

Key Knowledge

What are states of matter?

There are 3 common states of matter:

Solid

Keeps its shape unless a force is applied. Solids made of small grains (sand, sugar etc.) can form a pile when poured.

Examples: wood, plastic, ice.

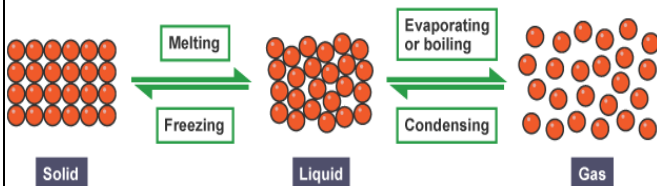
Liquid

Flows freely and can be poured. Takes the shape of its container, filling up from the bottom. Spreads out to form a puddle rather than a pile. Examples: water, oil.

Gas

Expands freely to fill all the available space. Examples: oxygen, water vapour.

The particles in solids are closely packed, often in a regular pattern; in liquids they are more loosely packed; in gases the particles are far apart.



What is evaporation?

Evaporation is the process by which a liquid changes to a gas. Water evaporates to form water vapour. The higher the temperature, the faster the rate of evaporation.

What is condensation?

Condensation is the process by which a gas changes into a liquid when it is cooled down. It is the opposite of evaporation. Condensation is an important part of the water cycle. On a cold day, water vapour condenses into water droplets on windows.

What is melting and freezing?

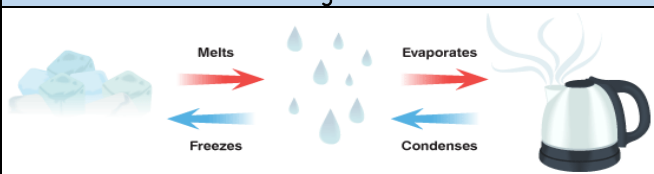
Melting is the process by which a solid changes into a liquid when it is warm enough (like ice into liquid water). The temperature at which something begins to **melt** is called its **melting point**.



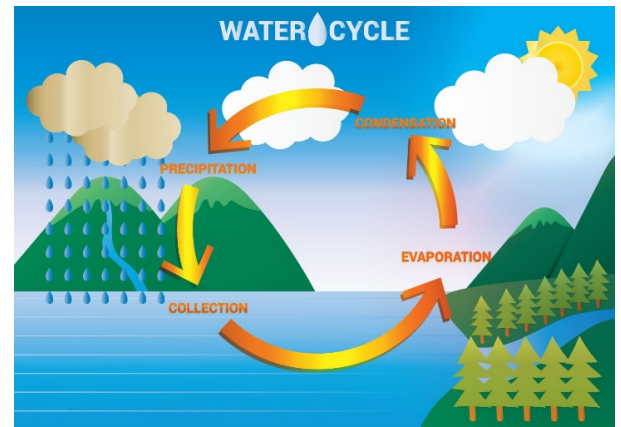
Freezing is the process by which a liquid turns into a solid when it is cooled down. One example of **freezing** is when water turns into ice. **Freezing** is the opposite of melting.

The melting (or freezing) point of water is 0°C. Other solids melt at higher or lower temperatures.

Diagram



The Water Cycle



The water cycle is the continuous journey water makes from the sea to the sky, to the land and back to the sea. The movement of water around our planet is vital to life as it supports plants and animals.

- Heat from the Sun causes liquid water in oceans, lakes, rivers etc. to evaporate into gas and rise into the sky.
- Depending on how cold it is, the water vapour condenses or freezes in the sky to form clouds made of tiny water droplets or ice crystals.
- The water droplets or ice crystals gradually grow and stick together. When they are heavy enough, they fall to the Earth as rain, snow, hail or sleet. This is called precipitation.
- Water that falls on the land gradually drains back into rivers, lakes and seas (collection), or is used and excreted by plants and animals. The cycle then starts again.

Investigate

- What happens to chocolate when it is warmed up?
- What happens to water when it is cooled down?
- At what temperature does water freeze?
- How can we speed up the evaporation process?
- Is obbleck a solid or a liquid? How do you know?

Key Vocabulary

Condensing	When a gas, cools and turns into a liquid.
Evaporating	When a liquid turns into a gas.
Freezing	When a liquid is cooled and turns into a solid.
Gas	An air-like fluid substance which expands freely to fill any space available.
Liquid	A substance that flows freely, taking up the shape of the container it is in.
Melting	When a solid is heated and turns into a liquid.
Melting point	The temperature at which a solid melts.
Precipitation	Water that falls from clouds as rain, snow etc.
Solid	A substance which keeps its shape.
Water cycle	The continuous journey water makes from the sea to the sky, to the land and back to the sea