

CHAPTER

4

DIRECTED READING WORKSHEET

Elements, Compounds, and Mixtures

As you read Chapter 4, which begins on page 80 of your textbook, answer the following questions.

This Really Happened! (p. 80)

1. How do scientists think that the composition of the *Titanic's* hull caused the “unsinkable” ship to sink?

2. Why might it be important to learn about the properties of elements, mixtures, and compounds?

What Do You Think? (p. 81)

Answer these questions in your ScienceLog now. Then later, you'll have a chance to revise your answers based on what you've learned.

Investigate! (p. 81)

3. What do you think will happen to the ink of the black marker in this activity?

Chapter 4, continued

Section 1: Elements (p. 82)

4. What physical changes can you make to a substance to determine if it's an element? (Circle all that apply.)
- a. crushing
 - b. grinding
 - c. filtering
 - d. passing electric current

An Element Has Only One Type of Particle (p. 82)

5. A pure substance is a substance that contains only one type of particle. True or False? (Circle one.)
6. In Figure 2, what do the skillet and the meteorite have in common?

Every Element Has a Unique Set of Properties (p. 83)

7. Look at the properties listed below. Circle the characteristic properties of elements.
- | | | | |
|----------|---------------|---------|----------------------|
| size | melting point | density | shape |
| mass | volume | color | surface area |
| hardness | flammability | weight | reactivity with acid |
8. Suppose you have a cube of nickel and a cube of cobalt, but you don't know which is which. How could you use the characteristic properties listed in Figure 3 to figure out which cube is nickel and which is cobalt?

9. Most elements found in nature are combined with other elements. True or False? (Circle one.)
10. Why is it possible for us to find elements like gold, copper, and neon uncombined in nature?

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Chapter 4, continued

Elements Are Classified by Their Properties (p. 84)

11. What are some common properties that most terriers share?

12. Which of the following is a property that nickel, iron, and cobalt DON'T share?

- a. shine
- b. poor conductivity of electric current
- c. good conductivity of thermal energy
- d. None of the above

13. All elements can be classified as metals, metalloids, or nonmetals. True or False? (Circle one.)

Look at the chart on page 85. Match the categories of elements in Column B with the correct properties in Column A, and write the corresponding letter in the appropriate space. Categories may be used more than once.

Column A	Column B
___ 14. malleable	a. metalloids b. nonmetals c. metals
___ 15. dull or shiny	
___ 16. poor conductors	
___ 17. tend to be brittle and unmalleable as solids	
___ 18. always shiny	
___ 19. may become good conductors when combined with other elements	
___ 20. graphite in pencils	
___ 21. always dull	
___ 22. used in computer chips	
___ 23. ductile	

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Review (p. 85)

Now that you've finished Section 1, review what you learned by answering the Review questions in your ScienceLog.