Answer Key

Directed Reading A

SECTION: ARRANGING THE ELEMENTS

1. Answers may vary. Sample answer: Scientists might have been frustrated because the elements weren't organized and therefore their properties couldn't be predicted.
2. D
3. periodic
4. periodic table of the elements
5. Mendeleev was able to predict the properties of unknown elements by using the pattern of properties in the periodic table.
6. D
7. periodic law
8. C
9. Chemical symbols are color-coded on the periodic table according to state. The color of the chemical symbol for carbon is red, which corresponds to a solid.
10. properties
11. electrons
12. Answers may vary. Sample answer: The zigzag line can help me recognize which elements are metals, which are nonmetals, and which are metalloids.
13. metals
14. ductile
15. solid
16. It means that most metals can be flattened with a hammer and will not shatter.
17. aluminum
18. nonmetals
19. metalloids
20. B
21. C
22. chemical symbol
23. periods
24. groups, families
25. mendelevium, californium

SECTION GROUPING THE ELEMENTS

1. C
2. B
3. alkali metals
4. alkaline-earth metals
5. cement and chalk
6. Answers may vary. Sample answer: Calcium is an important part of a compound that keeps your bones and teeth healthy.
7. Accept three from this list: beryllium, magnesium, strontium, barium, and radium.
8. B
9. transition metals
10. Answers may vary. Sample answer: Mercury is in a liquid state at room temperature. The other transition metals are solids at room temperature.
11. lanthanides, actinides
12. europium
13. americium
14. Answers may vary. Sample answer: Aluminum was considered more valuable than gold.
15. Answers may vary. Sample answer: Aluminum is used in making aircraft parts, lightweight automobile parts, foil, cans, and siding.
16. silicon, germanium
17. proteins, fats, and carbohydrates
18. diamond
19. Answers may vary. Sample answer: used as a jewel and on cutting tools, such as saws, drills, and files
20. soot
21. gas
22. five
23. hydrogen
24. Answers may vary. Sample answer: Oxygen is a gas at room temperature. The other four elements are solids.
25. sulfur
26. Answers may vary. Sample answer: Oxygen, which makes up about 20% of air, is important to most living things. It is also necessary for substances to burn.

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