

## Key question for the topic

### Why do materials change state?



## KEY VOCABULARY

matter- anything that takes up space

solid- a state where molecules are close together

liquid- a state where the substance flows freely as the molecules are not as close together as in a solid

gas- a state which can freely expand to fill a whole container and has no fixed shape or volume

temperature- how hot something is

evaporation- when a liquid turns to a gas

condensation- when a gas turns to a liquid

Celsius- a unit of measurement for temperature

water cycle- the process that circulates water around the world

thermometer- an instrument used to measure temperature

## Further Reading

Have a look at: <https://www.bbc.co.uk/bitesize/topics/zkqg87h> where you can find a lots of videos and information on changing states.

## KEY FACTS

There are 3 states of matter: solid, liquid and gas. Most things around us can be put into one of the categories depending on the molecular structure of it.

Interestingly, materials do not have to be permanently one of these 3 states. For example, ice is a solid and when it melts it becomes water (a liquid) which in turn can be heated to become water vapour (a gas).

A perfect example of changing states is the water cycle which is constantly in action around the world. Two key parts of the process are evaporation (water turning from a liquid to a gas) and condensation (gas turning to a liquid).

Solids	Liquids	Gases
 <ul style="list-style-type: none"> <li>• A solid has a definite shape.</li> <li>• The molecules are packed tightly together and are arranged in regular patterns.</li> <li>• The molecules vibrate in a fixed position.</li> </ul>	 <ul style="list-style-type: none"> <li>• A liquid has no definite shape. It takes the shape of the container it is in.</li> <li>• The molecules are farther apart and are not in any particular pattern or order.</li> <li>• The molecules move and slide over each other.</li> </ul>	 <ul style="list-style-type: none"> <li>• A gas has no definite shape. It takes the shape of the container it is in and spreads out to fill the container.</li> <li>• The molecules are far apart.</li> <li>• The molecules move about freely.</li> </ul>
		
<p>An increase in temperature can cause a solid to change to a liquid or a liquid to a gas. A decrease in temperature can cause a gas to change to a liquid or a liquid to a solid.</p>		

## You might like to...

Create your own water cycle experiment at home. With help from <http://www.science-sparks.com/make-a-mini-water-cycle/> Please make sure you have an adult's help as it involves hot water. Remember to send any picture, videos or work to your teacher on Class Dojo.

## QUESTIONS TO DEEPEN YOUR LEARNING

Character	Critical Thinking	Creativity	Communication	Citizenship	Collaboration
Which parts of this do I need to understand?	Why do I need to know about this?	What am I curious about?	How could I present what I understand?	How could this information help people?	What can I learn from others about this?