

## Elements and the Periodic Table ▪ Chapter Test A

**Elements and the Periodic Table****Multiple Choice**

Write the letter of the correct answer on the line at the left.

- \_\_\_\_\_ 1. An element's properties can be predicted from its  
a. number of isotopes.  
b. number of neutrons.  
c. atomic mass.  
d. location in the periodic table.
- \_\_\_\_\_ 2. The \_\_\_\_\_ model of an atom is a ball of positive charge with negatively charged electrons embedded in it.  
a. Dalton  
b. Rutherford  
c. Thomson  
d. Bohr
- \_\_\_\_\_ 3. If a substance is \_\_\_\_\_, it can be pulled or drawn into a wire.  
a. ductile  
b. malleable  
c. magnetic  
d. reactive
- \_\_\_\_\_ 4. \_\_\_\_\_ is a property in which unstable nuclei of an element spontaneously emit radiation.  
a. Corrosion  
b. Radioactivity  
c. Nuclear fusion  
d. Reactivity
- \_\_\_\_\_ 5. A(n) \_\_\_\_\_ is a positively charged particle in an atom's nucleus.  
a. electron  
b. neutron  
c. plasma  
d. proton
- \_\_\_\_\_ 6. Which of the following is NOT a characteristic of most metals?  
a. brittle  
b. ductile  
c. good conductor  
d. malleable
- \_\_\_\_\_ 7. An element's \_\_\_\_\_ tells the number of protons in its nucleus.  
a. atomic mass  
b. atomic number  
c. chemical symbol  
d. period
- \_\_\_\_\_ 8. Dmitri Mendeleev created the first  
a. chemical reaction.  
b. metal alloy.  
c. periodic table.  
d. semiconductor.

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- \_\_\_\_ 9. The particles that are lost, gained, or shared in chemical reactions are
- |              |               |
|--------------|---------------|
| a. plasmas.  | b. protons.   |
| c. neutrons. | d. electrons. |
- \_\_\_\_ 10. A(n) \_\_\_\_\_ has some of the properties of both metals and nonmetals.
- |              |                         |
|--------------|-------------------------|
| a. alloy     | b. alkaline earth metal |
| c. semimetal | d. noble gas            |

**Completion**

*Fill in the line to complete each statement.*

11. A(n) \_\_\_\_\_ consists of two nonmetal atoms bonded together.
12. The family of \_\_\_\_\_ is the most reactive group of metals in the periodic table.
13. The \_\_\_\_\_ and the \_\_\_\_\_ are shown at the bottom of the periodic table in order to keep the table a reasonable size.
14. A radioactive isotope that can be followed through a chemical reaction or industrial process is called a(n) \_\_\_\_\_.
15. The \_\_\_\_\_ family is a very reactive group of mostly nonmetals whose atoms gain or share one electron in chemical reactions.

**True or False**

*If the statement is true, write true. If it is false, change the underlined word to make the statement true.*

- \_\_\_\_\_ 16. Nonmetals are good conductors of heat and electric current.
- \_\_\_\_\_ 17. From left to right in the periodic table, the elements are arranged in order of decreasing atomic mass.
- \_\_\_\_\_ 18. The mass of a proton is about one atomic mass unit.
- \_\_\_\_\_ 19. The reactivity of the metal elements generally increases as you move from left to right across the periodic table.
- \_\_\_\_\_ 20. Henri Becquerel discovered radioactive decay while studying a mineral that contained uranium.

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**Using Science Skills: Interpreting Diagrams**

Use the periodic table below to answer the following questions.

1 <b>Mo</b> <i>Mook</i> 1.008		
3 <b>Gr</b> <i>Grom</i> 6.941	4 <b>Tw</b> <i>Twee</i> 9.012	5 <b>Q</b> <i>Quam</i> 10.811
11 <b>R</b> <i>Roj</i> 22.990	12 <b>Me</b> <i>Meot</i> 24.305	13 <b>Ch</b> <i>Chirk</i> 26.982
19 <b>Ng</b> <i>Negi</i> 39.098	20 <b>B</b> <i>Bart</i> 40.078	31 <b>Sq</b> <i>Squap</i> 69.723

21. Would **grom** (Gr) or **bart** (B) have properties that are more similar to those of the element **twee** (Tw)? Explain why.

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22. Based on its atomic mass and its atomic number, what are the particles in the nucleus of most atoms of **meot** (Me)?

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**Essay**

Write an answer for each of the following questions on a separate sheet of paper.

23. In the periodic table, the transition metals, such as chromium, iron, and copper, are located between the reactive alkali earth metals on the far left and the less reactive metals and other elements on the right side. Describe three properties of the transition metals.
24. What happened in Rutherford’s gold foil experiment, and why was it significant in the development of atomic models?
25. What information can be found in a square of the periodic table? What does each piece of information mean?

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**Using Science Skills**

Use the table below to answer the following questions.

Unknown Element	Color	State at Room Temperature	Reactivity	Conductivity
A	greenish yellow	gas	high	no
B	shiny red	solid	moderate	yes
C	colorless	gas	none	no
D	silver-white	solid	high	yes

26. **Classify** To which of the following families does each element described above belong: alkali metals, transition metals, halogens, or noble gases? Explain your answers.

Element A \_\_\_\_\_  
 \_\_\_\_\_

Element B \_\_\_\_\_  
 \_\_\_\_\_

Element C \_\_\_\_\_  
 \_\_\_\_\_

Element D \_\_\_\_\_  
 \_\_\_\_\_

27. **Drawing Conclusions** If these four elements were located in the same period, which element would have the greatest atomic mass? Why?

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Essay**

Write an answer for each of the following questions on a separate sheet of paper.

- 28. Describe the modern model of an atom.
- 29. How do scientists create synthetic elements?
- 30. How do the properties of radioactive isotopes make them useful?