	Height (inches)
10	56.4
11	59.6
12	61.4
13	62.6
14	63.7
15	63.8

Source: National Health and Nutrition Examination Survey

12. **ANIMALS** Refer to the table at the right. Construct an appropriate display of the data.

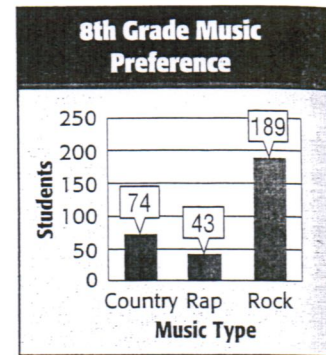
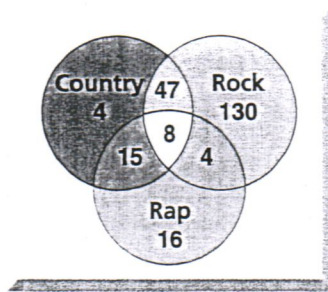
13. **MUSIC** A survey asked teens what they liked most about a song. Of those who responded, 59 said the music only, 41 said the lyrics only, 18 said they liked both equally, and 5 said they did not like either. Construct an appropriate display of this data.

Federally Endangered Animals, U.S.	
Type	Number of Species
Mammals	68
Fish	74
Reptiles and Amphibians	26
Birds	77
Invertebrates	153

Source: U.S. Fish and Wildlife Service

MUSIC For Exercises 14 and 15, refer to the displays below. Select which display is most appropriate to answer each question. Justify your reasoning. Then answer the question.

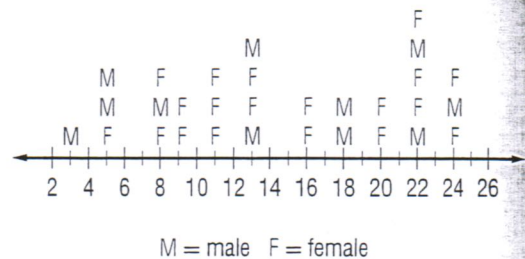
8th Grade Music Preference



14. How many students like only country music?
15. How many students like rock music?
16. **COLLECT THE DATA** Conduct a survey of your classmates about sports using data that can be presented in a Venn diagram. Then draw the Venn diagram.

COMPUTERS For Exercises 17 and 18, use the plot at the right. Construct another type of display appropriate to represent this data to answer each of the following questions. Then answer the question.

Number of Text Messages Received on Saturday



17. Compare the median for the number of text messages received by males and females.
18. What fraction of people are female and received more than 10 text messages that day?

EXTRA PRACTICE

See pages 698, 710.

19. **FIND THE DATA** Refer to the Data File on pages 16–19. Choose some data, select an appropriate display for the data, and construct the display.

H.O.T. Problems

20. **OPEN ENDED** Give an example of data that could be represented using a circle graph.

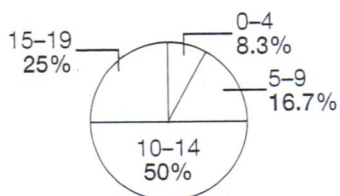
CHALLENGE For Exercises 21–23, state whether the following statements are *always*, *sometimes*, or *never* true. Justify your response.

21. A circle graph can be used to display data from a histogram.
22. A line graph can be used to display data from a Venn diagram.
23. A box-and-whisker plot can be used to display data from a line plot.
24. **WRITING IN MATH** Compare and contrast bar graphs and histograms. Explain when it is appropriate to use a histogram rather than a bar graph.

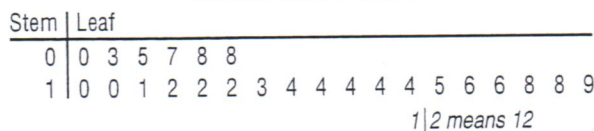
TEST PRACTICE

25. Roger polled 24 classmates to find out the average number of hours each spends online each week. Which of the following displays would be most appropriate to show the individual student responses?

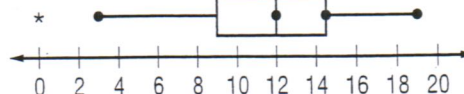
A Number of Hours Spent Online Each Week



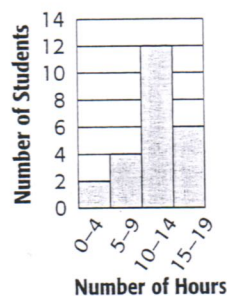
B Number of Hours Spent Online Each Week



C Number of Hours Spent Online Each Week



D Number of Hours Spent Online Each Week



Spiral Review

26. Display the data set { \$12, \$15, \$18, \$21, \$14, \$37, \$27, \$9 } in a stem-and-leaf plot. (Lesson 11-7)

Draw a box-and-whisker plot for each set of data. (Lesson 11-6)

27. 42, 38, 42, 45, 43, 80, 55, 50, 34, 36, 40, 35
 28. 52, 58, 67, 63, 47, 44, 52, 15, 49, 65, 52, 59

POPULATION For Exercises 29–31, use the table at the right.
 (Lesson 11-5)

29. Determine the measures of variation for the data.
 30. Find any outliers of the data.
 31. Use the measures of variation to describe the data.
 32. **CRAFTS** It takes Carolyn two hours to complete a cross-stitch pattern. Carolyn can spend no more than fourteen hours cross-stitching. Write an inequality that represents this situation and use it to determine whether Carolyn can complete 8 cross-stitch patterns. (Lesson 8-6)

Ancestral Origins of America (millions)	
German	42.8
Irish	30.5
African American	24.9
English	24.5
American	20.2
Mexican	18.4
Other	120.7

Source: U.S. Census Bureau

ALGEBRA Use the Distributive Property to rewrite each expression. (Lesson 8-1)

33. $8(y + 6)$ 34. $-5(a - 10)$ 35. $(9 + k)(-2)$ 36. $(n - 3)5$