

**Note-taking
Worksheet****Solids, Liquids, and Gases****Section 1 Kinetic Theory**

- A. _____ of matter—solid, liquid, gas
- _____ **theory**—explains how particles in matter behave
 - All matter is composed of small _____.
 - Particles are in constant, random _____.
 - Particles _____ with each other and walls of their containers.
 - _____—total energy of a material's particles; causes particles to vibrate in place
 - Average kinetic energy—_____ of the substance, or how fast the particles are moving; the lower the temperature, the slower the particle motion
 - _____ state—particles are closely packed together in a specific type of geometric arrangement.
 - _____ state—a solid begins to liquefy at the **melting point** as the particles gain enough energy to overcome their ordered arrangement.
 - Energy required to reach the melting point is called the **heat of** _____.
 - Liquid particles have more space between them, allowing them to flow and take the shape of their container.
 - _____ state—a liquid's particles have enough energy to escape the attractive forces of the other particles in the liquid
 - Heat of** _____ is the energy required for a liquid to change to a gas.
 - At the _____, the pressure of a liquid's vapor is equal to the pressure of the atmosphere, and the liquid becomes a gas.
 - Gas particles spread evenly throughout their container in the process of _____.
 - Heating curve of a liquid—as a solid melts and a liquid vaporizes, the temperature remains _____; the temperature will increase after the attractive forces of the earlier state have been overcome.
 - _____—state of matter consisting of high-temperature gas with balanced positively and negatively charged particles.

Note-taking Worksheet (continued)

B. _____ **expansion**—increase in the size of a substance when the temperature increases

1. The size of a substance will then _____ when the temperature decreases.
2. Expansion and contraction occur in _____ solids, liquids, and gases.
3. _____ is an exception because it expands as it becomes a solid.

C. Some substances do not react as _____ when changing states.

1. _____ solids—lack the tightly ordered structure found in crystals
 - a. Do not have definite temperature at which they change from solid to liquid
 - b. Glass, plastic
2. _____ crystals do not lose their ordered arrangement completely upon melting; used in liquid crystal _____ in watches, clocks, calculators, and some notebook computers.

Section 2 Properties of Fluids

A. _____—ability of a fluid (liquid or gas) to exert an upward force on an object immersed in it

1. An object in a fluid will _____ if its weight is less than the buoyant force acting on it from the fluid.
2. An object in a fluid will _____ if its weight is more than the buoyant force acting on it from the fluid.
3. _____ principle—buoyant force on an object is equal to the weight of the fluid displaced by the object.
4. An object will float if its _____ is less than the density of the fluid it is placed in.

B. _____ principle—pressure applied to a fluid is transmitted throughout the fluid

1. **Pressure** is _____ exerted per unit area.
2. _____ machines use this principle to lift heavy loads.

C. _____ principle—as the velocity of a fluid increases, the pressure exerted by the fluid decreases; airplanes use this principle to fly.

Note-taking Worksheet (continued)

- D. _____—a liquid's resistance to flow
1. Molecular _____ determines a fluid's viscosity.
 2. Increased _____ will lower viscosity.

Section 3 Behavior of Gases

- A. _____ is measured in a unit called a **pascal** (Pa).
1. _____ of particles in air result in atmospheric pressure.
 2. Moving particles colliding with the inside walls of a container result in _____ pressure.
- B. _____ Law—relates pressure and volume
1. Volume decreases as _____ increases.
 2. Pressure decreases as _____ increases.
 3. Pressure multiplied by volume is always equal to a _____ if the temperature is constant.
- C. _____ Law—relates volume and temperature
1. At a constant pressure, _____ increases as temperature increases.
 2. At a constant pressure, volume decreases as _____ decreases.
- D. _____ Law—relates pressure and temperature; at a constant volume, as temperature increases, pressure increases