

LNG 1 0.1 - The Kinetic Molecular Theory of Matter

what is the kinetic molecular theory?	the kinetic molecular theory is based on the idea that particles of matter are always in motion. It is used to explain the properties of solids, liquids, and gases.
The explanation of solids, liquids, and gases are in terms of: energy of particles; forces that act between them.	Learned of the three states of matter in chapter 1.
The kinetic molecular theory of gases provides an ideal gas model. What is an ideal gas ?	an ideal gas is a hypothetical gas that perfectly fits all the assumptions of the kinetic molecular theory.
5 assumptions: 1. gases consist of large numbers of tiny particles that are far apart relative to their size. 2. Collisions between gas particles and between particles and container walls are elastic collisions . 3. gas particles are in continuous, rapid, random motion; therefore possesses kinetic (energy of motion). 4. there are no forces of attraction between gas particles 5. the temperature of a gas depend on the average kinetic energy of the particles of gas.	elastic collision- one in which there is no net loss of total kinetic energy. The separation of particles is so huge, intermolecular forces do not exist. $KE = \frac{1}{2} mv^2$
a gas will expand to fit its container according to assumptions 3 and 4 of the theory	remember gases have no definite shape or volume volume of quantity of gas depends on temperature and surrounding pressure as air expands; it becomes cooler
assumption 4 of the theory means gas particles glide passed each other; giving the ability to flow .	Gases flow just as liquids; which is why both are referred to as fluids.
gases have a lower density than solids and liquids	1/1000 the density of the same substance in liquid or solid state.
assumption 1 of the theory shows that when gas is compressed, gas particles are crowded together	as air is compressed; it becomes hotter the volume is greatly decreased

<p>diffusion- spontaneous mixing of particles of two substances caused by their random motion. effusion- a process in which gas can pass through a tiny opening</p>	<p>Gases can easily diffuse together because of the amount of space between the molecules rates are directly proportional to the velocities of their particles. molecules of low mass effuse faster than molecules of high mass.</p>
<p>a real gas is a gas that does not behave completely according to the assumptions of the kinetic molecular theory.</p>	<p>particles of a gas occupy space and exert attractive forces on each other, this deviates gas (to some degree) from an ideal gas.</p>