

Name \_\_\_\_\_

Class

6th G

Date

Homework 10/30/17 - 11/3/17

# Practice 1-2

## Estimating With Whole Numbers

Estimate by first rounding to the nearest ten, hundred, or thousand.

1.  $13 + 29$

\_\_\_\_\_

2.  $348 - 22$

\_\_\_\_\_

3.  $472 - 117$

\_\_\_\_\_

4.  $2,983 + 523$

\_\_\_\_\_

5.  $795 - 323$

\_\_\_\_\_

6.  $743 - 29 + 17$

\_\_\_\_\_

7.  $2 + 23 + 48 + 33$

\_\_\_\_\_

8.  $577 - 124 - 39 + 103$

\_\_\_\_\_

9.  $8,873 - 5,322 + 976$

\_\_\_\_\_

Estimate using compatible numbers.

10.  $24 \times 8$

\_\_\_\_\_

11.  $593 \div 6$

\_\_\_\_\_

12.  $1,084 \times 7$

\_\_\_\_\_

13.  $5,974 \div 3$

\_\_\_\_\_

14.  $283 \div 105$

\_\_\_\_\_

15.  $4,832 \div 3$

\_\_\_\_\_

Solve.

16. With a length of about 458 meters, the *Jahre Viking* is one of the world's largest ships. Football fields have a length of about 91 meters. About how many football fields could fit alongside the *Jahre Viking*?

\_\_\_\_\_

17. There are 407 seventh graders at Washington Middle School. If there are 18 seventh grade classrooms, about how many students are there per class?

\_\_\_\_\_

18. Alicia's family decides to visit her grandmother, who lives 163 miles away. If they drive at an average speed of 55 miles per hour, about how long will it take them to arrive at her grandmother's house?

\_\_\_\_\_

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# Reteaching 1-1

## Understanding Whole Numbers

Millions			Thousands			Ones		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
		4	2	0	1	5	7	8

4 million    201 thousand    578

- *Standard form:* 4,201,578
- To find the value of a digit, multiply the digit by its place value.  
4 stands for  $4 \times 1,000,000$ , or 4,000,000.
- 5 stands for  $5 \times 100$ , or 500.

Write each number in standard form.

- |   |   |
|---|---|
| 1. six thousand one hundred four<br>_____     | 2. fifteen million twenty-one thousand<br>_____ |
| 3. sixty thousand one hundred twelve<br>_____ | 4. 2 billion, 9 million, 6 thousand, 1<br>_____ |
| 5. seventeen thousandths<br>_____             | 6. twenty-nine hundredths<br>_____              |
| 7. eight thousand two hundred ninety<br>_____ | 8. one billion thirty thousand fifty<br>_____   |

Use  $<$  or  $>$  to complete each statement.

- |  |  |  |
|--|--|--|
| 9. 523 <input type="checkbox"/> 567    | 10. 1,292 <input type="checkbox"/> 1,192   | 11. 47 <input type="checkbox"/> 45         |
| 12. 9,120 <input type="checkbox"/> 912 | 13. 53,010 <input type="checkbox"/> 53,100 | 14. 4,293 <input type="checkbox"/> 4,239   |
| 15. 783 <input type="checkbox"/> 738   | 16. 4,121 <input type="checkbox"/> 4,212   | 17. 35,423 <input type="checkbox"/> 34,587 |

Write in order from least to greatest.

- |   |   |
|---|---|
| 18. 782, 785, 783, 790<br>_____             | 19. 1,240; 1,420; 1,346; 1,364<br>_____     |
| 20. 6,214; 6,124; 6,421; 6,241<br>_____     | 21. 92,385; 92,835; 93,582; 93,258<br>_____ |
| 22. 45,923; 54,923; 45,932; 54,932<br>_____ | 23. 1,111; 1,011; 1,101; 1,110<br>_____     |

# Practice 1-1

## Understanding Whole Numbers

Write each number in words.

1. 1,760

\_\_\_\_\_  
\_\_\_\_\_

2. 75,398,012

\_\_\_\_\_  
\_\_\_\_\_

Write each number in standard form.

3. three thousand forty

\_\_\_\_\_

4. eleven billion

\_\_\_\_\_

5. one hundred ten

\_\_\_\_\_

6.  $400,000 + 20,000 + 8,000 + 400 + 6$

\_\_\_\_\_

7. 921 million, 750 thousand, 33

\_\_\_\_\_

8. eighty-two thousand sixty

\_\_\_\_\_

Use  $<$  or  $>$  to make each sentence true.

9. 12,680  12,519  12,299

10. 25,345  25,391  25,307

11. 7,657  7,650  7,655

12. 101,321  141,321  182,321

Write the value of the digit 6 in each number.

13. 46,051

\_\_\_\_\_

14. 62,071,357

\_\_\_\_\_

15. 42,916

\_\_\_\_\_

16. 1,063,251

\_\_\_\_\_

17. 816,548

\_\_\_\_\_

18. 70,642,050

\_\_\_\_\_

Write in order from least to greatest.

19. 12; 152; 12,512; 12,722

\_\_\_\_\_

20. 10; 10,113; 113; 10,130

\_\_\_\_\_

21. 149; 49; 49,149; 14

\_\_\_\_\_

22. 1,422; 142; 14,222; 247

\_\_\_\_\_

## Prime Factors (F)

Use a tree diagram to find the prime factors of each number.

219

170

142

138

85

188

87

134

116

## Prime Factors (G)

Use a tree diagram to find the prime factors of each number.

74

214

186

96

129

76

190

210

54

# Practice 2-1

## Finding the Mean

Find the mean of each data set.

1. 4, 5, 7, 5, 6, 3  
\_\_\_\_\_

2. 72, 76, 73, 74, 75  
\_\_\_\_\_

3. 85, 91, 76, 85, 93  
\_\_\_\_\_

4. 2.1, 3.2, 1.6, 2.4  
\_\_\_\_\_

For each set of data, identify any outliers. Then determine the effect that the outlier has on the mean.

5. 64, 65, 62, 69, 59, 23, 61, 67 \_\_\_\_\_

6. 8.1, 8.3, 7.8, 7.9, 8.4, 6.8, 8.0 \_\_\_\_\_

7. 1230, 1225, 1228, 1232, 1233, 1321, 1229, 1231 \_\_\_\_\_

Use the table for Exercises 8–10.

Name	Hourly Wage
Julia	\$8.75
Ron	\$7.50
Miguel	\$25.00
Natasha	\$11.00
Robert	\$10.50

8. Whose wage is an outlier in the data set?  
\_\_\_\_\_

9. Find the mean hourly wage with and without the outlier.  
\_\_\_\_\_

10. What effect does the outlier have on the mean?  
\_\_\_\_\_

Fill in the blanks to find the mean of each data set.

11. 4, 6, 2, 8, 5:  $\frac{25}{\square} = \square$

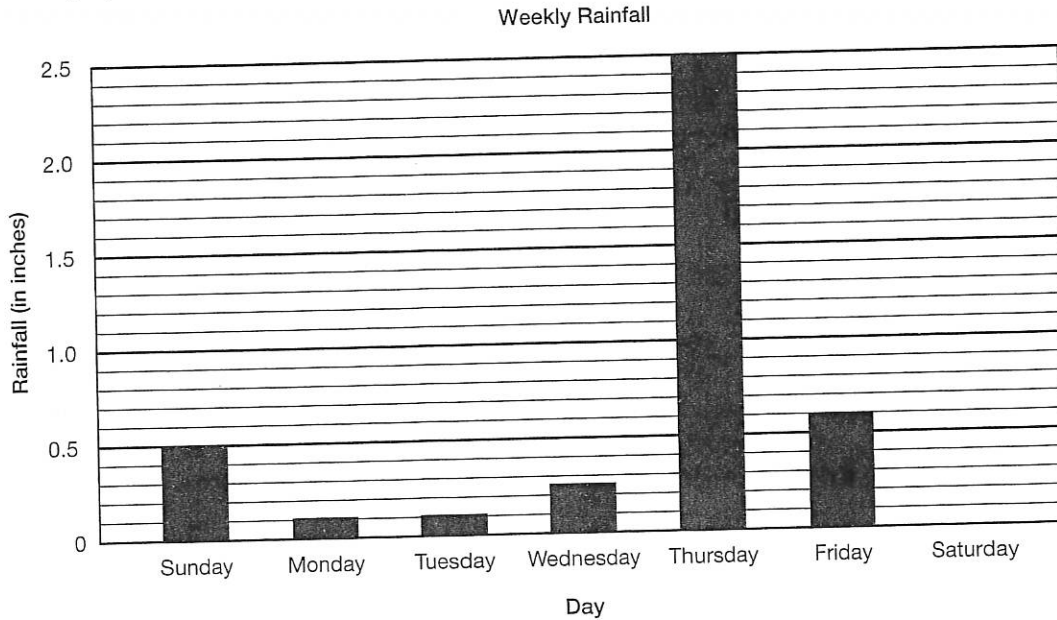
12. 10, 4, 2, 12, 6, 8:  $\frac{\square}{6} = \square$

# Enrichment 2-4

## Bar Graphs and Line Graphs

### Critical Thinking

Where Cassie lives it rains almost every day in the summer. She recorded the daily rainfall for one week and started the graph below to display her data.



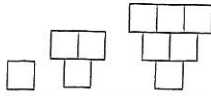
- On Saturday, it rained 1.2 inches. Add that day's rainfall to Cassie's graph.
- How much more did it rain on the day with the most rainfall than on the day with the least rainfall?  
\_\_\_\_\_
- The sum of the rainfall on two days equals the amount of rain that fell on Friday. Which two days were these?  
\_\_\_\_\_
- The amount of rain that fell on Sunday is twice the amount of rain that fell on another day. Which day was this?  
\_\_\_\_\_
- What was the total weekly rainfall? \_\_\_\_\_
- What is the mean daily rainfall? \_\_\_\_\_
- What is the median rainfall? \_\_\_\_\_

# Practice 3-1

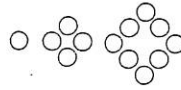
## Describing a Pattern

Sketch the next two designs in each pattern.

1.



2.



Write the next three terms in each pattern.

3. 3, 5, 7, 9, \_\_\_\_\_

4. 34, 31, 28, 25, \_\_\_\_\_

5. 2, 6, 18, 54, \_\_\_\_\_

6. 7, 8, 10, 13, \_\_\_\_\_

Write a rule for each number pattern, and then write the next three terms.

7. 4, 7, 10, 13, ?, ?, ?

8. 2, 4, 8, 16, ?, ?, ?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

9. 19, 29, 39, 49, ?, ?, ?

10. 8, 11, 14, 17, ?, ?, ?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

11. 135, 125, 115, 105, ?, ?, ?

12. 5, 10, 20, 40, ?, ?, ?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

13. Make a number pattern that starts with the number 6. Write the rule for your pattern, and then write the first five terms.

\_\_\_\_\_

\_\_\_\_\_

Find the missing term.

14. 7, 21, 63, ?, 567    15. 33, 27, ?, 15, 9    16. ?, 20, 80, 320, 1280

\_\_\_\_\_



# Directed Reading A

## Section: Scientific Models

1. What can scientists build to test their hypotheses?

\_\_\_\_\_

### MODELS IN SCIENCE

\_\_\_\_\_ 2. What is a pattern, plan, representation, or description designed to show the structure or workings of an object, system, or concept called?

- a. a test
- b. a model
- c. a hypothesis
- d. a *Proteus*

3. Scientists use models to represent \_\_\_\_\_ or systems.

4. A model uses something \_\_\_\_\_ to help us understand something that is not familiar.

5. List the three common types of scientific models.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

6. What can be helpful to show things that are too small to see or how something works?

\_\_\_\_\_

7. List two examples of physical models.

\_\_\_\_\_

\_\_\_\_\_

8. A mathematical model is made up of mathematical equations and \_\_\_\_\_.

\_\_\_\_\_

9. Complex mathematical models can have many \_\_\_\_\_.

10. Omitting a variable in a complex mathematical model can cause the model

to \_\_\_\_\_.

**Directed Reading A *continued***

11. What kind of models are based on systems of ideas or comparisons with familiar things?

12. How does a conceptual model make use of familiar things?

**Match the correct description with the correct term. Write the letter in the space provided.**

\_\_\_\_\_ 13. a model used to predict the weather

\_\_\_\_\_ 14. the big bang theory, which describes how the planets and galaxies were formed

\_\_\_\_\_ 15. a model of a molecule

a. conceptual model

b. physical model

c. mathematical model

16. A model can help you see things in your mind that are very \_\_\_\_\_ and very \_\_\_\_\_.

17. Give examples of how models help us picture things that are very difficult to see.

**USING MODELS TO BUILD SCIENTIFIC KNOWLEDGE**

\_\_\_\_\_ 18. An explanation for many hypotheses and observations is called a

a. model.

b. law.

c. variable.

d. theory.

19. What are theories based on?

20. A theory explains observations you've made and helps you \_\_\_\_\_ what will happen in other tests.

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**Directed Reading A *continued***

21. Explain how scientists use models to test theories.

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22. What is a summary of many experimental results and observations called?

---

23. A scientific law is formed only after many experimental results and

---

24. What do laws describe?

---

25. How do theories and laws differ?

---

---

26. What law says that the total mass of materials formed is the same as the total mass of the starting materials?

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Skills Worksheet

# Directed Reading A

## Section: Tools, Measurement, and Safety

- \_\_\_\_\_ 1. What is a *tool*?
- a. something that helps you do a task
  - b. hardware that helps you do a task
  - c. anything that helps you build something
  - d. anything with a handle

### TOOLS IN SCIENCE

2. One way that tools are used in scientific investigations is for collecting \_\_\_\_\_ by taking measurements.
3. List four examples of tools used for measuring.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4. List three examples of tools that help you analyze or communicate data.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5. List two examples of units of measure used in the distant past.

\_\_\_\_\_

\_\_\_\_\_

6. Scientists all over the world use the \_\_\_\_\_, or the metric system, in their work.

7. What does "SI" stand for?

\_\_\_\_\_

8. All SI units are based on multiples of \_\_\_\_\_, so changing from one unit to another is easy.

**Directed Reading A continued**

**MAKING MEASUREMENTS**

Match the correct description with the correct term. Write the letter in the space provided.

\_\_\_\_\_ 9. the measure of the size of an object in cubic meters or liters

\_\_\_\_\_ 10. the amount of matter in a given volume; the ratio of the mass to the volume in an object

\_\_\_\_\_ 11. the measure of how long something is in millimeters and meters

\_\_\_\_\_ 12. the measure of how hot or cold something is in degrees Celsius

\_\_\_\_\_ 13. the amount of matter in an object in grams, kilograms, or metric tons

14. What is the SI unit for length?

15. What is the amount of matter in an object?

16. What is the SI unit for volume?

17. Describe how the liter is related to the meter.

18. How are volume and density related?

19. What is the SI unit for temperature?

20. What units of temperature do scientists frequently use?

- a. mass
- b. temperature
- c. length
- d. volume
- e. density

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

**Directed Reading A *continued***

**SAFETY RULES**

21. List five basic safety rules to follow when doing scientific experiments.

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---

---

---

---

Match the labels to the icons. Write the letters in the spaces provided.

- \_\_\_\_\_ 22. heating safety
- \_\_\_\_\_ 23. eye protection
- \_\_\_\_\_ 24. sharp object
- \_\_\_\_\_ 25. electric safety
- \_\_\_\_\_ 26. clothing protection
- \_\_\_\_\_ 27. animal safety
- \_\_\_\_\_ 28. hand safety
- \_\_\_\_\_ 29. chemical safety
- \_\_\_\_\_ 30. plant safety

- a. 
- b. 
- c. 
- d. 
- e. 
- f. 
- g. 
- h. 
- i. 

## Directed Reading B

### Section: Exploring Physical Science THAT'S SCIENCE!

#### Everyday Science

Circle the letter of the best answer for each question.

1. What is knowledge gained by observation that can be tested?
  - a. physical science
  - b. geology
  - c. physics
  - d. science
2. What is science all about?
  - a. making observations and giving answers
  - b. getting good grades and right answers
  - c. observing science and reading answers
  - d. making observations and asking questions

#### WHAT IS PHYSICAL SCIENCE?

3. What is the study of nonliving matter?
  - a. biology
  - b. geology
  - c. physical science
  - d. physics
4. What do we study in physical science?
  - a. science methods
  - b. knowledge and matter
  - c. matter and energy
  - d. living things

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

**Directed Reading B** *continued*

**Circle the letter of the best answer for each question.**

5. What is the "stuff" that everything is made of?

- a. rocks
- b. matter
- c. energy
- d. chemistry

6. What is the ability to do work?

- a. energy
- b. matter
- c. physics
- d. chemistry

**A Study of Matter and Energy**

7. What does all matter have, whether it is moving or still?

- a. energy
- b. motion
- c. life
- d. parts

**BRANCHES OF PHYSICAL SCIENCE**

8. What are the two main branches of physical science?

- a. chemistry and geophysics
- b. chemistry and physics
- c. chemistry and biology
- d. biology and physics



**Directed Reading B** *continued*

**Chemistry—A Matter of Reactions!**

**Circle the letter of the best answer for each question.**

9. What is the study of the structure and properties of matter called?
- a. meteorology
  - b. geology
  - c. physics
  - d. chemistry

**Physics—A Matter of Energy**

10. What do physicists study?
- a. energy and how it affects matter
  - b. how matter behaves and changes
  - c. light and how it affects energy
  - d. how energy has no effect

**PHYSICAL SCIENCE: ALL AROUND YOU**

**Meteorology**

11. What is the study of the weather and climate called?
- a. geology
  - b. physics
  - c. physical science
  - d. meteorology
12. What do meteorologists need to know about physical science?
- a. atmosphere and tornadoes
  - b. pressure, motion, and force
  - c. weather and tornadoes
  - d. energy, weather, and atmosphere

**Directed Reading B** *continued*

**Geology**

**Circle the letter of the best answer for each question.**

13. What is the study of the structure of Earth called?
- a. physics
  - b. chemistry
  - c. geology
  - d. meteorology
14. What is the study of the chemistry of rocks called?
- a. geochemistry
  - b. meteorology
  - c. physics
  - d. geology
15. What do geochemists need to know about physical science?
- a. matter and minerals
  - b. energy, weather, and atmosphere
  - c. heat, force, and chemistry
  - d. energy and rocks

**Biology**

16. Chemistry can help to explain how animals do which of the following?
- a. get energy from food
  - b. convert energy to matter
  - c. move around
  - d. create chemical reactions

## Directed Reading B

### Section: Scientific Methods WHAT ARE SCIENTIFIC METHODS?

Circle the letter of the best answer for each question.

1. What are the ways that scientists answer questions and solve problems?
- a. physical science
  - b. physics
  - c. observations
  - d. scientific methods

### ASKING A QUESTION

2. Look at the figure outlining the steps that scientific methods are based on. Which of the following is NOT a step in the process called scientific methods?
- a. testing the hypothesis
  - b. answering a question
  - c. drawing conclusions
  - d. making observations
3. What does asking questions help scientists to do?
- a. find answers with less investigation
  - b. focus the purpose of an investigation
  - c. ask questions and memorize answers
  - d. know where to find answers
4. What is the word for using the senses to gather information?
- a. investigation
  - b. measurement
  - c. knowledge
  - d. observation

Name \_\_\_\_\_ Class \_\_\_\_\_ Date \_\_\_\_\_

**Directed Reading B *continued***

**A Real-World Question**

**Circle the letter of the best answer for each question.**

5. What is the comparison of energy output with energy input?
- a. efficiency
  - b. hypotheses
  - c. observation
  - d. physical science
6. When scientists studied boat propulsion, what did they learn about propellers?
- a. They are efficient but unreliable.
  - b. They are efficient.
  - c. They are not efficient.
  - d. They are not efficient but reliable.

**The Importance of Boat Efficiency**

7. Why is it important to make boats and ships more efficient?
- a. to use less fossil fuels
  - b. to use more fossil fuels
  - c. to spend more money
  - d. to make boats slower
8. Based on their observations, what question did the MIT scientists ask?
- a. How can boat propulsion be made less efficient?
  - b. How can boat propulsion be made more efficient?
  - c. How can boat propellers be made less efficient?
  - d. How can penguins be made more efficient?

**Directed Reading B** *continued*

**FORMING A HYPOTHESIS**

**Circle the letter of the best answer for each question.**

9. What is a testable explanation based on observation called?
- a. scientific law
  - b. physical science
  - c. theory
  - d. hypothesis
10. What should be true of a good hypothesis?
- a. It should be reusable.
  - b. It should be testable.
  - c. It should be an answer.
  - d. It should be true.

**A Possible Answer from Nature**

11. What observations led Czarnowski to form his hypothesis?
- a. how easily penguins propel themselves
  - b. how easily boats propel themselves
  - c. how badly penguins propel themselves
  - d. how badly boats propel themselves
12. What was Czarnowski's hypothesis about propulsion systems?
- a. Propeller-driven systems are always efficient.
  - b. Penguin-like systems are less efficient.
  - c. Penguin-like systems are more efficient.
  - d. Propeller-driven systems are more efficient.

**Directed Reading B** *continued*

**Making Predictions**

**Circle the letter of the best answer for each question.**

- 13.** What do scientists do before testing a hypothesis?
- a. make another hypothesis
  - b. answer all questions
  - c. make predictions
  - d. make errors

**TESTING THE HYPOTHESIS**

- 14.** What must you do after you form a hypothesis?
- a. Test the hypothesis.
  - b. Change the hypothesis.
  - c. Disprove a prediction.
  - d. Answer the hypothesis.
- 15.** What if you test your hypothesis, and it is off the mark?
- a. Test the hypothesis again and again.
  - b. Change the hypothesis.
  - c. Don't change the hypothesis.
  - d. Don't test the hypothesis again.

**Directed Reading B** *continued*

**Controlled Experiments**

Read the words in the box. Read the sentences. **Fill in each blank with the word or phrase that best completes the sentence.**

controlled experiment      experimental group      variable

- 16. A group that is the same as the control group except for one factor is a(n) \_\_\_\_\_.
- 17. A factor that makes the experimental groups different from the control group is a(n) \_\_\_\_\_.
- 18. An experiment that compares results using a control group is a(n) \_\_\_\_\_.

**Circle the letter of the best answer for each question.**

- 19. Besides controlled experiments, how else can you test a hypothesis?
  - a. Observe penguins swimming.
  - b. Give a presentation about your hypothesis.
  - c. Write a paper about your hypothesis.
  - d. Make or build what you want to test.

**Testing *Proteus***

- 20. What is any piece of information gathered through experimentation called?
  - a. a factor
  - b. a particle
  - c. an idea
  - d. data

**Directed Reading B** *continued*

**ANALYZING THE RESULTS**

**Circle the letter of the best answer for each question.**

21. What must you find out after conducting an experiment and collecting data?
- a. if the answers are right
  - b. if the results support your hypothesis
  - c. if the answers can be corrected
  - d. if the results can be changed
22. Why do scientists do calculations and create tables and graphs?
- a. to help them develop hypotheses
  - b. to make analyzing results easier
  - c. to impress other scientists
  - d. to conduct a controlled experiment

**Analyzing *Proteus***

23. What was used to show the data collected in the *Proteus* experiment?
- a. books and reports
  - b. word of mouth
  - c. line and bar graphs
  - d. television and radio

**DRAWING CONCLUSIONS**

24. What must you do at the end of an investigation?
- a. Come to a conclusion.
  - b. Draw a bar graph.
  - c. Draw a picture.
  - d. Make a line graph.



**Directed Reading B** *continued*

**The *Proteus* Conclusion**

**Circle the letter of the best answer for each question.**

25. What did scientists do after they analyzed results of the *Proteus* test?
- a. changed their hypothesis
  - b. started a new investigation
  - c. ran many more trials
  - d. went on vacation

**COMMUNICATING RESULTS**

26. Why is it important to communicate results of scientific investigations?
- a. so other scientists can conduct their own tests
  - b. to get the credit
  - c. because the question is answered
  - d. to prevent other scientists from doing their own tests

**Communicating About *Proteus***

27. Where did the MIT scientists publish their results about *Proteus*?
- a. nowhere
  - b. television, radio, and the Internet
  - c. academic papers, science magazines, and the Internet
  - d. books, magazines, and comic books