

Temperature

Temperature is a measure of how fast the **PARTICLES** that make up a substance are moving. The faster the movement of particles, the greater the temperature. As heat energy is added to a substance it causes the particles to move faster which shows up as a change in temperature.

	Particle Movement	Energy State	Temperature
Solid	slow	low	cold
Liquid	medium	medium	warm
Gas	fast	high	hot

Why does warm air rise?

When heat is added to any substance, its particles move faster and faster. In a gas, they bump into each other and push each other apart. Warm air with its particles spread apart is lighter than cold air with its particles packed close together. This is why air will rise when it is warmed.

Evaporation (Liquid to gas)

In a liquid, the particles are sliding easily past each other. If still more heat energy is added to these particles, they speed up, start bumping into each other and move further apart. The liquid water has now turned into a gas and is called **WATER VAPOUR**. Water vapour is invisible, very hot and contains fast, high energy particles that are far apart.

Condensation (Gas to liquid)

If heat energy is taken away from a gas, the particles slow down, and move closer together. Water vapour (gas) turns from high energy gas state back to liquid water. This is called **CONDENSATION** and is the opposite of evaporation.

Note (Gas to solid): Sometimes a gas will turn directly to a solid without becoming liquid. This change is important to weather because this is how snow crystals form.