Name _____ Date _____ Class _____

Directed Reading for Content Mastery

# *Key Terms*
# The Nature of Science

**Directions:** *Use the terms in the list below to fill in the blanks below.*

| | | |
|---|---|---|
| **scientific theory** | **observing** | **science** |
| **law** | **systems** | **life science** |
| **Earth science** | **energy** | **technology** |

Anyone who tries to learn something about things around them is a scientist. **1.** _____ is a way of learning more about the natural world. This learning process often begins by **2.** _____, or watching something in nature, then asking questions about it.

A **3.** _____ is a possible explanation for those patterns that a scientist might see when observing nature. Theories are usually supported by the results from many investigations. When a pattern in nature is observed time and time again, it becomes a scientific **4.** _____, and it stands until someone makes an observation that does not fit the pattern.

Many scientists are interested in studying **5.** _____, or collections of structures, cycles, and processes that relate to and interact with one another. The study of living systems is called **6.** _____. Scientists who study living systems often ask questions like "How do vaccines help prevent disease?" or "What kind of organisms live in a swamp?" Other scientists study **7.** _____, which is the study of Earth and the systems in space. These scientists might study asteroids, clouds, or volcanoes. Still other scientists study the physical sciences, which study matter and **8.** _____.

Science has many uses in the daily world. When you use a computer, a toaster, or a radio, you are using **9.** _____, or applied science. Many scientists and engineers study the practical applications of science.

Meeting Individual Needs

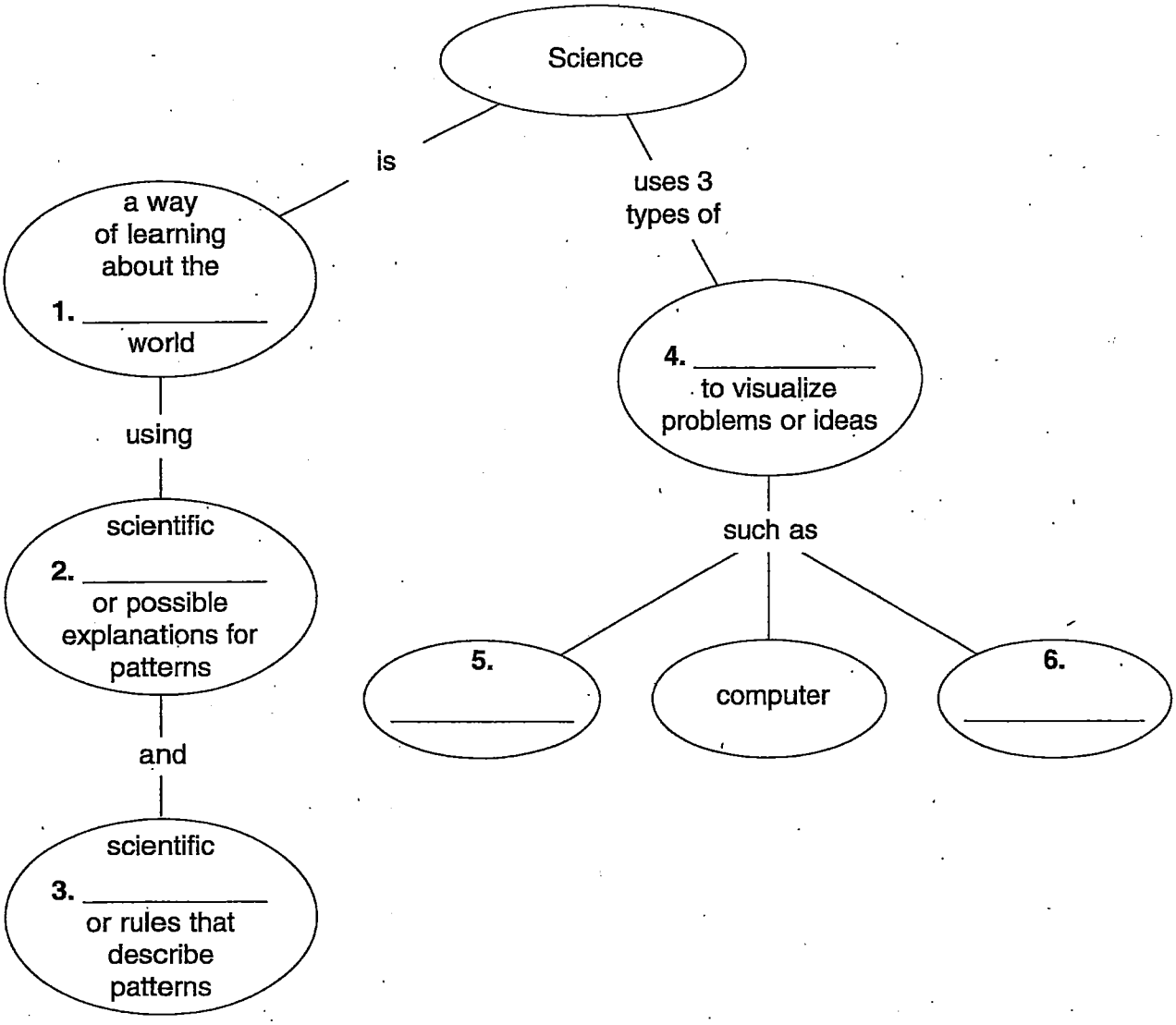
Name Date Class

Directed Reading for Content Mastery

# *Overview* The Nature of Science

**Directions:** *Complete the concept map using the terms listed below.*

**models** **theories** **physical**
**laws** **idea** **natural**




Meeting Individual Needs

Name _____ Date _____ Class _____

Chapter Review

# The Nature of Science

## Part A. Vocabulary Review

**Directions:** *Unscramble the letters to form the correct term for each definition. Write the terms on the lines provided.*

_____ 1. *iicitfcens oherty:* an attempt to explain a pattern in nature

_____ 2. *leomd:* a tool for understanding the natural world

_____ 3. *ccefiiinst awl:* a rule to explain a pattern in nature

_____ 4. *nastscotn:* the variables in an experiment that stay the same

_____ 5. *eifl eeiccns:* the study of living systems

_____ 6. *semyts:* a collection of structures that relate to one another

_____ 7. *nienfrcees:* attempts at explanations of what is seen

_____ 8. *itaccril ignkhitn:* using knowledge and thinking skills to decide if you agree with an explanation

_____ 9. *cnothlgyoe:* the application of knowledge learned through science

_____ 10. *aibvrale:* the factor that can be changed in an experiment

_____ 11. *ocnroledlt xermeentip:* observing the effect of one thing while keeping all other things constant

_____ 12. *ssyhtpoeih:* a prediction about a problem that can be tested

_____ 13. *inccese:* a process used to investigate the world around you

**Directions:** *Complete the following sentences using the terms listed below. Some terms will not be used.*

| | | |
|---|---|---|
| **Earth science** | **computer model** | **physical science** |
| **inference** | **theory** | **idea model** |

14. A(n) _____ is one that cannot be touched but can be seen.

15. A _____ is a reasonable and educated guess based on what you know and what you observe.

16. The study of nonliving things such as rocks, soil, planets, and stars is called _____.

17. A(n) _____ could never be built as a physical model.

## Chapter Review (continued)

### Part B. Concept Review

**Directions:** *Fill in the blanks with the correct term.*

1. Einstein's famous equation $E = mc^2$ is a(n) _____.
2. A conclusion based on observations is a(n) _____.
3. Science can never answer questions with absolute _____, but can give us the best answer based on the knowledge at the time.
4. _____ help you organize your observations and test results.
5. Scientists can use _____ to obtain data from a hostile environment.
6. Engineers apply science to develop _____.
7. Although science does not follow a particular series of steps, investigations often follow a general _____.
8. Scientists must be very careful when they are gathering _____.
9. Hypotheses can be based on observations or prior _____.

**Directions:** *Answer the following questions using complete sentences.*

10. Why is critical thinking important in science?

_____

_____

_____

_____

_____

11. Explain why a hypothesis could still be correct even though an experiment says the hypothesis is wrong.

_____

_____

_____

_____

_____

Assessment

warm up

NAME _____ DATE _____ PERIOD _____

# Lesson 3 Problem-Solving Practice

## *Compare and Order Integers*

1. **BUSES** Melanie, Byron, and Chin are all waiting at the bus stop. Melanie's bus leaves at 10 minutes after noon. Byron's bus leaves at 15 minutes before noon. Chin's bus leaves at 5 after noon. Arrange the three according to who will leave the bus stop first.

2. **INTERNET** Darnell pays for 500 minutes of Internet use a month. The table indicates his Internet usage over the past 4 months. Positive values indicate the number of minutes he went over his allotted time and negative values indicate the number of minutes he was under. Arrange the months from least to most minutes used.

| Month | Time |
|---|---|
| June | −20 |
| July | 65 |
| August | −50 |
| September | 20 |

3. **GOLF** In a golf match, Jesse scored 5 over par, Neil scored 3 under par, Felipo scored 2 over par, and Dawson scored an even par. Order the players from least to greatest score.

4. **WEATHER** The table shows the average normal January temperature of four cities in Alaska. Compare the temperatures of Barrow and Fairbanks, using < or >.

| City | Temperature (°F) |
|---|---|
| Anchorage | 15 |
| Barrow | −13 |
| Fairbanks | −10 |
| Juneau | 24 |

5. **WEATHER** Use the table in Exercise 4. Compare the temperatures of Anchorage and Fairbanks using < or >.

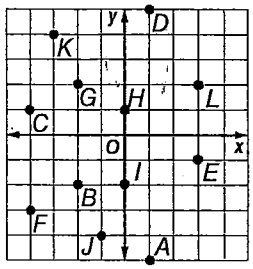
6. **WEATHER** Use the table from Exercise 4. Write the temperatures of the four cities in order from highest to lowest temperature.

NAME _____ DATE _____ PERIOD _____

# Lesson 6 Homework Practice

## *The Coordinate Plane*

**Use the coordinate plane at the right. Identify the point for each ordered pair.**




1. (−3, 4)
2. (−4, −3)
3. (−2, −2)
4. (3, −1)
5. (0, 1)
6. (−1, −4)

**Use the coordinate plane above. Write the ordered pair that names each point. Then identify the quadrant where each point is located.**

7. *C*
8. *L*
9. *D*
10. *A*
11. *G*
12. *I*

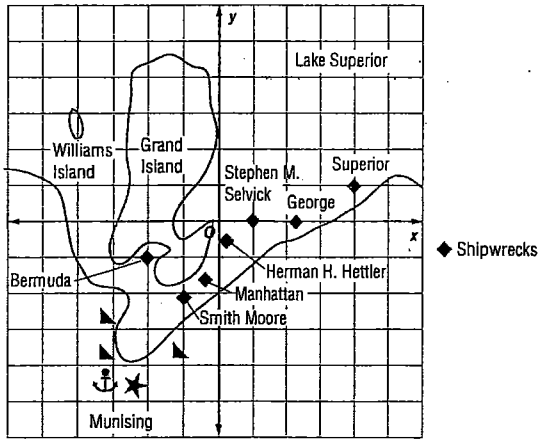
**Use the map of the Alger Underwater Preserve in Lake Superior to answer the following questions.**

13. In which quadrant is the Stephen M. Selvick located?

14. What is the ordered pair that represents the location of the Bermuda? the Superior?

15. Which quadrant contains Williams Island?

16. Which shipwreck is closest to the origin?



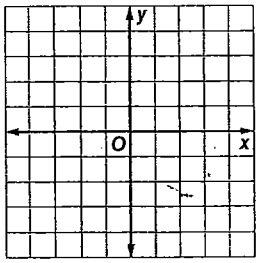
NAME _____ DATE _____ PERIOD _____

# Lesson 7 Homework Practice

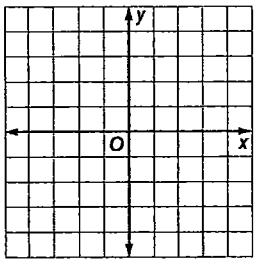
## *Graph on the Coordinate Plane*

**Graph and label each point on the coordinate plane.**

1. $L(-2, 0)$
2. $M(5, 2)$
3. $N(-4, -3)$
4. $P(1, -1)$
5. $Q(0, -4)$
6. $R(3, -3)$
7. $C(0, 0)$
8. $S(-2, 3)$
9. $D(-1, -3)$
10. $A(4, 0)$
11. $G(-1, 4)$
12. $I(3, 3)$




13. On the coordinate plane, draw triangle $ABC$ with vertices $A(-3,3)$, $B(-3,-3)$, $C(1,-3)$. Find the area of the triangle in square units.




14. On the coordinate plane, draw rectangle $WXYZ$ with vertices $W(-1,4)$, $X(-1,1)$, $Y(5,1)$, and $Z(5,4)$. Find the perimeter of the rectangle.