Name Date Class

Directed Reading for Content Mastery

Section 3 ■ The Periodic Table

CHAPTER 16.3 REVIEW

Periodic Table of the Elements

Key

6
C
Carbon
12.011

← Atomic number
← Element's symbol
← Element's name
← Atomic mass

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1 H Hydrogen 1.008																	2 He Helium 4.003
2	3 Li Lithium 6.941	4 Be Beryllium 9.012											5 B Boron 10.811	6 C Carbon 12.011	7 N Nitrogen 14.007	8 O Oxygen 15.999	9 F Fluorine 18.998	10 Ne Neon 20.180
3	11 Na Sodium 22.990	12 Mg Magnesium 24.305											13 Al Aluminum 26.982	14 Si Silicon 28.086	15 P Phosphorus 30.974	16 S Sulfur 32.066	17 Cl Chlorine 35.453	18 Ar Argon 39.948
4	19 K Potassium 39.098	20 Ca Calcium 40.078	21 Sc Scandium 44.956	22 Ti Titanium 47.876	23 V Vanadium 50.942	24 Cr Chromium 51.996	25 Mn Manganese 54.938	26 Fe Iron 55.847	27 Co Cobalt 58.933	28 Ni Nickel 58.693	29 Cu Copper 63.546	30 Zn Zinc 65.39	31 Ga Gallium 69.723	32 Ge Germanium 72.61	33 As Arsenic 74.922	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.80
5	37 Rb Rubidium 85.468	38 Sr Strontium 87.62	39 Y Yttrium 88.906	40 Zr Zirconium 91.224	41 Nb Niobium 92.906	42 Mo Molybdenum 95.94	43 Tc Technetium 98	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.906	46 Pd Palladium 106.42	47 Ag Silver 107.868	48 Cd Cadmium 112.411	49 In Indium 114.82	50 Sn Tin 118.710	51 Sb Antimony 121.757	52 Te Tellurium 127.60	53 I Iodine 126.904	54 Xe Xenon 131.290
6	55 Cs Cesium 132.905	56 Ba Barium 137.327	57 La Lanthanum 138.905	72 Hf Hafnium 178.49	73 Ta Tantalum 180.948	74 W Tungsten 183.84	75 Re Rhenium 186.207	76 Os Osmium 190.23	77 Ir Iridium 192.217	78 Pt Platinum 195.08	79 Au Gold 196.967	80 Hg Mercury 200.59	81 Tl Thallium 204.383	82 Pb Lead 207.2	83 Bi Bismuth 208.980	84 Po Polonium 209.982	85 At Astatine 209.987	86 Rn Radon 222.018
7	87 Fr Francium (223)	88 Ra Radium (226)	89 Ac Actinium (227)	104 Rf Rutherfordium (261)	105 Db Dubnium (262)	106 Sg Seaborgium (266)	107 Bh Bohrium (264)	108 Hs Hassium (277)	109 Mt Meitnerium (268)	110 DS Darmstadtium (281)	111 RG Roentgenium (272)	112 Cn Copernicium (285)	113 Uut Ununtrium (284)	114 Uuq Ununquadium (289)	115 Uup Ununpentium (288)	116 Uuh Ununhexium (291)		118 Uuo Ununoctium (294)

Rare-Earth Elements

Lanthanide Series	58 Ce Cerium 140.116	59 Pr Praseodymium 140.908	60 Nd Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.925	66 Dy Dysprosium 162.50	67 Ho Holmium 164.930	68 Er Erbium 167.259	69 Tm Thulium 168.934	70 Yb Ytterbium 173.04	71 Lu Lutetium 174.967
Actinide Series	90 Th Thorium 232.038	91 Pa Protactinium 231.036	92 U Uranium 238.029	93 Np Neptunium (237)	94 Pu Plutonium (244)	95 Am Americium (243)	96 Cm Curium (247)	97 Bk Berkelium (247)	98 Cf Californium (251)	99 Es Einsteinium (252)	100 Fm Fermium (257)	101 Md Mendelevium (258)	102 No Nobelium (259)	103 Lr Lawrencium (262)

Directions: *Use the periodic table above to answer the following questions.*

1. List two types of information that are given in each box of this periodic table.

   a. _____

   b. _____

2. In this table, where are the metals located? _____

3. Where are the nonmetals located? _____

4. What are the elements in Groups 3 through 12 called? _____

5. What are the elements called that are next to the stairstep-shaped line on the right side of the table? _____

6. What do we call the letter or letters that represents an element?

   _____

7. How many elements are included in the modern periodic table? _____

8. What name is given to the elements in Group 18? _____

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SECTION 3 Reinforcement

The Periodic Table

Directions: *You will need a scientist's patience to find the names of the 70 elements hidden in the grid. The lanthanides and the actinides have been excluded. The same letters may appear in more than one element name. Draw a line through the letters that correctly spell the name of an element.*

```
A Y M R                                                                 A S S M
R N U E                                                                 B L U E
G N T N                                                                 E I R G
O O S I                                                                 T T O S
N C A D M I U M N                                       D E F L U O R I N E H L H U
A I N O E O B O C                                       G H P B R O M I N E D A P L
I L O I J E N L H                                       K L M U I N E H T U R C S P
M I D N Z E L Y O                                       P M Q R T S C M U V H E O H
W S A Y X M D B Z                                       Y D U R X E U A S L B L H U
L C R N U R B D D                                       P E N I T I F G O H O I P R
E J K I O R L E M                                       O E N O D V P R D N L Q T H
K N D G A R T N R                                       T H H N I A I S I I A A H E
C N E D S T I U H Y A H E M P E R B E N I T A T S A I A O G N L U U D N I A N
I N I O B I U M O C L E I D E T A N A B E L E G O S C F F E A M L M T T T L I
N U H T N E E L D E U L M B O R O N M L E N N T S S I S L N D L I A G H H L U
M N O B R A C M I S M U I N I T C A L C I U M M U I N O C R I Z L T P A S I M
O R M M M O U T U E I D B U P U T U N E T T V E R U E E O T U U H I E N I U L
E S U L U N G C M N N R M Y M M R O R N T A H T U M S I B I M N M I U U L M N
G M I I I I E E A V U E R M U I R T T Y N T Y I F I R I A I R I D I U M V V E
R U N T S E C M N B M K L I U E M E C H R O M I U M A N L T S U O X Y G E N M
E I A H E L R N I C E M N M D E S E N A G N A M A M P S T R O N T I U M R A N
P L T I N E A D A N B E
P E I U G M I U A R L A
O H T M A U D R M E F D
C M U A M U I M S O L D
```

Directions: *Complete the following paragraphs about the periodic table by filling each blank with the correct term.*

In the modern periodic table, elements are listed by increasing **1.** _____. Each box represents an **2.** _____. A box contains the name, atomic number, **3.** _____, and **4.** _____ for the element.

Vertical columns in the table are called **5.** _____. Most elements in a column have the same number of **6.** _____ in the outer energy level and tend to have similar **7.** _____.

Horizontal rows in the table are called **8.** _____. The elements on the left side of the table are **9.** _____. Groups 3–12 contain metals known as **10.** _____. Elements on the right side are **11.** _____.

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SECTION 1 Reinforcement

Metals

Directions: *Complete the table below by writing the name of each of the following metals under the correct heading. Use the periodic table in your textbook if you need help.*

barium	**sodium**	**iron**	**magnesium**	**francium**
strontium	**cadmium**	**zinc**	**nickel**	**mercury**
gold	**cobalt**	**calcium**	**radium**	**silver**
chromium	**potassium**	**lithium**	**copper**	**cesium**

1. Alkali metals	2. Alkaline earth metals	3. Transition elements	

Directions: *For each of the following, write the letter of the term or phrase that best completes the sentence.*

_____ 4. The transition elements are in Groups _____.
a. 1–12 b. 3–13 c. 3–12 d. 3–5

_____ 5. The most highly reactive of all metals are the _____.
a. coinage metals
b. alkaline earth metals
c. iron triad
d. alkali metals

_____ 6. The alkali metals make up _____ of the periodic table.
a. Group 1 b. Group 2 c. Group 16 d. Group 18

_____ 7. The elements that make up the iron triad are
a. radioactive
b. transition
c. alkali metals
d. alkaline earth metals

_____ 8. The inner transition metals include the _____.
a. alkali metals and halogens
b. carbon group and noble gasses
c. lanthanides and actinides
d. alkaline earth metals only

_____ 9. The alkaline earth metals make up _____ of the periodic table.
a. Group 1 b. Group 2 c. Group 17 d. Group 18

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Worksheet Reteaching

LESSON 17.1 ■ LEVEL 1

Classifying Elements

Use this worksheet to study Lesson 17.1. Cover the answers on the right. Read each statement or question and write your answer in the space provided. Then uncover the correct answers to see if they match your answers. If any of your answers are incorrect, reread the part of the lesson covered by that question.

1. Mendeleev placed the elements into columns according to what two properties?

_____

_____

2. What did Mendeleev think would go in some of the blank spaces he left in his periodic table?

_____

3. The modern periodic table is organized by increasing _____.

Use the periodic table on pages 404–405 in your textbook to answer the following questions.

4. An element found in Group 2 would be a _____ at room temperature and pressure.

a. solid **b.** liquid **c.** gas

5. The heaviest elements in a group are located toward the _____ of the column.

a. top **b.** bottom

6. Metals that are shiny and silvery would most likely be found in _____.

a. Group 1 **c.** Group 16
b. Group 17 **d.** Group 18

7. Elements that do not normally react with other elements are found in _____.

a. Group 1 **c.** Group 2
b. Group 17 **d.** Group 18

8. Most nonmetallic elements are found on the _____ side of the table.

a. upper right **b.** lower left

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LESSON 16.2 ■ LEVEL 1

Classifying Elements

1. Use each of these words once to complete statements a–d.

metalloid nonmetal noble gas metal

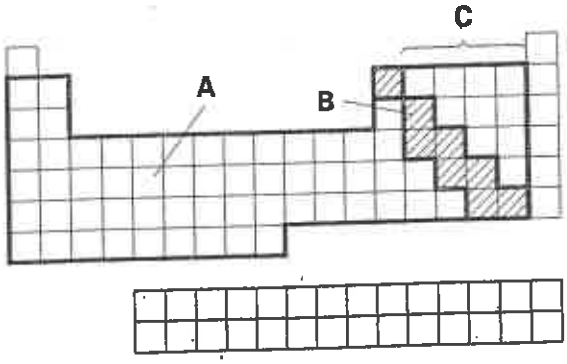
a. An element that is shiny and conducts electricity well is most likely a _____.

b. A _____ generally does not combine with other elements.

c. An element that has little or no luster, is a poor conductor of electricity, and is brittle would most likely be a _____.

d. An element that has properties of both metals and nonmetals is called a _____.

2. Using the periodic table in your book, give the atomic number and chemical symbol for each of these elements: oxygen, potassium, and uranium.



3. **a.** In the periodic table diagram above, the elements on the left side, labeled A, are _____.

b. The elements on the right side, labeled C, are _____.

c. The shaded elements labeled B have properties of both metals and nonmetals. These elements are known as _____.

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Worksheet Reinforcement

LESSON 16.2 ■ LEVEL 2

Using the Periodic Table

In the Periodic Table, the elements are arranged according to similarities in their properties. Refer to the Periodic Table on pages 386–387 in your text to answer the following questions.

1. Where on the Periodic Table are the metals found?

_____

2. What are some properties of metals?

_____

_____

3. Where on the Periodic Table are the nonmetals found?

_____

4. What are some properties of nonmetals?

_____

_____

5. Where on the Periodic Table are the metalloids found?

_____

6. What are some properties of metalloids?

_____

_____

7. Complete the following table.

Atomic #	Symbol	Name	Type (metal, nonmetal, metalloid, noble gas)
11			
	Cl		
		Chromium	
33			
	Xe		
78			