Skills Worksheet

Concept Review

Section: Exploring the Periodic Table

1. **State** two characteristics shared by elements of the same group in the periodic table.

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2. **Understanding Systems** Why do atoms of Group 1 elements lose electrons to form cations, whereas atoms of Group 17 elements gain electrons to form anions?

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3. **Predict** which of the following ions would be likely to form:

   _____ a. Na²⁺
   _____ b. Cl⁺
   _____ c. Ca²⁺
   _____ d. Br⁻
   _____ e. Ne⁻
   _____ f. Ne⁺

4. **Determine** whether elements in the following groups are most likely to be metals, nonmetals, or semiconductors.

   _____ a. Group 1
   _____ b. Group 17
   _____ c. Group 5
   _____ d. Group 16
   _____ e. Group 18

5. **Compare** semiconductors with both metals and nonmetals in terms of their ability to conduct electricity, and state where semiconductors are located on the periodic table.

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In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

1. What is the location of elements in the periodic table related to?
   a. color
   b. number of neutrons
   c. atomic weight
   d. electron arrangement

2. Elements that belong to the same group have the same number of
   a. valence electrons.
   b. neutral electrons.
   c. inner electrons.
   d. total electrons.

3. Because they differ in numbers of protons in their nuclei and in numbers of electrons in their filled inner energy levels, elements in a group
   a. have different charges.
   b. are not exactly the same.
   c. are very interactive.
   d. are inert.

4. Atoms that gain or lose electrons are called
   a. metals.
   b. nonmetals.
   c. ions.
   d. isotopes.

5. Elements that have one valence electron tend to
   a. be highly reactive.
   b. form ions.
   c. become charged.
   d. All of the above

6. Group 17 elements form
   a. anions.
   b. cations.
   c. metals.
   d. semiconductors.

7. The three main groups of elements are metals, nonmetals, and
   a. inert gases.
   b. alkali metals.
   c. radioactive isotopes.
   d. semiconductors.

8. Most elements are
   a. metals.
   b. nonmetals.
   c. metalloids.
   d. semiconductors.

9. Most elements on the left side of the periodic table are
   a. semiconductors.
   b. metals.
   c. nonmetals.
   d. metalloids.

10. Most nonmetals are
    a. brittle.
    b. good conductors.
    c. metalloids.
    d. shiny.