

CHAPTER

5

REINFORCEMENT WORKSHEET

Placing All Your Elements on the Table

Complete this worksheet after you have finished reading Chapter 5, Section 2.

You can tell a lot about the properties of an element just by looking at the element's location on the periodic table. This worksheet will help you better understand the connection between the periodic table and the properties of the elements. Follow the directions below, and use crayons or colored pencils to color the periodic table at the bottom of the page.

1. Color the square for hydrogen yellow.
2. Color the groups with very reactive metals red.
3. Color and label the noble gases orange.
4. Color the transition metals green.
5. Using black, mark the zigzag line that shows the position of the metalloids.
6. Color the metalloids purple.
7. Use blue to color all of the nonmetals that are not noble gases.
8. Color the metals in Groups 13–16 brown.
9. Circle and label the actinides in yellow.
10. Circle and label the lanthanides in red.
11. Circle and label the alkali metals in blue.
12. Circle and label the alkaline-earth metals in purple.
13. Circle and label the halogens in green.

																		18
1	2											13	14	15	16	17		
		3	4	5	6	7	8	9	10	11	12							

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Placing All Your Elements on the Table, continued

Answer the following questions using the periodic table on the previous page.

- 14.** The alkaline-earth metals react similarly because they all have the same number of electrons in their outer energy level. Which group contains the alkaline-earth metals?

- 15.** How many electrons are in the outer energy level of the atoms of alkaline-earth metals? _____

- 16.** Hydrogen is in a different color than the rest of the elements in Group 1. Give an example of how hydrogen's characteristics set it apart from other Group 1 elements.

- 17.** What is the name for the group of elements that are particularly unreactive?

- 18.** Except for the metalloids, what do all of the elements on the right side of the zigzag line have in common?

- a.** They are not very reactive. **c.** They are all metals.
b. They are all nonmetals. **d.** They are all very reactive.

- 19.** Lanthanide and actinide elements are transition metals.

True or False? (Circle one.)

Imagine you are a scientist who has just discovered a new element. The element has an atomic number of 113, and it has three electrons in the outer energy level of each atom.

- 20.** Where would you place this new element in the periodic table?

- 21.** Which element would have properties most similar to the new element?

- a.** hydrogen **c.** boron
b. beryllium **d.** carbon

- 22.** What name would you suggest for this new element?

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5

VOCABULARY REVIEW WORKSHEET

Bringing It to the Periodic Table

Complete the following puzzle after you finish reading Chapter 5.

On the next page is a partially filled-in quotation by Dmitri Mendeleev. Fill in the term described by each clue below. Then put the numbered letters into the corresponding squares on the next page to find out what Mendeleev said. The answers to questions 9–11 are chemical symbols.

1. states that the properties of elements are periodic functions of their atomic numbers

59 16 27 40 24 41

2. column or family in the periodic table

19 35 58

3. any element in Groups 3–12

31 14 43 55 18 7 33 10

4. elements in Group 1

17 22 48 8 36 11

5. having a regular, repeating pattern

52 15 25 28 23

6. metals with two electrons in the outer energy level

51 50 20 42 54 2

7. a row of elements

61 6 26 56

8. elements that don't react readily with other elements

29 49 62 44 64

9. atomic number 9

13

10. atomic number 39

57

11. atomic number 54

47 63

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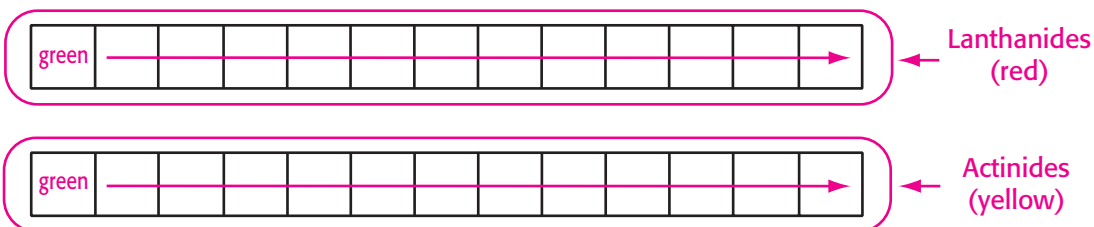
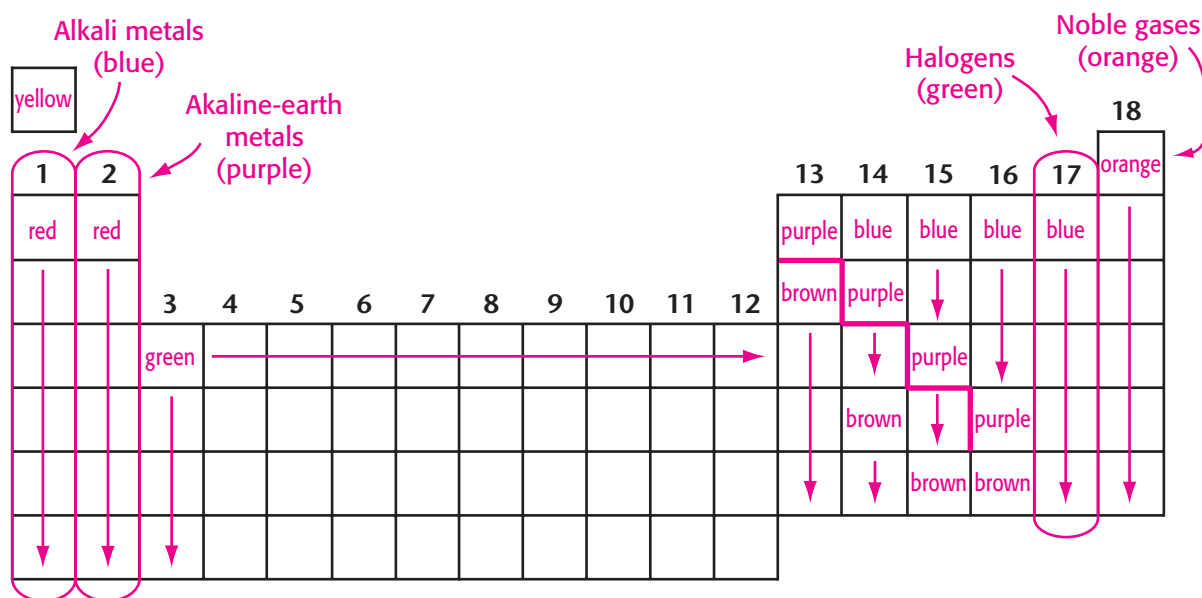
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Placing All Your Elements on the Table, continued

Answer the following questions using the periodic table on the previous page.

14. The alkaline-earth metals react similarly because they all have the same number of electrons in their outer energy level. Which group contains the alkaline-earth metals?

They are in Group 2.

15. How many electrons are in the outer energy level of the atoms of alkaline-earth metals? 2

16. Hydrogen is in a different color than the rest of the elements in Group 1. Give an example of how hydrogen's characteristics set it apart from other Group 1 elements.

Sample answer: The alkali metals are solids, while hydrogen is a gas at room temperature.

17. What is the name for the group of elements that are particularly unreactive?

They are called the noble gases.

18. Except for the metalloids, what do all of the elements on the right side of the zigzag line have in common?

- a. They are not very reactive. c. They are all metals.
b. They are all nonmetals. d. They are all very reactive.

19. Lanthanide and actinide elements are transition metals.

True or False? (Circle one.)

Imagine you are a scientist who has just discovered a new element. The element has an atomic number of 113, and it has three electrons in the outer energy level of each atom.

20. Where would you place this new element in the periodic table?

I would place it in Group 13.

21. Which element would have properties most similar to the new element?

- a. hydrogen c. boron
b. beryllium d. carbon

22. What name would you suggest for this new element?

Accept all answers.

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P E R I O D I C
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A L K A L I N E - E A R T H
 51 50 20 42 54 2

7. a row of elements

P E R I O D
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8. elements that don't react readily with other elements

N O B L E G A S E S
 29 49 62 44 64

9. atomic number 9

F
 13

10. atomic number 39

Y
 57

11. atomic number 54

X E
 47 63

Bringing It to the Periodic Table, continued

12. elements having properties of metals and nonmetals

M E T A L L O I D S
39 46 37 5 12

13. the first row of transition metals at the bottom of the periodic table

L A N T H A N I D E S
1 9 34 4

14. the most abundant element in the universe

H Y D R O G E N
21 38 3

15. group containing iodine and chlorine

H A L O G E N S
32 60 30 53 45

Mendeleev's Quotation:

T	H	E		E	L	E	M	E	N	T	S	,	I	F
1	2	3		4	5	6	7	8	9	10	11		12	13

A	R	R	A	N	G	E	D		A	C	C	O	R	D	I	N	G		T	O
14	15	16	17	18	19	20	21		22	23	24	25	26	27	28	29	30			

T	H	E	I	R		A	T	O	M	I	C		W	E	I	G	H	T	S	,
31	32	33	34	35		36	37	38	39	40		41	42	43	44		45			

E	X	H	I	B	I	T		A		P	E	R	I	O	D	I	C	I	T	Y
46	47		48	49	50		51		52	53	54		55	56						57

O	F		P	R	O	P	E	R	T	I	E	S	.
58			59	60	61	62		63	64				

***Note to the Teacher:**

You may want to inform your students that the term "atomic weight" was used interchangeably with "atomic mass" in the past. "Atomic mass" is the currently accepted term, and is therefore used in this book.