LESSON 7-7 Problem Solving
Choosing an Appropriate Display

Write the correct answer.

1. You take a survey of your class to find the number of years each student has lived in your town. You want to show how the data is distributed. What kind of graph would you use to display your data? Explain your choice.

   Possible answer: Line plot; a line plot shows each piece of data and how the data are distributed.

2. Wendy budgets $120 for the week. $30 is for transportation, $50 is for food, $25 is for entertainment, and $15 is for other expenses. What kind of graph would best represent the data? Justify your response.

   Possible answer: Circle graph; the parts of the budget represent parts of a whole, and a circle graph shows parts of a whole.

3. The New York Mets' worst season was their first season, in 1962. In that year they won 40 games. Their best season was in 1986, when they won 108 games. You want to show the number of games won each year in a way that makes it easy to see the distribution of the data. Why might you use a stem-and-leaf plot rather than a line plot?

   Possible answer: Since the data ranges from 40-108, a line plot would be very long.

4. During one school year, Matt reads 16 books, Tama reads 22 books, Rhonda reads 14 books, and Francisco reads 20 books. Would a line graph be an appropriate way to display this data? Explain your answer.

   Possible answer: No; a line graph displays changes over time, and this data does not involve time.

Choose the letter for the best answer.

5. Which type of graph would be most appropriate to show the distribution of daily high temperatures for a month?
   - **A** circle graph
   - **B** Venn diagram
   - **C** stem-and-leaf plot
   - **D** line graph

6. Which type of graph would be most appropriate to compare the price of the same TV at five discount stores?
   - **F** stem-and-leaf plot
   - **G** bar graph
   - **H** circle graph
   - **J** line plot

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LESSON 7-7 Reading Strategies
Use a Flowchart

You can use a flowchart to help you choose an appropriate display for a set of data.

Start Here

- Do you need to show amounts that change over time? **Yes** → Use a line graph.
- **No** ↓ Do you need to compare amounts? **Yes** → Use a bar graph.
- **No** ↓ Do you need to show parts of a whole? **Yes** → Use a circle graph.
- **No** ↓ Do you need to show two or more sets of data and how they overlap? **Yes** → Use a Venn diagram.
- **No** ↓ Do you need to see how often each piece of data occurs? **Yes** → Use a line plot or a stem-and-leaf plot.

Use the flowchart and the situation below for Exercises 1 and 2.

For a TV show, 55% of the viewers are under 18, 35% are between 18 and 34, and 10% are over 34. You want to show how big a part of the whole audience each age group is.

1. For which question in the flowchart is the answer yes?

   Do you need to show parts of a whole?

2. Which kind of graph will you use? circle graph

Use the flowchart and the situation below for Exercises 3 and 4.

A school has 34 different classes with sizes between 18 and 28 students. You want to show each of the different class sizes.

3. For which question in the flowchart is the answer yes?

   Do you need to see how often each piece of data occurs?

4. Which kind of graph will you use? line plot or stem-and-leaf plot

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LESSON 7-7 Puzzles, Twisters, & Teasers
Seeing Is Believing!

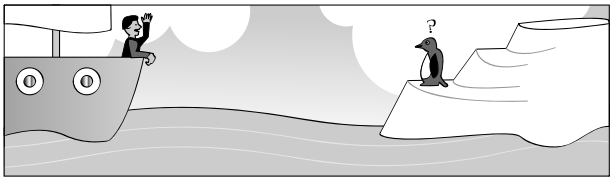
Choose the type of graph that would be best for each situation. Circle the letter above your answer.

1. comparing the numbers of raffle tickets sold by four students
   L line plot — **O** bar graph
2. displaying every winning speed in the history of the Indianapolis 500 car race
   Y stem-and-leaf plot — **D** circle graph
3. showing the factors and common factors of 24, 30, and 35
   A circle graph — **G** Venn diagram
4. showing the sales of a monthly magazine in its first six months
   R Venn diagram — **E** line graph
5. comparing the parts of a monthly budget
   D circle graph — **T** stem-and-leaf plot
6. displaying quiz scores for 20 quizzes on which the scores can be from 1-10
   S line plot — **P** line graph

Use the circled letters above the problem numbers to solve the riddle.

What do you need to spot an iceberg from 10 miles away?

G	O	O	D	E	Y	E	S
3.	1.	1.	5.	4.	2.	4.	6.



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LESSON 7-8 Practice A
Populations and Samples

Choose the letter of the sampling method that will better represent the whole population.

1. Clinton School Cafeteria: Student Satisfaction
   - **a.** Mark surveys 40 students who are in his classes. 72% are satisfied with the food in the cafeteria.
   - **b.** Tammy surveys 65 students by randomly choosing names from a list of all students in the school. 85% are satisfied with the food in the cafeteria.
2. Predicted Winner in an Election for Mayor
   - **a.** Harris telephones 100 randomly chosen voters. 54% plan to vote for Mayor Green.
   - **b.** Julia asks 70 people whom she knows. 45% plan to vote for Mayor Green.

For Problems 3-5, tell whether each sample may be biased. Explain your answer.

3. A town official surveys 50 people in a library to decide if town residents want the library expanded.

   The sample is biased. Possible explanation: It is likely that people who use the library will not have the same opinion as people who do not use the library.

4. A cable TV company randomly calls 200 customers and asks them if they are satisfied with their service.

   The sample is not biased. It is a random sample.

5. George surveys 15 students on the soccer team to learn whether middle school students want more money spent on school sports.

   The sample is biased. Possible explanation: It is likely that students who are not on sports teams will not have the same opinion as students who are on sports teams.

6. A factory produces 12,000 computers per week. The manager of a factory claims that fewer than 50 defective computers are produced each week. In a random sample of 500 computers, 2 were defective. Tell if the manager's claim is likely to be true.

   Yes; $\frac{2}{500} = \frac{48}{12{,}000}$, and $48 < 50$

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