

# Kinetic Molecular Theory

**Solid** - Particles are fixed in a crystal lattice. Vibrational motion only.

**Liquid** - Particles can slip past each other to flow or change shape. Vibrational and rotational motion.

**Gases** - Particles are independent and move freely. Vibrational, rotational and translational motion.

2 factors affect the state of a compound:

1. Intermolecular Forces

2. Temperature – if more kinetic energy added particles move more and the substance changes state.

## Ideal Gas Theory

Under normal temperature and pressure conditions, most gases behave the same!!

1. The volume of a gas is negligible. A gas will expand to fill its container.
2. There are no intermolecular forces between gas molecules.
3. Gas molecules move randomly, in all directions, in straight lines.
4. Collisions between molecules and the container are perfectly elastic.
5. The average kinetic energy of a gas is directly related to temperature.