Name _____ Date _____ Class _____

Note-taking Worksheet

Properties of Atoms and the Periodic Table

Section 1 Structure of the Atom

A. _____ are abbreviated in scientific shorthand—first letter or two of element's name

B. _____—smallest piece of matter that still has the properties of the element

1. _____ have electrical charge of 1+.
2. _____ do not have an electrical charge.
3. _____ have electrical charge of 1-.
4. Protons and neutrons are in the _____ of an atom; electrons surround the nucleus.

C. Protons and neutrons are made up of smaller particles called _____.

1. Six quarks are known to exist; the sixth is called the _____ quark.

D. Scientists use scaled-up _____ to represent atoms.

1. Early models of atoms used a solid _____.
2. Current _____ model shows electrons traveling in specific energy levels around a nucleus of protons and neutrons.

Section 2 Masses of Atoms

A. _____—composed mostly of the protons and neutrons in the nucleus

1. Unit of measurement for atomic particles is _____ (amu) which is one-twelfth the mass of a carbon atom containing six protons and six neutrons.
2. _____—the number of protons in an atom; number of protons also identifies the element
3. The sum of the number of protons and neutrons in the nucleus of an atom is the _____.

B. _____—atoms of the same element with different numbers of neutrons

1. Different isotopes have different _____.
2. Number of _____ is equal to mass number minus atomic number.
3. Name of _____ followed by mass number identifies the isotope.
4. _____ is the weighted-average mass of an element's isotopes.
5. Average atomic mass is closest to its most _____ isotope.

Name _____ Date _____ Class _____

Note-taking Worksheet (continued)

Section 3 The Periodic Table

A. Elements are organized in the _____ by increasing atomic number.

1. In the late 1800's, Dmitri Medeleev devised the first periodic table based on _____.
2. In 1913, Henry G. J. Moseley arranged the elements by _____ rather than atomic mass.

B. Vertical columns in the periodic table are _____ of elements with similar properties.

1. Elements in the same group have the same number of _____ in their outer energy level.
2. Each of the seven energy levels can have a _____ number of electrons.
   a. Energy level one can contain at most _____ electrons.
   b. Energy level two can contain at most _____ electrons.
3. Each row in the periodic table ends when an outer energy level is _____.
4. _____ use the element symbol and dots to represent outer energy level electrons.

C. _____—horizontal rows of elements that contain increasing numbers of protons and electrons.

1. Elements are _____ as metals, nonmetals, or metalloids (semimetals).
2. Elements are _____ in laboratories all over the world.

D. The _____ elements exist all over the universe.

1. Hydrogen and helium are the _____ of other naturally occurring elements.
2. _____ spread heavier elements throughout the universe.

Meeting Individual Needs