Name _____ Date _____ Class _____

Note-taking Worksheet

Atoms, Elements, Compounds, and Mixtures

Section 1 Models of the Atom

A. Greek philosophers devised a theory of atoms, or tiny _____.

B. John Dalton combined the idea of _____with the Greek theory of the atom.

1. Matter is made up of _____.
2. Atoms _____ be divided into smaller pieces.
3. All atoms of an element are exactly _____.
4. Different elements are made of _____ atoms.
5. Dalton's theory was tested by William Crookes and his _____ tube experiment.

C. J. J. Thomson discovered negatively charged particles, _____, which are a part of every atom.

1. Thomson revised Dalton's model to include a sphere with a _____ charge and negatively charged electrons spread evenly within the positive charge.
2. The negatively charged electrons and the _____ charge in the sphere neutralized each other.

D. Earnest Rutherford tested Thomson's model, which was found to be an _____ model of the atom.

E. An atomic model with a _____ was developed.

1. The positively charged _____ is located in a very small space at the center of an atom.
2. Most of an atom is _____ occupied by nearly massless electrons.
3. Electrically neutral particles, _____, are also located in the nucleus.
4. The number of electrons _____ the number of protons in an atom.

F. The _____ model explains the unpredictable wave behavior of electrons, and that electrons can be anywhere in the area surrounding the nucleus.

Meeting Individual Needs

Name _____ Date _____ Class _____

Note-taking Worksheet (continued)

Section 2 The Simplest Matter

A. **Elements**—materials that cannot be _____ into simpler materials.

1. There are _____ known elements.
2. 90 _____ occurring elements, 25 _____ elements—made in laboratories.

B. Periodic Table—Chart that organizes and displays information about the _____.

1. **Atomic** _____—the number of _____ in the nucleus of each atom of that element
   a. The number of _____ remains constant in every atom of an element.
2. _____—atoms of the same element that have different numbers of _____
3. **Mass number**—number of _____ plus number of _____
4. **Atomic** _____—the weighted average _____ of an atom of an element
   a. The unit used for atomic mass is the _____, or u.

C. Elements fall into three general groups characterized by similar properties.

1. _____—majority of elements
   a. _____ luster
   b. Good conductors of _____ and _____
   c. Solids _____ at room temperature.
   d. _____, or can be shaped
   e. _____, or can be drawn into wires without breaking
2. _____—found on the right side of the periodic table
   a. _____ in appearance
   b. _____ conductors of heat and electricity
   c. Many are _____ at room temperature.
   d. _____, cannot change shape without breaking
   e. 97 percent of the _____ is made up of nonmetals

Meeting Individual Needs

Note-taking Worksheet (continued)

3. _____—found between the metals and nonmetals on the periodic table
   a. Have characteristics of both _____ and _____
   b. Do not _____ heat and electricity as well as metals
   c. All are _____ at room temperature.

Section 3 Compounds and Mixtures

A. **Substance**—matter that has the same _____ and properties throughout

B. **Compound**—substance whose smallest unit is made up of atoms of _____ element

1. _____—tells which elements make up a compound as well as how many atoms of each element are present
   a. The subscript number tells _____ of the preceding element are in the compound.
   b. No subscript is used when _____ of the element is present.
2. A given compound is always made of the same elements in the same _____.

C. **Mixture**—two or more substances mixed together which don't make a _____ substance

1. Unlike compounds, the _____ of the substances can be changed without changing the identity of the mixture.
2. Examples: _____
3. Can _____ mixtures easily
4. _____ mixtures—the same throughout
5. _____ mixtures—you can see the different parts