

Directed Reading A

Section: Grouping the Elements

- _____ 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 total electrons

GROUP 1: ALKALI METALS

- _____ 2. 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 electron.
3. Metals that share both physical and chemical properties are called _____.

GROUP 2: ALKALINE-EARTH METALS

4. Atoms of _____ have two outer-level electrons.
5. What are two products made from calcium compounds?

6. In what way does calcium help you?

7. Name three alkaline-earth metals besides calcium.

Directed Reading A *continued*

GROUPS 3–12: TRANSITION METALS

- _____ 8. 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.

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

10. How is mercury different from other transition metals?

11. Two rows of transition metals are placed at the bottom of the periodic table to save space. Elements in the first row are called

_____. Elements in the second row are called _____.

12. Which lanthanide forms a compound that enables you to see red on a computer screen?

13. Which actinide is used in some smoke detectors?

GROUP 13: BORON GROUP

14. Why did Emperor Napoleon III of France use aluminum dinnerware?

15. What are some of the uses of aluminum?

Directed Reading A *continued*

GROUP 14: CARBON GROUP

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

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

18. The hardest material known is _____.

19. What are some of the uses of diamond?

20. What form of carbon is used as a pigment?

GROUP 15: NITROGEN GROUP

21. Nitrogen is a _____ at room temperature.

22. Each element in the Nitrogen Group has _____ electrons in the outer level.

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

GROUP 16: OXYGEN GROUP

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

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

26. Why is oxygen important?

Directed Reading A *continued*

GROUP 17: HALOGENS

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

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

29. Halogens combine with most metals to form _____, such as _____.

30. How does chlorinating water help protect people?

GROUP 18: NOBLE GASES

_____ 31. 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.

32. The atoms of _____ have a full set of electrons in their outer level

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

HYDROGEN

_____ 34. 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.