# Year 4 States of Matter (Chemistry)

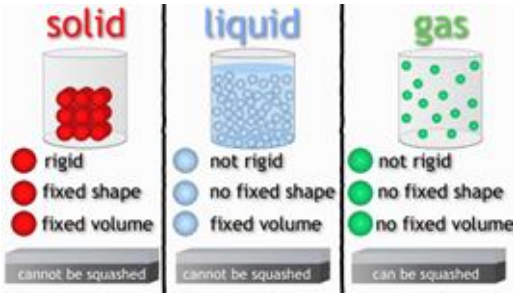
## Crucial Knowledge

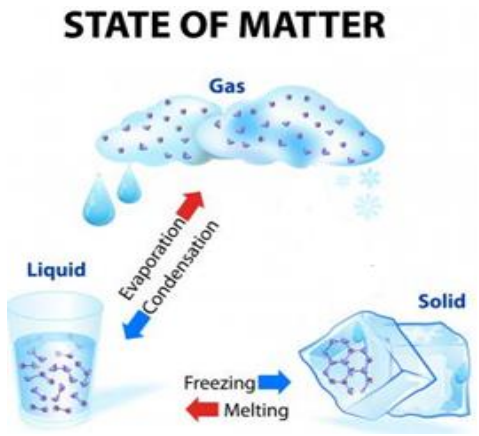
A **solid** is made up of particles held together tightly with strong bonds which means they can be held, keep its shape and have a fixed volume.
A **liquid** is made up of particles that are held together but not as tightly as a solid. This means they have a fixed volume but changes in shape to fit the container.
A **liquid** can be poured and keeps a level, horizontal surface.
A **gas** fills all available space; it has no fixed shape or volume.

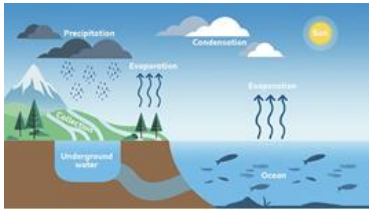
**Melting** is a **state change** from **solid** to **liquid**.
**Freezing** is a **state change** from **liquid** to **solid**.
**Boiling** is a **state change** from **liquid** to **gas**.
**Evaporation** is the same state change as boiling (**liquid to gas**), but it happens slowly at lower temperatures and only at the surface of the liquid.
**Heating** a liquid will increase the rate at which it evaporates.
**Condensation** is the change back from a gas to a liquid caused by cooling.
Changing state happens at different temperatures for different materials.

The **water cycles** involves changes of state include evaporation and condensation.

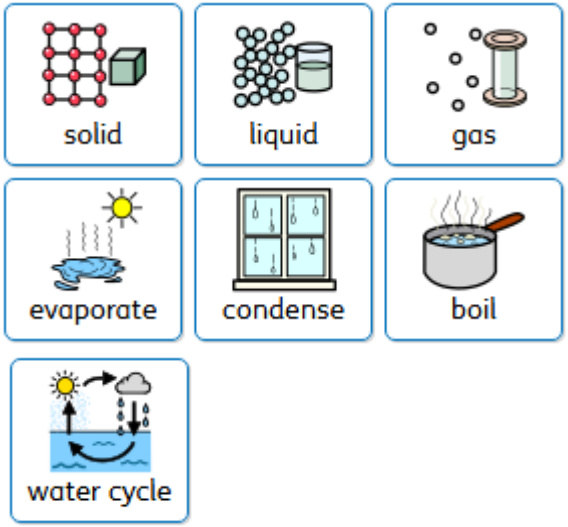
## Important images




## Key Vocabulary




## Key Concepts

**Materials - Year 3 understanding**
Materials are what objects are made of. Materials all have different properties which means they are suitable for different purposes. We can compare and group rocks and soils based on their appearance and physical properties.
**Materials - Year 4 understanding**
We can compare and group together materials according to whether they are a solid, liquid or gas. We can change the state of some materials by heating or cooling them.

## Crucial Skills (Working Scientifically Skills)