

**Note-taking
Worksheet****Matter****Section 1 Atoms**

A. Matter—anything that has _____ and takes up space

1. Matter is made up of tiny particles called _____.
2. Substances that contain only one type of atom are _____.

B. Three basic particles make up an atom: _____, _____, and _____.

1. Protons and neutrons make up the _____ of an atom.
 - a. Protons—particles that have _____ electric charge
 - b. Neutrons—particles that have _____ electrical charge
 - c. The nucleus has a _____ charge.
2. Electrons—_____ charged particles that move around the nucleus
3. Atomic number—the number of _____ in an atom's nucleus
 - a. All atoms of a specific element have the same _____.
 - b. This number also equals the number of _____ in the atom's electron cloud.
4. Mass number—the number of _____ and _____ making up an atom's nucleus

C. Isotopes—atoms of the same element that have different numbers of _____

Section 2 Combinations of Atoms

A. When atoms of more than one element combine, they form a _____.

B. _____—describes a change that occurs when one substance reacts with another substance

C. _____—the force that holds atoms in compounds together

1. _____ bonds form by sharing electrons.
2. Atoms that combine if they become positively or negatively charged have _____ bonds.
 - a. Electrically charged atoms are called _____.
 - b. Ions are attracted to each other when they have _____ charges.

Note-taking Worksheet (continued)

3. _____ bonds—electrons are free to move from one ion to the other.
- Found in _____ such as copper, gold, aluminum, and silver
 - Give metals the ability to conduct _____
4. _____ bonds—form when the positive end of one molecule is attracted to the negative end of another molecule
- Form without the interaction of _____
 - Responsible for the property of _____—allows water to form raindrops
 - Hydrogen bonds are easily _____.
- D. _____—two or more substances that are not chemically combined
- _____ mixture—components not mixed evenly; each component retains its own properties.
 - _____ mixture—compounds evenly mixed; can't see each component; also called _____
 - The components of a mixture can be separated by _____ means.
 - The components of a compound must be separated by _____ means.

Section 3 Properties of Matter

- A. _____—properties you can observe without changing a substance into a new substance
- One physical property is density, which is an object's mass divided by its _____.
 - The measurement of density is usually given in _____ per cubic centimeter (g/cm^3).
 - An object less dense than water will _____ in water.
- B. Four physical states of matter: solid, liquid, gas, and _____
- Solids—the matter's atoms are in a _____ position relative to each other.
 - _____—atoms are attracted to each other, but can change positions with each other
 - Gases—atoms have almost no _____ force on each other, so atoms move freely and will fill the entire container they are placed in

Note-taking Worksheet (continued)

4. _____—electrons can escape and move outside of the ion's electron cloud.
- a. The _____ common state of matter in the universe
 - b. Stars and _____ are composed of matter in the plasma state.
- C. _____ can change from one state to another.
- 1. Changes in state can occur because of increases or decreases in _____ and _____.
 - a. Matter is changed from a liquid to a solid at its _____ point.
 - b. Matter is changed from a liquid to a gas at its _____ point.
 - 2. When matter changes state, its _____ properties do not change, but _____ properties may change.