

Name _____ Date _____ Class _____

CHAPTER 6 STUDY GUIDE FOR CONTENT MASTERY

The Periodic Table and Periodic Law

Section 6.1 Development of the Modern Periodic Table

In your textbook, read about the history of the periodic table's development.

Use each of the terms below just once to complete the passage.

octaves	atomic mass	atomic number	nine
elements	properties	Henry Moseley	eight
protons	periodic law	Dmitri Mendeleev	accepted

The table below was developed by John Newlands and is based on a relationship called the law of (1) octaves. According to this law, the properties of the elements repeated every (2) eight elements. Thus, for example, element two and element (3) nine have similar properties. The law of octaves did not work for all the known elements and was not generally (4) accepted.

1	2	3	4	5	6	7
H	Li	G	Bo	C	N	O
8	9	10	11	12	13	14
F	Na	Mg	Al	Si	P	S

The first periodic table is mostly credited to (5) Dmitri Mendeleev. In his table, the elements were arranged according to increasing (6) atomic mass. One important result of this table was that the existence and properties of undiscovered (7) elements could be predicted.

The element in the modern periodic table are arranged according to increasing (8) atomic number, as a result of the work of (9) Henry Moseley. This arrangement is based on number of (10) protons in the nucleus of an atom of the element. The modern form of the periodic table results in the (11) periodic law, which states that when elements are arranged according to increasing atomic number, there is a periodic repetition of their chemical and physical (12) properties.

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CHAPTER 6 STUDY GUIDE FOR CONTENT MASTERY

Section 6.1 continued

In your textbook, read about the modern periodic table.

Use the information in the box on the left taken from the periodic table to complete the table on the right.

7		
N		
Nitrogen		
14.007		
[He]2s ² 2p ³		

Atomic Mass	13.	14.007 u
Atomic Number	14.	7
Electron Configuration	15.	[He]2s ² 2p ³
Chemical Name	16.	Nitrogen
Chemical Symbol	17.	N

For each item in Column A, write the letter of the matching item in Column B.

Column A

- b. 18. A column on the periodic table
 c. 19. A row on the periodic table
 d. 20. Group A elements
 a. 21. Elements that are shiny and conduct electricity
 e. 22. Group B elements

Column B

- a. metals
 b. group
 c. period
 d. representative elements
 e. transition elements

In the space at the left, write *true* if the statement is true; if the statement is false, change the italicized word or phrase to make it true.

- three metals 23. There are two main classifications of elements.
 true metals 24. More than three-fourths of the elements in the periodic table are *nonmetals*.
 Group 2A true 25. Group 1A elements (except for hydrogen) are known as the *alkali metals*.
 noble gases true 26. Group 3A elements are the alkaline earth metals.
 nonmetals metals 27. Group 7A elements are highly reactive nonmetals known as *halogens*.
 nonmetals transition metals 28. Group 8A elements are very unreactive elements known as *transition metals*.
 metals metals 29. Metalloids have properties of both metals and *inner transition metals*.