

# Directed Reading B

## Section: Arranging the Elements (pp. 194–201)

1. Why do you think scientists might have been frustrated by the organization of the elements in the early 1860s?

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### DISCOVERING A PATTERN

\_\_\_\_\_ 2. Which arrangement of elements did Mendeleev find produced a repeating pattern of properties?

- a. elements in order of increasing density
- b. elements in order of increasing melting point
- c. elements in order of increasing shine
- d. elements in order of increasing atomic mass

3. A word describing something that occurs or repeats at regular intervals

is \_\_\_\_\_.

4. Mendeleev's table, which shows elements' properties following a pattern that repeats every seven elements, is called the \_\_\_\_\_ table of the elements.

5. How was it possible that Mendeleev was able to predict the properties of elements that no one knew about?

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**CHANGING THE ARRANGEMENT**

- \_\_\_\_\_ **6.** How did Moseley solve the problem of the elements that did not fit the pattern according to their properties?
- a.** He rearranged the elements by atomic mass.
  - b.** He discovered protons, neutrons, and electrons.
  - c.** He discovered the periodic table of elements.
  - d.** He determined the elements' atomic numbers and then arranged them by atomic number.
- \_\_\_\_\_ **7.** In what order are elements arranged horizontally on the periodic table?
- a.** in order of increasing atomic number
  - b.** in order of decreasing atomic number
  - c.** in order of increasing density
  - d.** in order of decreasing density

**PERIODIC TABLE OF THE ELEMENTS**

- \_\_\_\_\_ **8.** Which information is NOT included in each square of the periodic table in your text?
- a.** atomic number
  - b.** chemical symbol
  - c.** melting point
  - d.** atomic mass
- 9.** How can you tell on the periodic table that carbon is a solid at room temperature?

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**THE PERIODIC TABLE AND CLASSES OF ELEMENTS**

- 10.** Elements are classified as metals, nonmetals, or metalloids, according to their \_\_\_\_\_.
- 11.** The number of \_\_\_\_\_ in the outer energy level of an atom helps determine which category an element belongs in.
- 12.** How can the zigzag line on the periodic table help you recognize the elements?

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**13.** Most elements are \_\_\_\_\_, which can be found to the left of the zigzag line on the periodic table.

**14.** Most metals are \_\_\_\_\_ at room temperature.

**15.** What metal is a liquid at room temperature?

\_\_\_\_\_

**16.** What elements are found to the right of the zigzag line on the periodic table?

\_\_\_\_\_

**17.** Semimetals, also called \_\_\_\_\_, are the elements that border the zigzag line on the periodic table.

**DECODING THE PERIODIC TABLE**

**18.** Some elements, such as \_\_\_\_\_, are named after scientists.

Others, such as \_\_\_\_\_, are named after places.

**19.** For most elements, the \_\_\_\_\_ has one or two letters, with the first letter always capitalized.

**20.** Each horizontal row of elements on the periodic table is called a(n)

\_\_\_\_\_.

**21.** Each vertical column of elements on the periodic table is called a(n)

\_\_\_\_\_, or a(n) \_\_\_\_\_.

\_\_\_\_\_ **22.** Which elements often have similar properties?

- a. elements in a period
- b. elements in a group
- c. elements named after places
- d. elements in a horizontal row

\_\_\_\_\_ **23.** The physical and chemical properties of the elements change

- a. within a group.
- b. within a family.
- c. across each period.
- d. across each group.

**24.** The periodic \_\_\_\_\_ states that the repeating chemical and physical properties of elements change periodically with the atomic numbers of the elements.