Name _____ Class _____ Date _____

Skills Worksheet

# Directed Reading B

## Section: Grouping the Elements (pp. 202–209)

_____ **1.** What gives elements in a family or group similar properties?
- **a.** the same atomic mass
- **b.** the same number of protons in their nuclei
- **c.** the same number of electrons in their outer energy level
- **d.** the same number of neutrons

_____ **2.** What makes elements reactive at the atomic level?
- **a.** Their atoms have the same number of neutrons.
- **b.** Their atoms have the same number of protons.
- **c.** Their atoms have the same number of electrons.
- **d.** Their atoms take, give, or share electrons with other atoms.

### GROUP 1: ALKALI METALS

_____ **3.** Which of the following is NOT true of alkali metals?
- **a.** They can be cut with a knife.
- **b.** They are usually stored in water.
- **c.** They are the most reactive of all the metals.
- **d.** They can easily give away their outer-level electron.

**4.** Elements in Group 1 of the periodic table are called _____ metals.

### GROUP 2: ALKALINE-EARTH METALS

**5.** Atoms of _____ metals have two outer-level electrons.

**6.** What are two products made from calcium compounds?

_____

_____

**7.** In what way does calcium help you?

_____

_____

**8.** Name three alkaline-earth metals besides calcium.

_____

_____

_____

## GROUPS 3–12: TRANSITION METALS

_____ **9.** Which of the following characteristics does NOT describe transition metals?

**a.** They are good conductors of thermal energy.
**b.** They are more reactive than alkali and alkaline-earth metals.
**c.** They have one or two electrons in the outer energy level.
**d.** They are denser than elements in Groups 1 and 2.

**10.** Metals that are less reactive than alkali metals and alkaline-earth metals are called _____ metals.

**11.** The two rows of transition metals that are placed at the bottom of the periodic table to save space are called the _____ and the _____.

**12.** How is mercury different from other transition metals?

_____

_____

## GROUP 13: BORON GROUP

**13.** The most common element from Group 13 and the most abundant metal in Earth's crust is _____.

**14.** What are some of the uses of aluminum?

_____

_____

_____

## GROUP 14: CARBON GROUP

**15.** What are three compounds of carbon that are necessary for living things on Earth?

_____

_____

_____

**16.** The metalloids _____ and _____, both in Group 14, are used to make computer chips.

**17.** The hardest material known is _____.

**18.** What are some of the uses of diamond?

_____

_____

**19.** What form of carbon is used as a pigment in paints and crayons?

_____

## GROUP 15: NITROGEN GROUP

**20.** Nitrogen is a(n) _____ at room temperature.

**21.** Each element in the nitrogen group has _____ electrons in the outer level.

**22.** Nitrogen from the air can react with what element to make ammonia for fertilizer?

_____

## GROUP 16: OXYGEN GROUP

**23.** How is oxygen different from the other four elements in Group 16?

_____

_____

**24.** The element _____ can be found as a yellow solid in nature and is used to make sulfuric acid.

**25.** Why is oxygen important?

_____

_____

_____

## GROUP 17: HALOGENS

**26.** The atoms of _____ need to gain only one electron to have a complete outer level.

**27.** What important use do the halogens iodine and chlorine have in common?

_____

_____

**28.** Halogens combine with most metals to form _____,

such as _____ chloride.

## GROUP 18: NOBLE GASES

_____ **29.** Which of the following statements about noble gases is NOT true?

**a.** They are colorless and odorless at room temperature.
**b.** They have a complete set of electrons in their outer energy level.
**c.** They normally react with other elements.
**d.** All of them are found in Earth's atmosphere in small amounts.

**30.** Noble gases were first called _____ gases because scientists thought they would not react at all.

**31.** The atoms of _____ gases have a full set of electrons in their outer level.

**32.** The low _____ of helium makes blimps and weather balloons float.

## HYDROGEN

_____ **33.** Which of the following statements about hydrogen is NOT true?

**a.** It is useful as rocket fuel.
**b.** It is the most abundant element in the universe.
**c.** Its physical properties are closer to those of nonmetals than to those of metals.
**d.** It has two electrons in its outer energy level.