

M O D E R N E A R T H S C I E N C E

Chapter 8

Earth Chemistry**Review**

Choose the best response. Write the letter of that choice in the space provided.

- _____ 1. Color and hardness are examples of an element's
a. physical properties. b. chemical properties.
c. atomic structure. d. molecular properties.
- _____ 2. A substance that cannot be broken down into a simpler form by ordinary chemical means is
a. a mixture. b. a gas. c. an element. d. a compound.
- _____ 3. The smallest unit of an element is
a. a molecule. b. an atom. c. an ion. d. an electron.
- _____ 4. Particles in atoms that do not carry an electrical charge are called
a. neutrons. b. nuclei. c. protons. d. ions.
- _____ 5. The number of protons in the nucleus indicates the atom's
a. mass number. b. electrical charges.
c. isotope. d. atomic number.
- _____ 6. The mass number of an atom is equal to its
a. total number of protons.
b. total number of electrons and protons.
c. total number of neutrons and protons.
d. total number of neutrons.
- _____ 7. Atoms of the same element that differ in mass are
a. ions. b. isotopes. c. neutrons. d. molecules.
- _____ 8. A material with a definite shape and volume is a
a. compound. b. liquid. c. gas. d. solid.
- _____ 9. A liquid does not have a definite
a. shape. b. volume. c. chemical formula. d. mass.
- _____ 10. If a gas is not confined, the space between its particles will
a. decrease slowly. b. decrease rapidly.
c. increase. d. not change.

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Choose the best response. Write the letter of that choice in the space provided.

- _____ **11.** Atoms of two or more elements that are chemically united form
a. a mixture. b. a nucleus. c. an ion. d. a compound.

- _____ **12.** An atom does not easily lose or gain electrons if it has
a. many protons. b. a filled outer energy level.
c. many energy levels. d. few neutrons.

- _____ **13.** A molecule of water, or H₂O, has one atom of
a. hydrogen. b. helium. c. oxygen. d. osmium.

- _____ **14.** A material that contains two or more substances that are not chemically combined is
a. a mixture. b. a compound. c. an ion. d. a molecule.

Critical Thinking

Read each question or statement and answer it in the space provided.

1. Oxygen combines with hydrogen to form water. Is this process a result of the physical or chemical properties of oxygen?

2. What distinguishes an atom of one element from atoms of all other elements?

3. Why do isotopes of an element have different mass numbers?

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Read each question or statement and answer it in the space provided.

4. The mercury in a thermometer has a volume that varies with temperature. It takes the shape of the glass tube that holds it. Is the mercury in a thermometer a solid, a liquid, or a gas?

5. Calcium chloride is an ionic compound. Carbon dioxide is a covalent compound. Which of these compounds would you expect to have a lower melting point? Explain your answer.

6. Is a diatomic molecule more likely to be held together by a covalent bond or an ionic bond? Explain why you think this is so.

7. What happens to the chemical properties of a substance when it becomes part of a mixture?

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Application

Read each question or statement and answer it in the space provided.

1. How many neutrons does a potassium atom have if its atomic number is 19 and its mass number is 39?

2. The atomic number of calcium is 20, and the atomic number of copper is 29. Which has more electrons, a calcium atom or a copper atom? How do you know?

3. A helium atom has two electrons in its first and only energy level. Would you predict that helium easily forms compounds with other elements? Why or why not?

4. The chemical formula of glucose (sugar) is $C_6H_{12}O_6$. How many atoms of each element does a molecule of glucose contain?

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