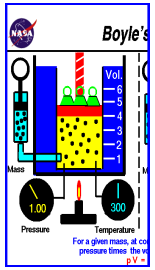
PLASMA

- Plasma is a state of matter of which atoms are stripped of there electrons and the nuclei.
- Plasma is tightly packed together.
- Plasma therefore has properties quite unlike those of solids, liquids or gases and is considered to be a distinct state of matter. Plasma typically takes the form of neutral gas-like clouds.
- Like gas, plasma does not have a definite shape or a definite volume unless enclosed in a container, but unlike gas, in the influence of a magnetic field, it may form structures such as filaments, beams and double layers

- Plasmas are by far the most common phase of matter in the universe, both by mass and by volume.
- All the stars are made of plasma, and even the space between the stars is filled with a plasma, albeit a very sparse one. In our solar system, the planet Jupiter accounts for most of the non-plasma, only about 0.1% of the mass and 10−15% of the volume within the orbit of Pluto.

THREE GAS LAWS

Boyle's law:



- Robert Boyle was a chemist and physicist. He published this law in 1662. Boyle's law (sometimes referred to as the Boyle-Mariette law) is one of several gas laws and a special case of the ideal gas law. Boyle's law describes the inversely proportional relationship between the absolute pressure and volume of a gas, if the temperature is kept constant within a closed system.

Charles law:

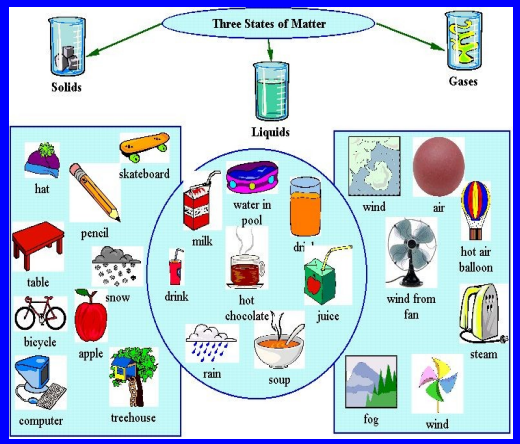
- At constant pressure, the volume of a given mass of an ideal gas increases or decreases by the same factor as its temperature increases or decreases.

- The pressure law states that the pressure of a fixed mass of gas at a constant volume is directly proportional to its absolute temperature. In other words, when temperature increases, pressure increases.
  When pressure decreases, temperature decreases.

Conservation laws

- The law of conservation of mass/matter, says that the mass of a closed system will remain constant, regardless of the processes acting inside the system. Matter is either created or destroyed.
- The law of conservation of energy states that the total amount of energy in an isolated system remains constant.

The Four States of MATTER



CHRIS
PERIOD: 5
2/13/09

SOLIDS

- The atoms or molecules that compose the solid are packed closely together.
- If sufficient force is applied, either of these properties can be disrupted, causing permanent deformation.
- Because solids have thermal energy, their atoms vibrate. However, this movement is very small, and cannot be observed or felt under ordinary conditions.

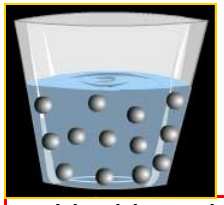
- Solid materials are formed from densely-packed atoms, with intense interaction forces between them. These interactions are responsible for the mechanical thermal, electrical, magnetic and optical properties of solids connections.

- Solids are usually hard because their molecules have been packed together.

- The closer your molecules are, the harder you are. Solids also can hold their own shape.

LIQUIDS

- Liquid is one of the principal states of matter. A liquid is a fluid that has the particles loose and can freely form a distinct surface at the boundaries of its bulk material. The surface is a free surface where the liquid is not constrained by a container.



- Liquid can be found in between the solid and gas states. They don't have to be made up of the same compounds. If you have a variety of materials in a liquid, it is called a solution.

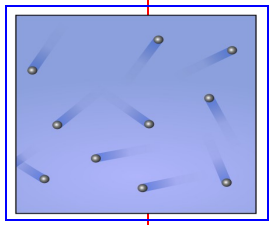
- One characteristic of a liquid is that it will fill up the shape of a container. If you pour some water in a cup, it will fill up the bottom of the cup first and then fill the rest.

- The water will also take the shape of the cup. It fills the bottom first because of gravity. The top part of a liquid will usually have a flat surface.

GASES

- In physics, a gas is a state of matter, consisting of a collection of particles molecules, atoms, ions, and electrons. Without a definite shape or volume that are in more or less random motion.

- Dependent on distance, these intermolecular forces influence the motion of these particles and hence their thermodynamic properties. At the temperatures and pressures characteristic of many applications, these particles are normally greatly separated.
- This separation corresponds to a very weak attractive force. As a result, for many applications, this intermolecular force becomes negligible.



- Gases are random groups of atoms. In solids, atoms and molecules are compact and close together. Liquids have atoms a little more spread out.

- However, gases are really spread out and the atoms and molecules are full of energy. They are bouncing around constantly.