

Science- States of Matter- Year 4 Autumn Term

Prior Learning: You should know...

That different materials have different properties.

That some solids can squashed or twisted.

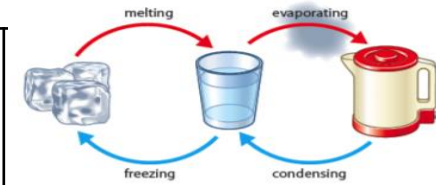
Solids:

- Hard
- Some are difficult to compress
- Keep their shape independently
- You can hold solids in your hands.
- The molecules in solids are tightly packed together.



Changing state:

- Warming solid ice makes it melt into liquid water.
- Adding more heat makes it evaporate into water vapour. At 100°C you see this as steam.
- When water vapour is cooled, it condenses into liquid water.
- If it is cooled to 0°C it freezes and forms solid ice



The Water Cycle:

- The Sun evaporates water into water vapour.
- When the water vapour cools down, it condenses to create clouds.
- The condensed water inside the clouds falls as rain- this is known as precipitation.

Key Learning

A solid keeps its shape and has a fixed volume.

A liquid has 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.

Evaporation is a state change from liquid to gas.

Condensation is a state change from gas to liquid.

Key Vocabulary

Condensation	When a gas is cooled and it turns into a liquid.
Evaporation	When a liquid is heated and it turns into a gas.
Freezing	When a liquid is cooled and it turns into a solid.
Melting	When a solid is heated and it turns into a liquid.
Precipitation	Rain, snow or sleet.
State change	The change from one state to another. For example, from a solid to a liquid by melting.

Liquids:

- Pour easily- make a pool not a pile.
- Take the shape of their container
- You cannot hold liquids in your hands - it all drains away!
- The molecules are still connected but these are looser than a solid. This means that they can bounce and roll over one another.

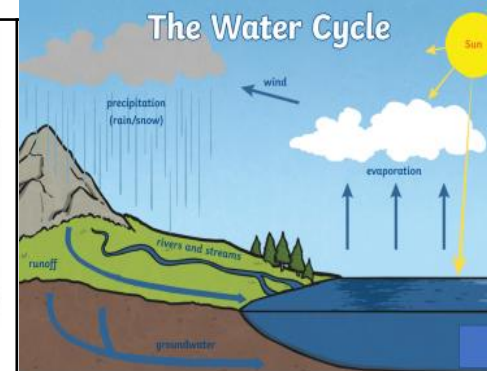


Gases:

- They usually cannot be seen (but are sometimes visible as bubbles moving inside a liquid or trapped inside a solid)
- They fill their containers
- They escape from unsealed containers
- The gas molecules spread out to fill all the space available.
- They bounce off the sides of the container and one another.



The Water Cycle



Meteorologist:

Meteorologists are specialised scientists who study and predict the weather.



Can I answer?

What is a solid?

What is a liquid?

What is a gas?

Can matter change state?

How do materials change state?

What is the water cycle?