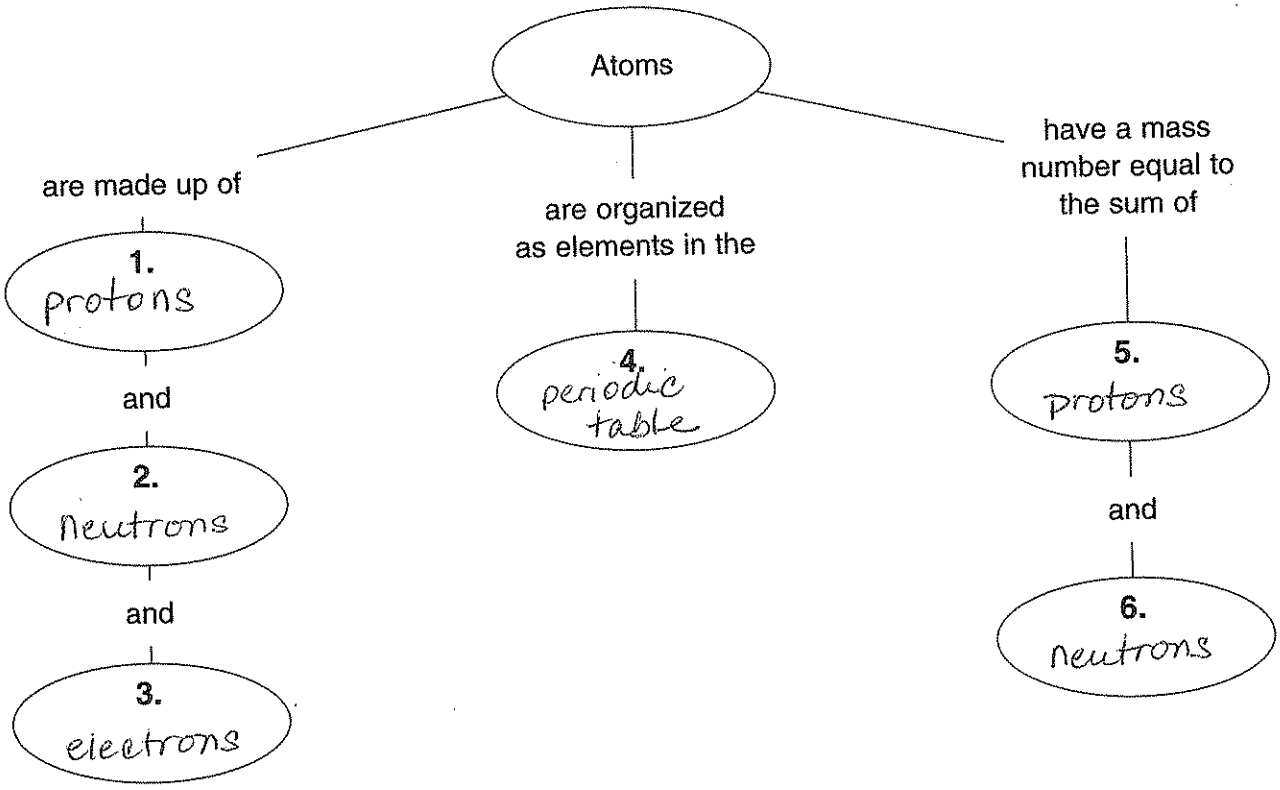
Name Answer Key Date Class

Directed Reading for Content Mastery

Overview
Properties of Atoms and the Periodic Table

Directions: *Complete the concept map using the terms in the list below. Terms can be used more than once.*

protons **periodic table** **electrons** **neutrons**



Directions: *complete the following sentences by underlining the correct words in parentheses.*

7. An element is matter that is composed of one type of (atom/quark).
8. The unit of measurement used for atomic particles is the (atom size/atomic mass unit).
9. Atoms of the same element that have different numbers of neutrons are called (isotopes/electron clouds).
10. In the periodic table, elements are arranged by increasing atomic (power/number).
11. An electron dot diagram uses the symbol of an element and dots to represent the (quarks/electrons) in the outer energy level.

Meeting Individual Needs

Properties of Atoms and the Periodic Table

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Section 1 ▪ Structure of the Atom
Section 2 ▪ Masses of Atoms

Directions: *Use the terms below to complete the following paragraphs about atoms, atomic mass, and isotopes. Terms may be used more than once.*

six	number	electrons	isotopes	electron cloud
neutron(s)	proton(s)	mass	quarks	six protons

The electron has very little mass compared to the 1. proton or 2. neutrons. The mass of the atom depends on the nucleus and how many 3. protons and 4. neutrons it has. The sum of the protons and neutrons is the mass 5. number of an atom. The number of neutrons in an atom can be found by subtracting the atomic number from the 6. mass number. The mass of the atom is so small that there is a measure called the atomic 7. mass unit designated by amu. 8. protons and 9. neutrons make up the nucleus and are made up of 10. quarks. There are 11. six uniquely different quarks. 12. Electrons are found in an area around the nucleus called the 13. electron cloud. The nuclei of all atoms of a given element always have the same number of 14. protons. They will also have the same number of 15. electrons around the nucleus. Some atoms may have more or fewer 16. neutrons than will other atoms of the same element. Atoms of the same element with different numbers of neutrons are called 17. isotopes. Every atom of carbon must contain 18. six protons but some contain six neutrons and others have eight neutrons.

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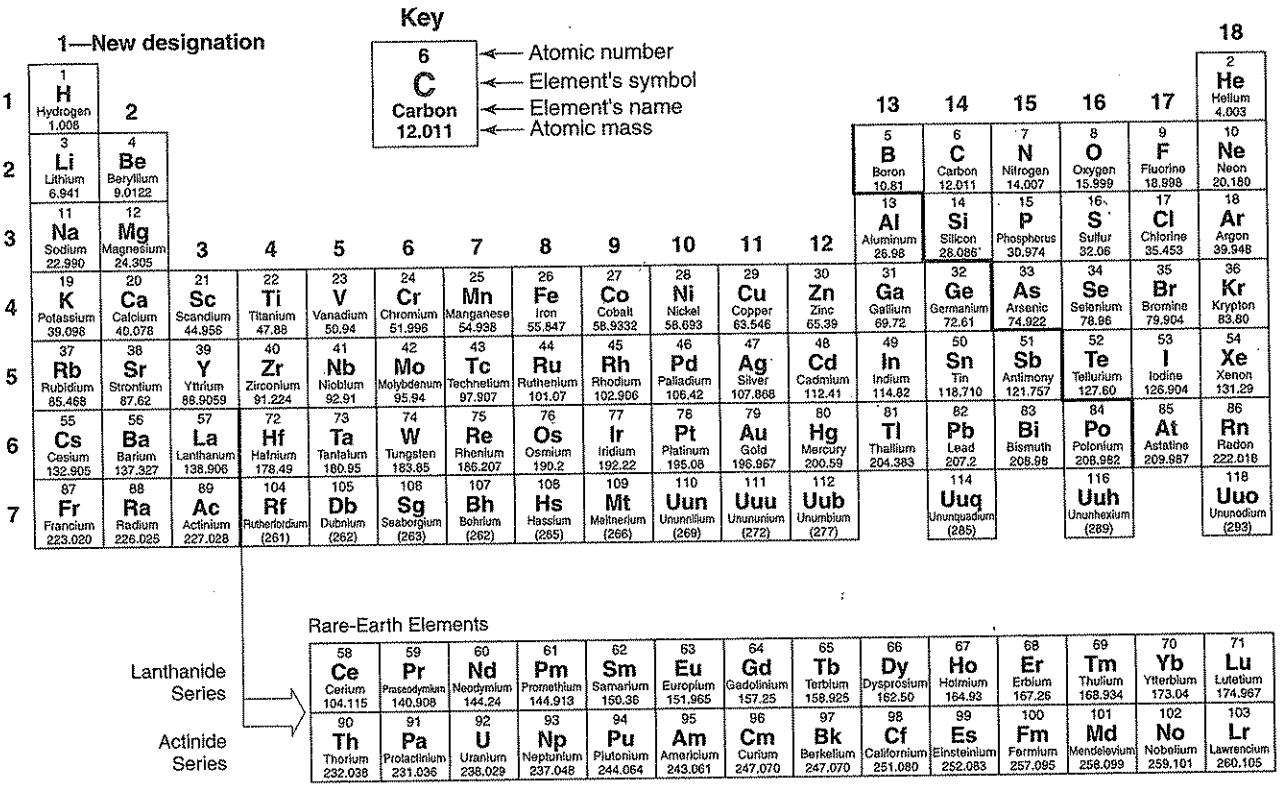
Section 3 - The Periodic Table

Periodic Table of the Elements



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. symbol
   b. atomic number
2. In this table, where are the metals located? left side
3. Where are the nonmetals located? right side
4. What are the elements in Groups 3 through 12 called? transition elements
5. What are the elements called that are next to the stairstep-shaped line on the right side of the table? metalloids
6. What do we call the letter or letters that represents an element? chemical symbol
7. How many elements are included in the modern periodic table? 115 w/ 3 blank spaces
8. What name is given to the elements in Group 18? unreactive

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Key Terms
Properties of Atoms and the Periodic Table

Directions: *Match the term in Column II with the definition in Column I. Write the letter of the correct term in the blank at the left.*

Column I	
g	1. sum of the number of protons and neutrons in the nucleus
j	2. region around the nucleus where the electrons are found
a	3. positively charged center of an atom
n	4. vertical column in the periodic table
d	5. neutral particles in the nucleus of an atom
i	6. weighted average mass of the mixture of its isotopes
c	7. positively charged particles in an atom
r	8. table of the elements arranged according to repeated changes in properties
o	9. represents the electrons in the outer energy level of an element
b	10. negatively charged particles in an atom
h	11. atoms of the same element that have different numbers of neutrons
f	12. number of protons in an atom's nucleus
p	13. horizontal row in the periodic table
e	14. smallest known particle that makes up protons and neutrons
l	15. the smallest peice of matter that still retains the properties of the element
q	16. developed an early periodic chart
m	17. approximately 1.67×10^{-24}g

Column II

a. nucleus
b. electrons
c. protons
d. neutrons
e. quark
f. atomic number
g. mass number
h. isotope
i. average atomic mass
j. electron cloud
k. periodic table
l. atom
m. atomic mass unit
n. group
o. electron dot diagram
p. period
q. Dmitri Mendeleev

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Chapter Review

Properties of Atoms and the Periodic Table

Part A. Vocabulary Review

Directions: *On the space at the left, write the term that correctly completes each statement. Use each term once.*

metals	isotopes	average atomic mass	electron cloud
groups	metalloids	transition elements	atomic number
electrons	nucleus	mass number	periods
chemical symbol	quarks	periodic table	

chemical symbol 1. A capital letter or a combination of a capital letter and a small letter that is used to represent an element is called a(n) _____.

periods 2. The horizontal rows of elements are called _____.

avg. atomic mass 3. An average of the masses of all the isotopes that occur in nature for an element is the _____.

groups 4. Vertical columns of elements are called _____.

transition elements 5. Elements in the middle of the periodic table, groups 4 through 7, are called the _____.

atomic number 6. The number of protons in an atom is the _____.

quarks 7. Protons and neutrons can be subdivided into _____ by colliding them.

nucleus 8. The center of an atom where protons and neutrons are located is the _____.

mass number 9. A total count of the neutrons and protons in an atom is the _____.

isotopes 10. Atoms of the same element but with different numbers of neutrons are _____.

metals 11. Elements that are found on the left side of the periodic table are _____.

metalloids 12. Elements that have some properties of both metals and nonmetals are _____.

electrons 13. The particles that move about the nucleus and have a negative charge are _____.

electron cloud 14. The region around the nucleus occupied by electrons is a(n) _____.

periodic table 15. A chart that shows the classification of elements is called the _____.

Assessment

Name Date Class

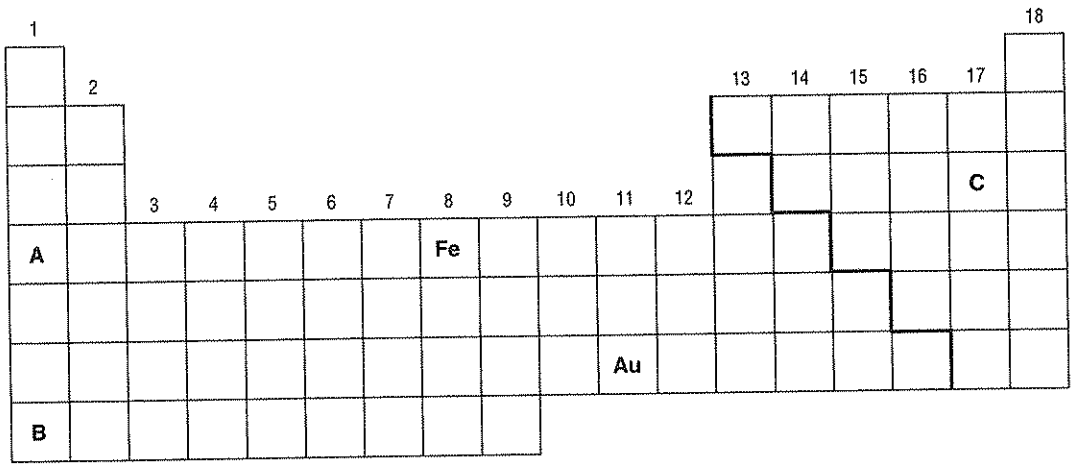
Chapter Review (continued)

Part B. Concept Review

Directions: *Complete the table below by writing the correct information in the blank spaces.*

Element	Chemical symbol	Atomic number	Number of protons	Number of neutrons	Mass number
1. Sodium	Na	11	11	12	23
2. Carbon	C	6	6	6	12
3. Iron	Fe	26	26	30	56
4. Sulfur	S	16	16	16	32
5. Nitrogen	N	7	7	7	14
6. Oxygen	O	8	8	8	16
7. Helium	He	2	2	2	4
8. Chlorine-35	Cl	17	17	18	35
9. Copper	Cu	29	29	35	64
10. Chlorine-37	Cl	17	17	20	37

Directions: *Refer to the periodic table below and the boxes at the right of the table to answer questions 11–15.*



11 Na 23

26 Fe 55.8

79 Au 197

B 11. Which element has a greater atomic mass, A or B?

B 12. Which element is a metal, B or C?

11 13. In which group is gold?

55.8 14. What is the average atomic mass of iron?

11 15. What is the atomic number of sodium?