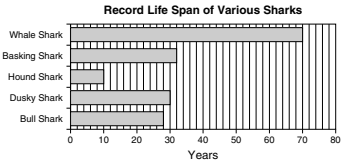
LESSON 10-1

Practice A

Organizing and Describing Data

Use the bar graph for Exercises 1–3.



1. Which shark lived longer than any other shark?

   Whale Shark

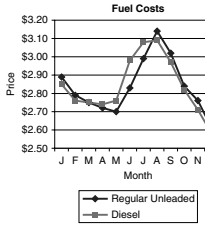
2. About how long did the Basking Shark live?

   32 years

3. Which shark lived about one-third as along as the Dusky Shark?

   Hound Shark

Use the line graph for Exercises 4–6.



4. In what month was the cost of diesel fuel and regular unleaded the same?

   March

5. For how many months was the cost of diesel fuel more than regular unleaded?

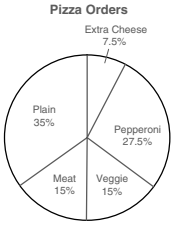
   4

6. About how much more was the cost of diesel fuel in July than in December?

   $0.50

7. The table shows what types of pizzas were ordered at Vinnie's Restaurant one weekend. Use the data to make a circle graph. Then tell why a circle graph is appropriate for this data set.

Type	Number of Orders
extra cheese	15
pepperoni	55
veggie	30
meat	30
plain	70



It compares each type of pizza to the total pizzas sold that weekend.

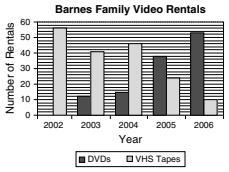
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LESSON 10-1

Practice B

Organizing and Describing Data

Look at the double bar graph.



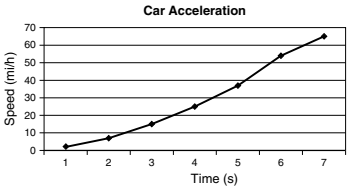
1. Which was the first year that the Barnes rented more DVDs than VHS tapes?

   2005

2. About how many videos did the Barnes family rent in all in 2003?

   53

Look at the line graph.



3. During which time interval did the car's speed increase the least?

   1 to 2 s

4. Describe how the speed changed over time.

   It always increased, but from 0 – 6 s, the speed increased by growing amounts.

Look at the circle graph.



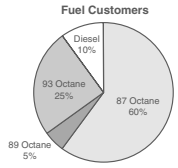
5. There were 5 times the number of orders for

   chocolate as there were for strawberry.

6. What percent of the orders for ice cream were for mint chip or vanilla? 60%

7. The table shows the number of customers who pumped 4 types of fuel at a gas station in a given time period. Use the given data to make a graph. Explain why you chose that type of graph.

87 Octane	89 Octane	93 Octane	Diesel
12	1	5	2



A circle graph compares each type of gas to the total gas purchased.

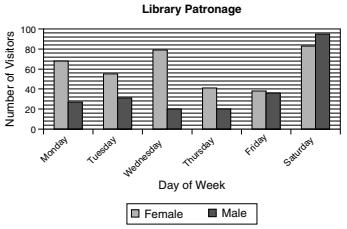
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LESSON 10-1

Practice C

Organizing and Describing Data

Look at the double bar graph.



1. About how many times more females than males attended the library on Wednesday?

   4

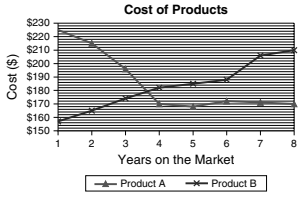
2. On which day of the week was library attendance by males and females the closest?

   Friday

3. On which day did the library have the least number of patrons?

   Thursday

Look at the double line graph.



4. How many years had the products been on the market before their costs were about the same?

   $3\frac{1}{2}$

5. How much more was the difference in costs during year 1 than year 8?

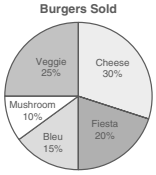
   $30

6. Describe the trend of the cost of Product A over the 8 years shown.

   It decreased sharply the first 4 years, then it remained fairly steady.

7. The table shows the number of customers who ordered each of the different types of burgers at Luke's Place on a given day. Use the data to make a graph. Explain why you chose that type of graph.

Cheese	Fiesta	Bleu	Mushroom	Veggie
24	16	12	8	20



A circle graph compares each type of burger bought to the total amount sold.

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LESSON 10-1

Reteach

Organizing and Describing Data

If data:	Then use:
is organized into categories	bar graph/ double bar graph
changes over a period of time	line graph/ double line graph
compares categories to whole set	circle graph

Use the data at right to make a graph. Explain why you chose that type of graph.

Recipe for Bubbles	
Ingredient	Cups
bubble soap	8
dishwashing liquid	1
glycerin	1
water	10

Because the data compares categories (the ingredients) to a whole set (the recipe), a circle graph is best.

Step 1: Total the number of cups.

$8 + 1 + 1 + 10 = 20$

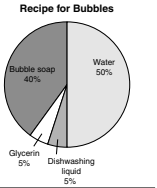
Step 2: Calculate the percent of each ingredient.

- bubble soap: $\frac{8}{20} = 40\%$
- glycerin: $\frac{1}{20} = 5\%$
- dishwashing liquid: $\frac{1}{20} = 5\%$
- water: $\frac{10}{20} = 50\%$

Step 3: Find the angle measure for each sector of the graph.

- bubble soap: $40\%(360°) = 144°$
- glycerin: $5\%(360°) = 18°$
- dishwashing liquid: $5\%(360°) = 18°$
- water: $50\%(360°) = 180°$

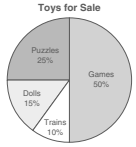
Use a compass and protractor to draw the graph.



Write *bar, double-bar, line, double-line*, or *circle* to indicate the type of graph that would best display the data described.

1. math scores of one student over the school year — line
2. attendance at an exercise class by age group, as it relates to total attendance — circle
3. number of animals seen at a farm — bar
4. A store owner uses an entire wall to display toys as shown in the table. Use the data to make a graph. Then explain why you chose that type of graph.

Toys for Sale	
Toy	Shelves
games	10
puzzles	5
dolls	3
trains	2



A circle graph is appropriate because it shows categories as part of a whole.

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LESSON 10-1

Reteach

Organizing and Describing Data (continued)

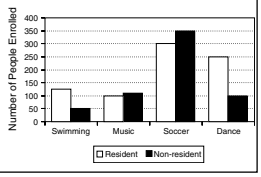
Comparisons between two groups can be made easily on a double-bar graph.

Which class shows the greatest difference between residents and non-residents?

Dance — *Compare bars for each class. Choose the bars with the greatest difference.*

How many more people were enrolled in soccer than dance?

300 — *Find total for soccer: 350 + 300 = 650. Find total for dance: 100 + 250 = 350. Subtract: 650 − 350 = 300.*



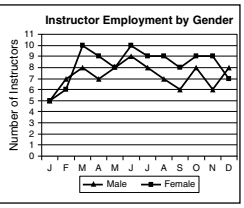
With a double-line graph, you can easily see how groups change over time.

During which month(s) were the number of male instructors equal to the number of female instructors?

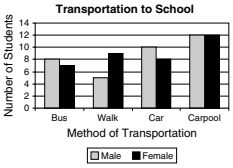
May — *Look for where the data points overlap.*

Between what two consecutive months did the number of female instructors increase the most?

February to March — *Look at female data points only. Find the steepest positive slope.*

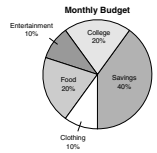


Use the bar graph for 5 – 7.



5. Which method of transportation is used by most students? carpool
6. How many more girls than boys walk to school? 4
7. How many boys go by car or ride in a carpool? 22

Use the circle graph for 8 – 10.



8. Which category accounts for the highest percentage of the monthly budget? savings
9. Which categories account for the smallest percentages of the monthly budget? entertainment and clothing
10. If the budget is $500, how much is spent on food? $100

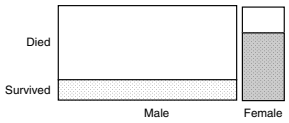
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LESSON 10-1

Challenge

Mosaic Displays

A **mosaic display** is related to both the bar graph and the circle graph. In a mosaic display, each bar is the same height, but different widths. The widths of the bars tell you the percents of the total that fall into each category. Each bar may also be divided into sections that tell you the percents of that category that fall into other categories.



In this activity, you will read and create mosaic displays about the 1912 voyage of the *Titanic*.

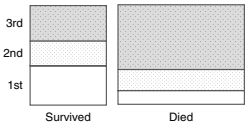
The mosaic display above shows survival on the *Titanic* by gender. (This data includes passengers and crew.)

1. Compare the width of the bar for males to the width of the bar for females. Estimate what percent of the passengers on the Titanic were female. about 20%
2. Compare the height of the section for females who survived to the height of the section for females who died. Estimate what percent of the female passengers survived. about 75%
3. The total number of male survivors (367) was about equal to the number of female survivors (344). How can you tell this from the mosaic display? The area of the section for female survivors is about the same as the area for the section of male survivors.
4. The total number of females who died was 126. Estimate the number of males that died, and explain how you got your answer. about 1260; The area of the section for males who died is about 10 times the size of the area of the section for females who died.

The table at right shows survival on the *Titanic* by passenger class. (This data does *not* include crew.) Follow these steps to make a mosaic display.

	1st	2nd	3rd
Survived	203	118	178
Died	122	167	528

5. Calculate the percentages of all passengers who survived and died. Use the percentages to make two bars of appropriate widths.
6. Calculate the percentage of survivors that were in each class. Use the percentages to divide the bar for survivors into sections of appropriate heights.
7. Calculate the percentage of non-survivors that were in each class. Use the percentages to divide the other bar into sections.



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LESSON 10-1

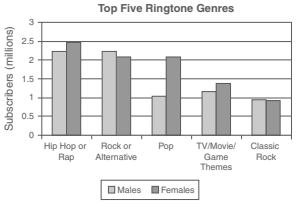
Problem Solving

Organizing and Describing Data

The table below gives the top five ringtone genres reported during a survey of cell phone subscribers in August, 2005.

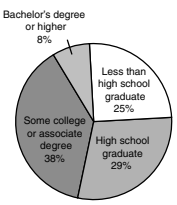
Ringtone genre	Males (millions)	Females (millions)
Hip Hop or Rap	2.232	2.472
Rock or Alternative	2.219	2.082
Pop	1.044	2.069
TV/Movie/Game Themes	1.161	1.371
Classic Rock	0.949	0.918

1. Use the data to make a graph below. Explain why you chose that type of graph. A double-bar graph compares the number of males and females that prefer each of the five categories.



2. From the graph (*not* the table), explain how you can tell that the Pop genre is nearly twice as popular with females as males. In the category of Pop, the bar for females is twice as tall as the bar for males.

In 2000, there were approximately 27 million people 18–24 years old in the United States. The circle graph below shows the highest level of education for that population. Use the graph to select the best answers for questions 3–5.



3. Which level of education was least represented?
   - **A** Less than high school graduate
   - **C** High school graduate
   - **B** Some college or associate degree
   - **(D)** Bachelor's degree or higher
4. How many 18–24 year-olds had attained a bachelor's degree or higher?
   - **(F)** 2.16 million
   - **H** 10.26 million
   - **G** 8 million
   - **J** 12.42 million
5. How many 18–24 year-olds never attended college?
   - **A** 6.75 million
   - **C** 12.42 million
   - **B** 7.83 million
   - **(D)** 14.58 million

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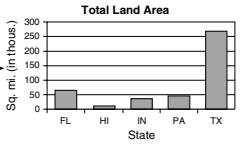
LESSON 10-1

Reading Strategies

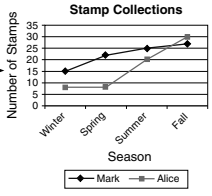
Analyze Choices

Depending on the data, one kind of graph is usually more appropriate than another.

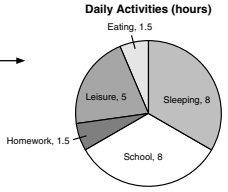
Bar Graph
- Used for data that can be organized into *categories*.
- Makes it easy to make *comparisons*.
- A **double bar graph** can be used to compare two sets of data.



Line Graph
- Used for displaying data that changes over a period of *time*.
- Makes it easy to see *change*.
- A **double line graph** is used to compare two related sets of data that change over time.



Circle Graph
- Used for data that represents *part of a whole*.
- Makes it easy to compare each category to the whole set.
- The whole circle represents 100% and each sector represents a *percent of the total*.



Complete the following.

1. There are five categories in the bar graph. List them. FL, HI, IN, PA, TX
2. Look at the line graph. When does Alice have more stamps than Mark? Fall
3. Add the hours in each sector of the circle graph. 24
   Divide 1.5 by 24 to find the percent of the day spent on homework. 6.25%

Name the type of graph that would be best to display the data described.

4. the cost of two brands of cereal over time — double line graph
5. the percent of a person's budget spent on various things — circle graph
6. the life expectancy of several species of reptile — bar graph
7. the change in school enrollment from 2000 to 2005 — line graph

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