



Science

States of Matter

Wonderful Water



Aim

- I can explore how water changes state.

Success Criteria

- I can identify the different states water can be in.
- I can identify and observe the processes that cause water to change state.

**Water exists in all 3 states.
Do you know what water is called
in each state?**

Water takes the 3 states of matter !!



Solid

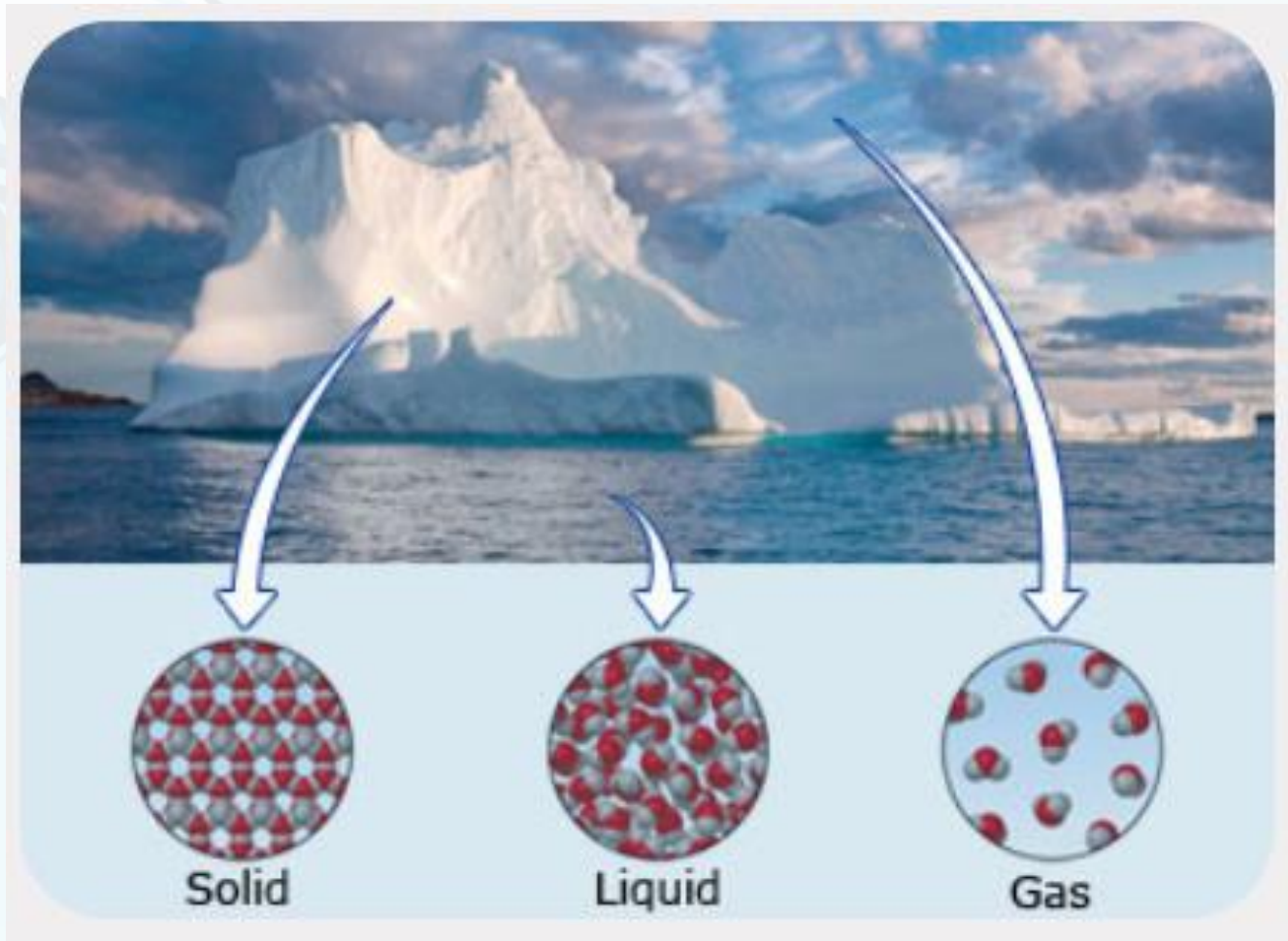


Liquid

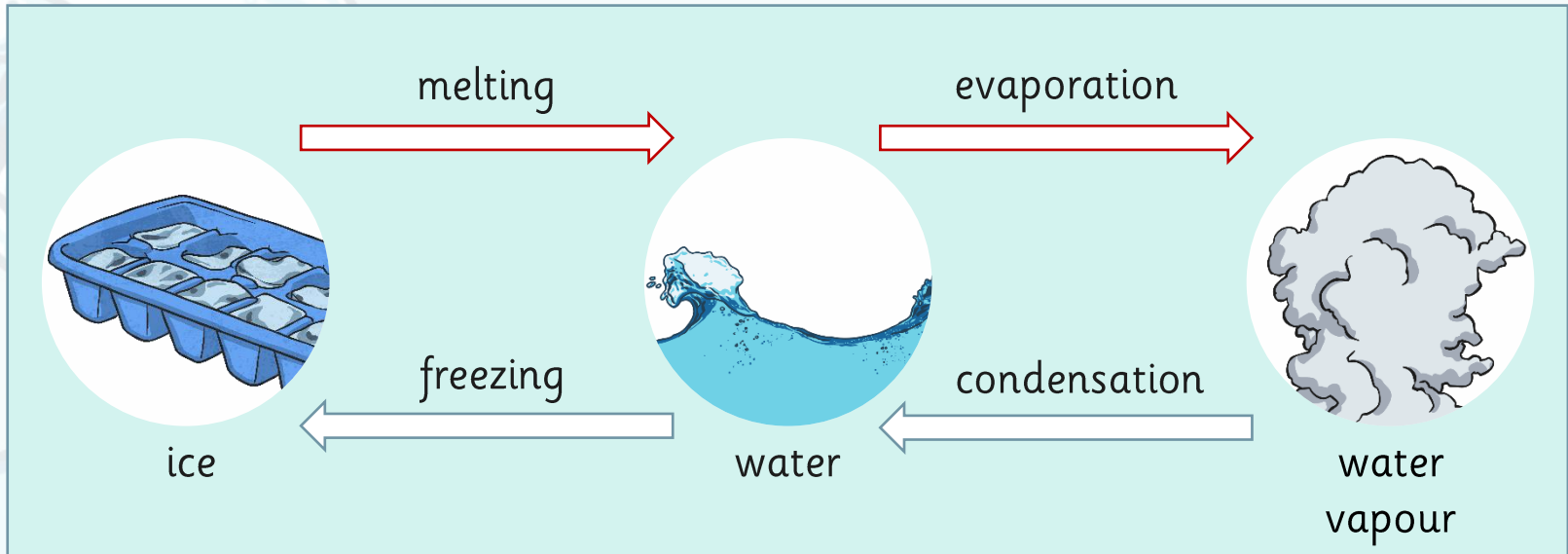


Gas

Water exists in the environment in different states depending on the temperature. Do you remember how the particles in different states are arranged differently?



Exploring the Processes



Water changes state as a result of heating and cooling. The processes are labelled here.

Last week we learnt about changing a solid to a liquid in our investigation.

Today we are thinking about changing a liquid to a gas and back again.

Watch the Bitesize video and do the activity:

<https://www.bbc.co.uk/bitesize/topics/zkgg87h/articles/zydxmnb>



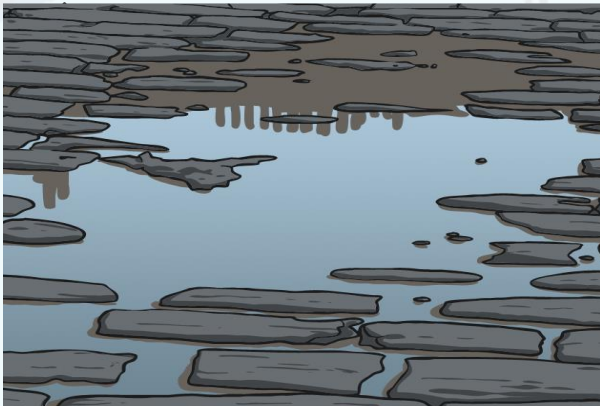
Exploring the Processes

<https://www.youtube.com/watch?v=vc-TCoSXd4c>

This video explains the processes really clearly



Evaporation is when water turns into water vapour (a liquid turning to a gas)



Why is the water evaporating?

Why is it condensing?

Condensation is when water vapour is cooled down and turns to water (a gas turning to a liquid).



Ice Cube Investigation

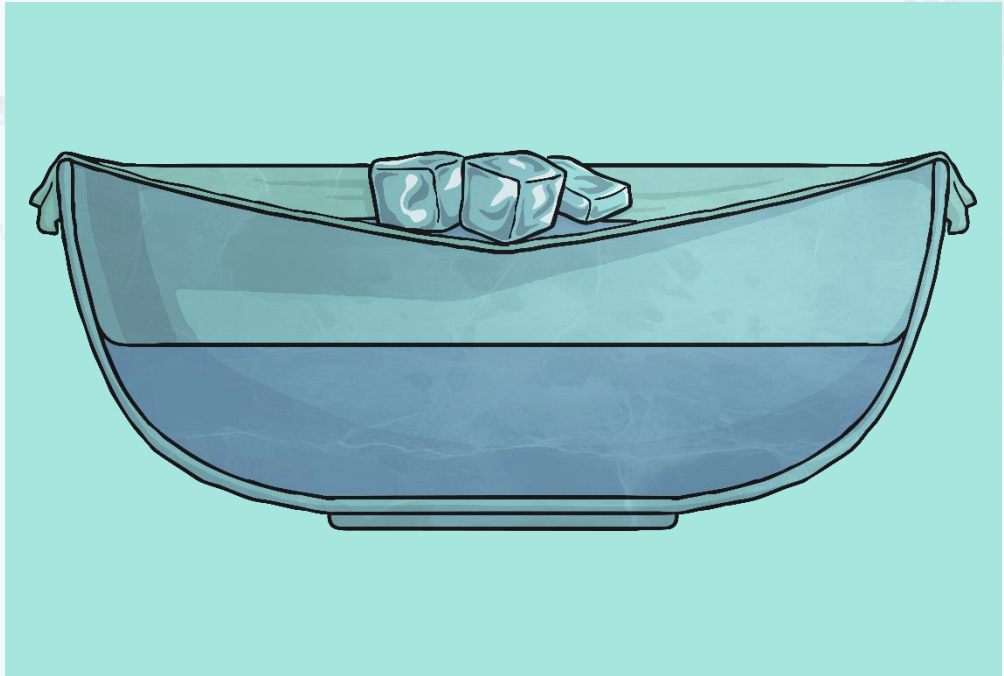
Have a try this activity, you will place two or three ice cubes on some cling film stretched over a container of warm water.

What do you see in the container?

What can you observe on the cling film?

What happens to the ice?

What processes are occurring?



Ice Cube Results

Draw a labelled diagram to illustrate what you found. Use the vocabulary that we have been learning in science.

solid

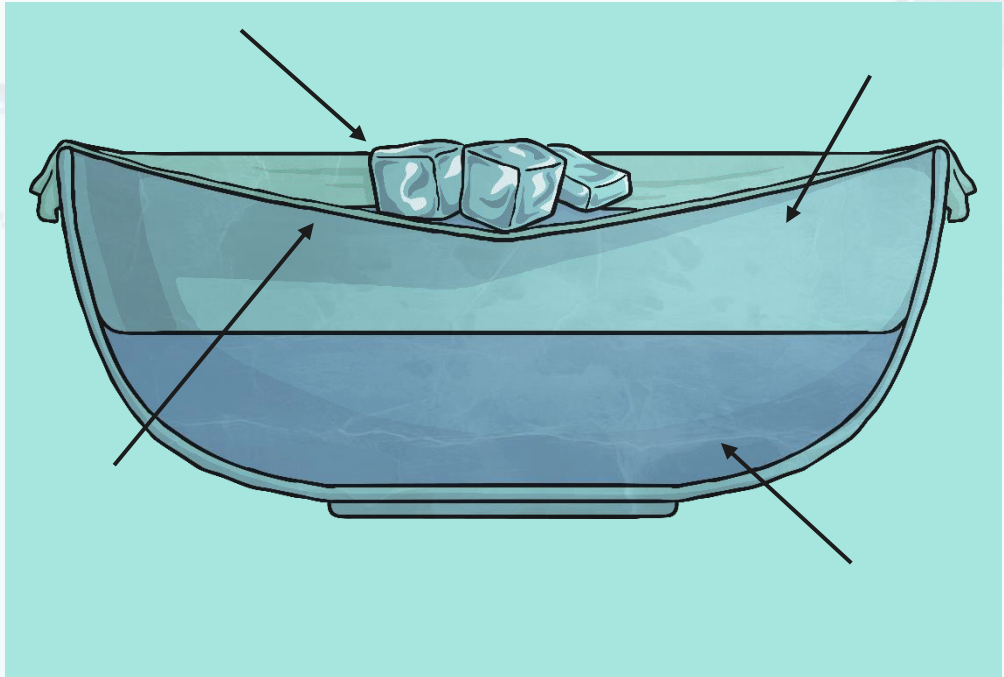
liquid

gas

evaporation

condensation

melting



What is happening in each picture?



What process is happening when the clothes dry?

What causes the change of state?



What process is happening when the water bubbles?

What causes the change of state?

What is happening in each picture?



What 2 processes are happening in the shower?

What are the changes of state?



What process is happening on the trees?

What causes the change of state?

Other liquids evaporate at different speeds and temperatures. Try this...

Evaporation Activity

Materials: Hand sanitizer

Instructions

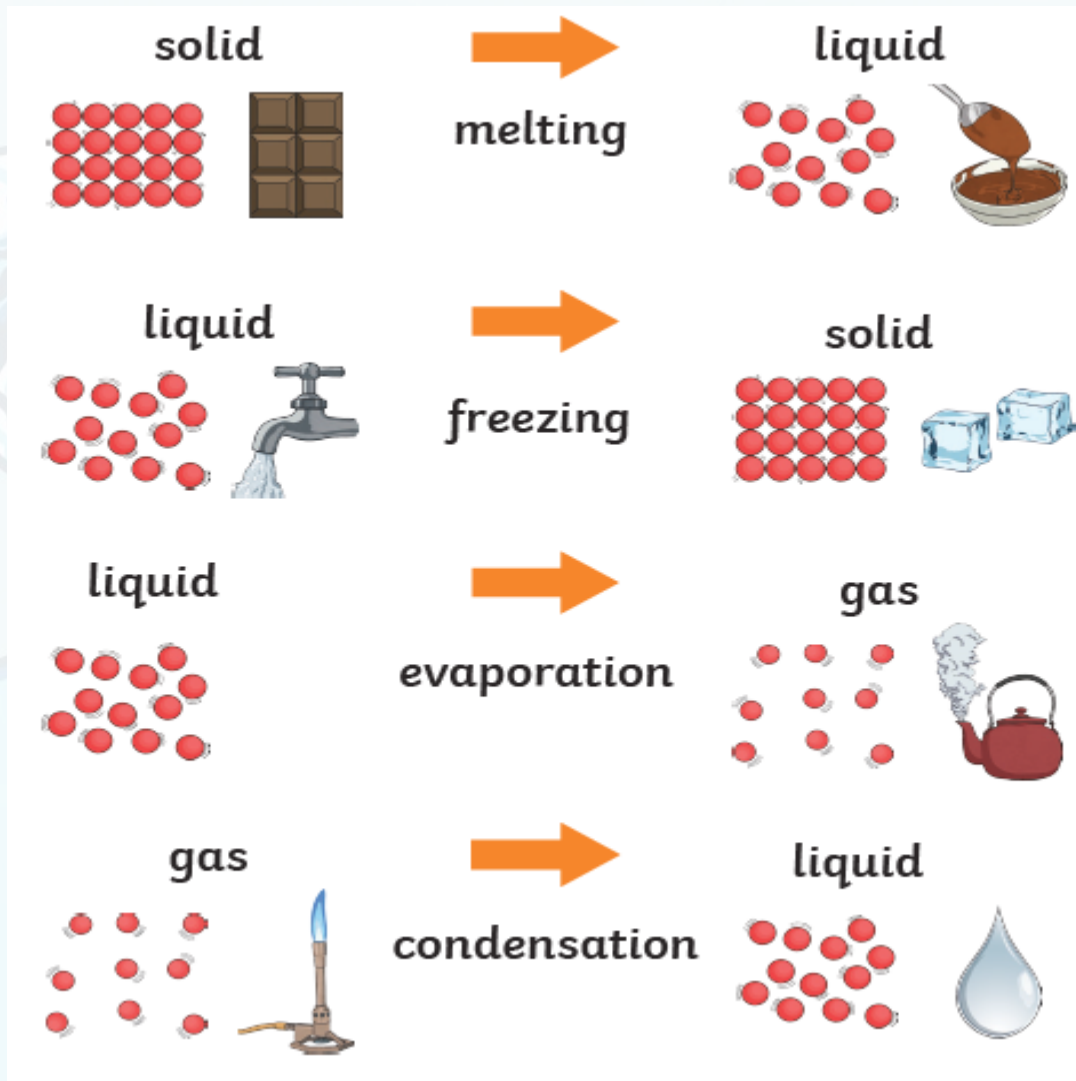
1. Pour a small amount of hand sanitizer on your hands and rub them together.
2. Think about how your hands feel immediately after rubbing the sanitizer on them.
3. Wave your hands for 15 seconds.
4. Think about how your hands feel now.



How did your hands feel when you put sanitizer on them?

How did your hands feel after 15 seconds?

The sanitizer evaporated and this is a cooling process. Wind speeds up evaporation so waving your hands around makes them feel colder



The diagram summarises all of the changes of states we have learned about.

It shows what the processes are called.

It shows the particles structures change.

Three States of Water

I can identify the different states water can be in.

I can identify the temperatures at which water changes state.

Write the letters of the correct answer cards next to the questions below.

Questions	Answer Card Letter
1. What is the solid state of water called?	
2. At what temperature does water freeze?	
3. What is the process whereby ice turns to water?	
4. At what temperature does water boil?	
5. What is the name for water when it is in a gaseous state?	
6. What is the name of the process that turns water to water vapour?	

Complete the changing state sentences using the vocabulary and knowledge you have learnt.

Changing State

below 100°C	evaporates	condenses	freezes
heat	cool	melts	0°C
	0°C	cool	heat

Using the words above complete the sentences below.

If you _____ water to a temperature of _____, it _____ to form water vapour.

If you _____ water vapour to a temperature of _____, it _____ to form water.

If you _____ ice to a temperature of _____, it _____ to form water.

If you _____ water to a temperature of _____, it _____ to form ice.



Use the questions and answers cards as a template or print the sheet to record your answers.

Use your knowledge to solve the crossword.

<https://www.youtube.com/watch?v=tuE1LePDZ4Y>



This video recaps lots of the information we have already learnt about. It also introduces you what we will be learning next week.