

Science

How do some solids, liquids and gases change state?

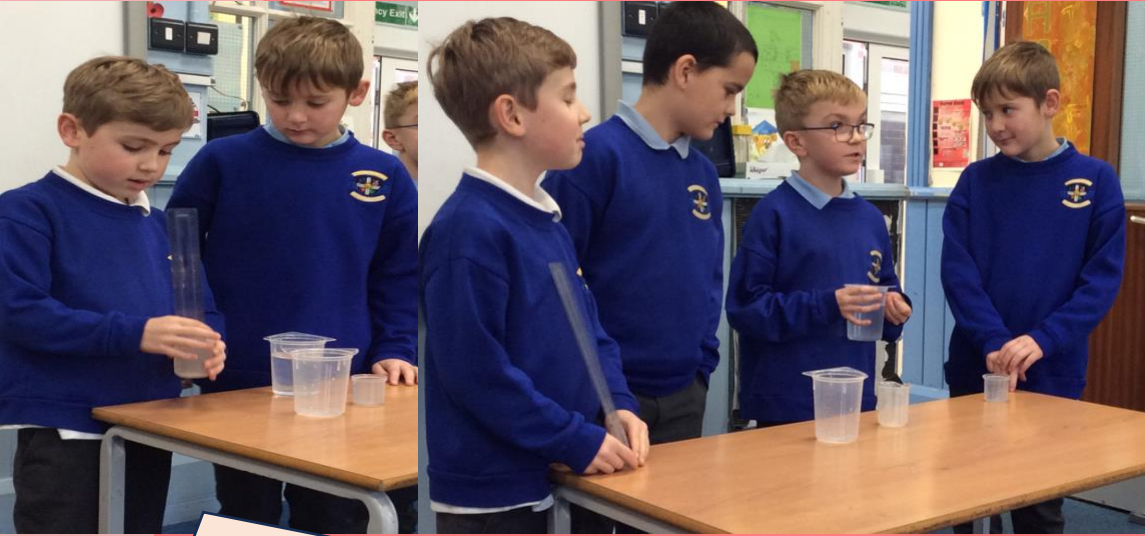


Class Tamar

Spring 1 2024

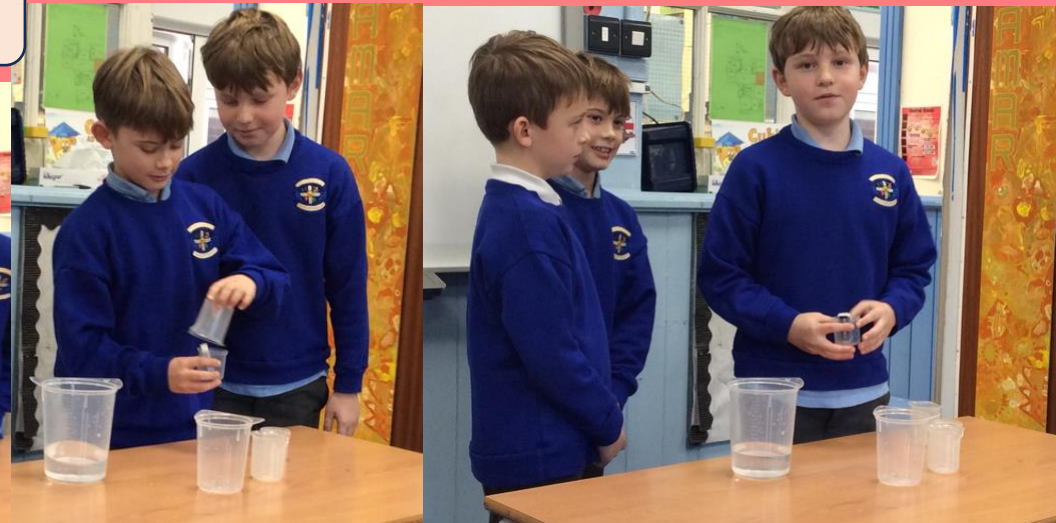
We began our lesson sorting solid, liquid and gases into their correct group. We then learnt about the properties of each. We presented our learning to the class using resources to help us explain each state of matter in detail.

When you pour a liquid to another container it fills the bottom of it.



A solid has a fixed shape and volume. When I move it to a new container it stays exactly the same.

A liquid doesn't have a fixed shape but has a fixed volume.



A gas fills the space of a container, it doesn't have a fixed shape or volume.

We planned an experiment based on how long chocolate will melt using different temperatures.

We predicted that the highest temperature will melt the chocolate the fastest because ice will melt quicker the hotter the space it is in. We discussed how we would make sure that this will be a fair test: by keeping the volume of water the same, by having the same amount of chocolate for each tray and by keeping our experiment in one place (not moving it around!).

Melting Chocolate



You will place a piece of chocolate in a foil tin and float each tin on a different temperature of water.

You will see how long it takes for the pieces of chocolate to melt at the different temperatures.

Complete your Melting Chocolate Investigation Activity Sheet with your ideas about the equipment you will need, how you will carry out the investigation and your prediction.

Then carry out your investigation in groups.

I think that the chocolate will melt at all temperatures but the hottest will be the fastest.

I think that it will take no longer than 5 minutes for the hottest chocolate to melt.

Monday 15th January 2021

I can investigate gases and explain their properties.

What temperature melts chocolate the fastest?

Equipment:

- chocolate
- Water
- Tray
- Stop Watch
- Thermometer
- Ruler
- Foil tins

This is structured beautifully, very clear.

What will I measure?

I will measure the temperature using a thermometer.

I will measure how long it takes for the chocolate to melt using a stop watch.

I will observe the chocolate.

Predictions:

1. What temperature will melt the chocolate the fastest? I think not because if it's cold it will get colder.
2. Why do you think this will happen? Because higher temperatures change it to a liquid and then a gas.
3. What do you already know that has helped you make your prediction? That whether hot it is. SAIT has been able to learn that bubbles are gas. AS I want to do it nearer.

15.1.23

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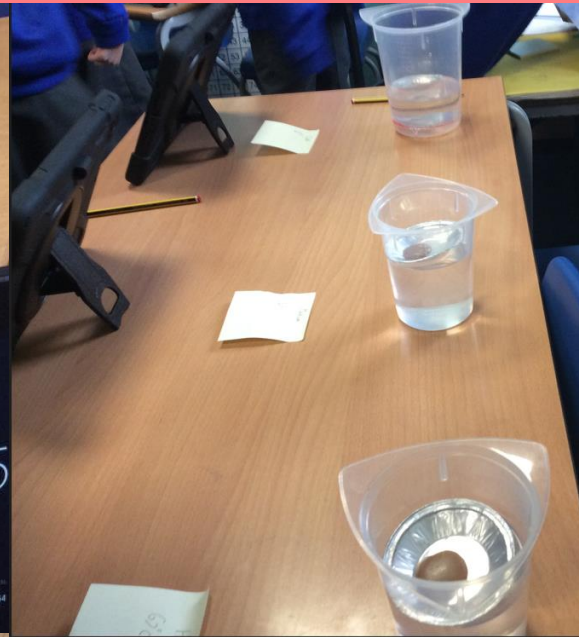
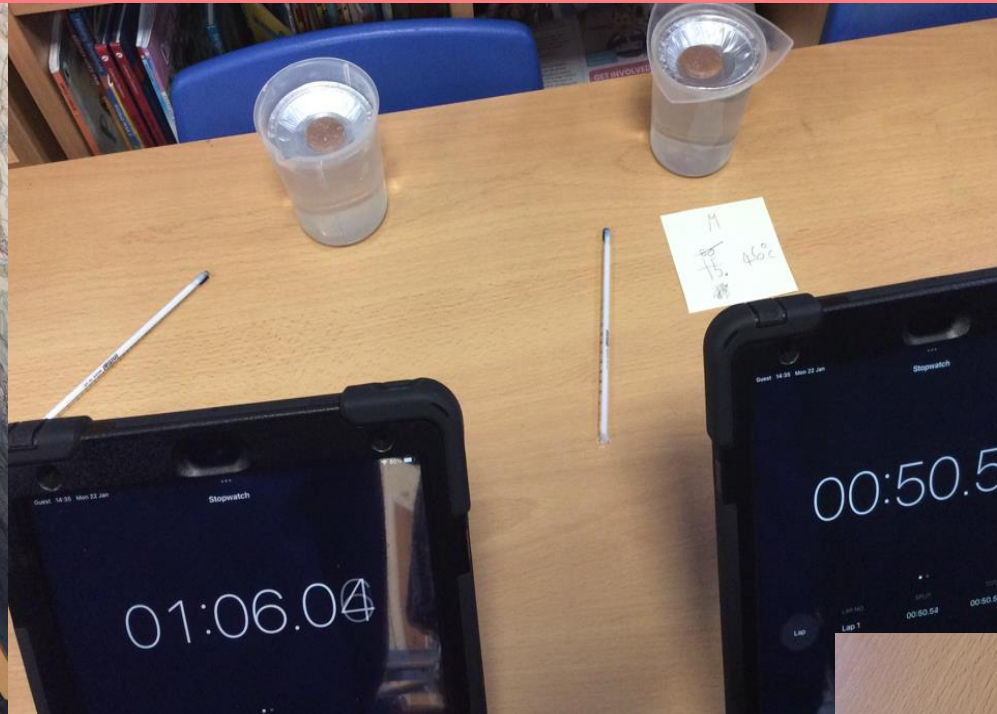
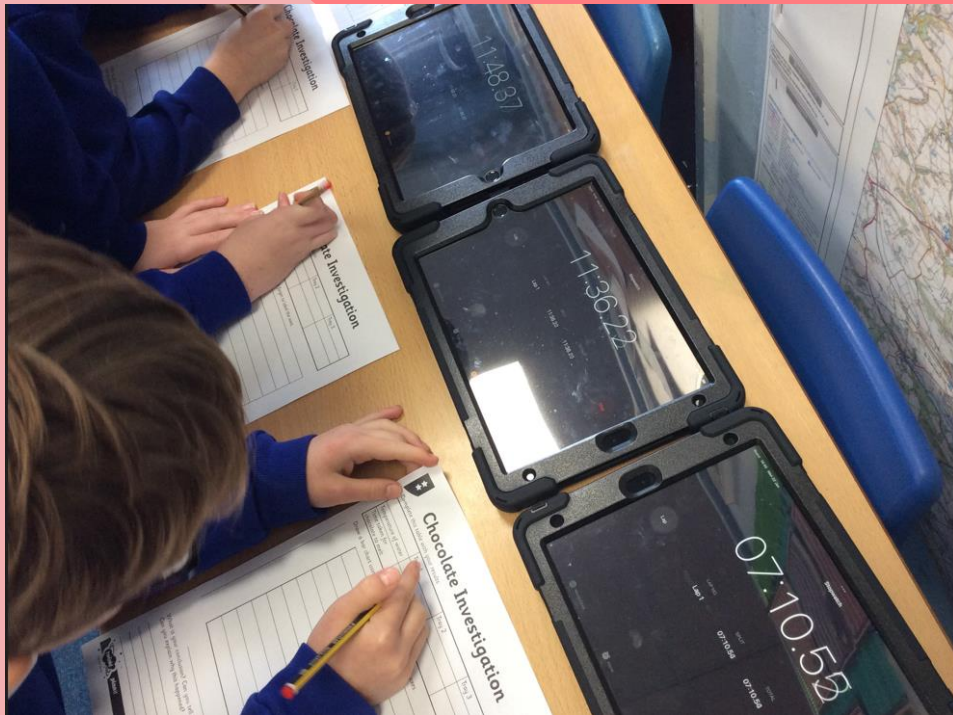
I will measure how long it takes for the chocolate to melt using a stop watch.

I will observe the chocolate.

What temperature will melt chocolate the fastest?

- ① I think it should melt in hot water.
- ② I think it because it's like ice cream! It will melt in the hot.
- ③ I know my prediction because it's like ice cream because if it stays in the hot for long it will start melting. So I'm good at science. NS I need more practice.

We set up and carried out our experiment. We found out that the highest temperature (around 65°C) melted chocolate the fastest (just as we predicted) however many of us were surprised that the chocolate didn't melt at all for the lowest temperature (18°C).

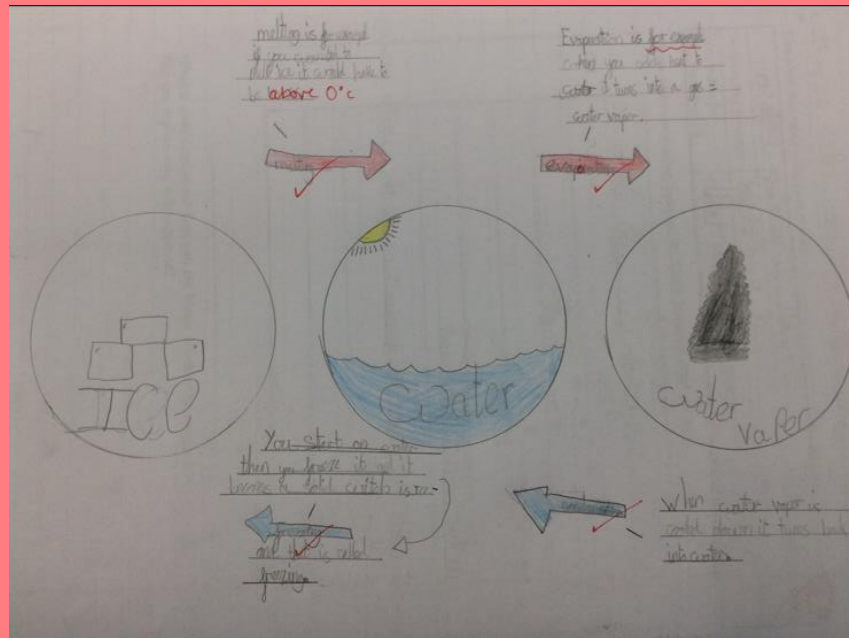


It was tricky to make sure that the experiment was set up perfectly so that it was a fair test.

The coldest temperature didn't melt at all! The chocolate is still quite hard.

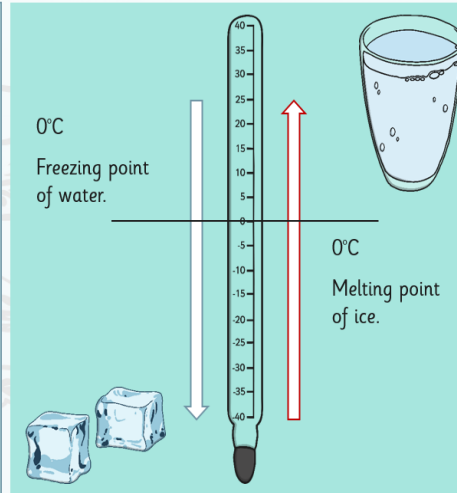


We learnt about the different ways that water changes state between ice, water and water vapour. We observed how water vapour (or steam) from the kettle turned back into water droplets when it hit a cooler object. We learnt what each processes is called that cause water to change state by either cooling or heating it and made a diagram to show this.



Melting and Freezing Points

For most materials, their melting and freezing points are the same. Although it sounds strange, think of the melting and freezing point as a barrier. If the material is heated to a temperature higher than this, it will melt. If the material is cooled to a temperature lower than this, it will freeze.

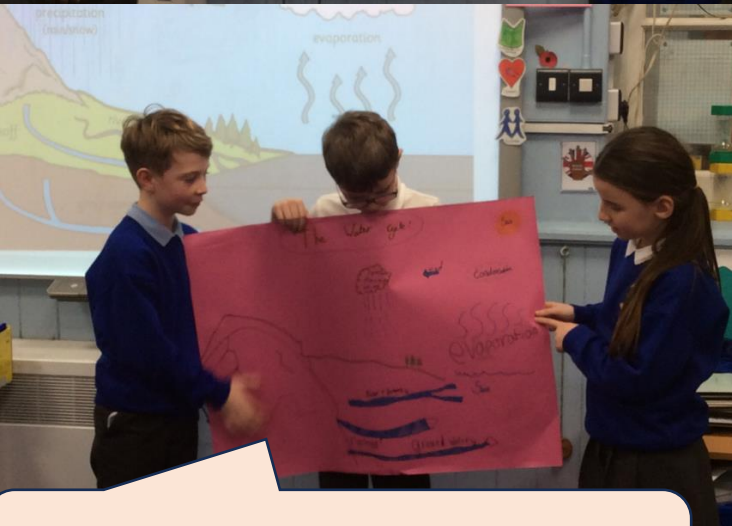
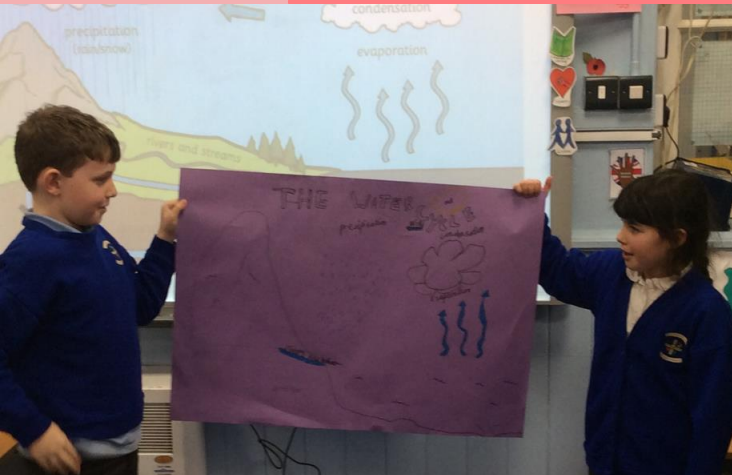


Water freezes when it reaches 0°C or lower.

Water becomes steam when it reaches 100 °c or higher, this is evaporation.

When the steam hit the whiteboard it turned into water droplets again.

We learnt about the water cycle and sang a song to help us remember the process of the water cycle. We then had a go at presenting what we had learnt to the class using our own illustrations and diagrams.



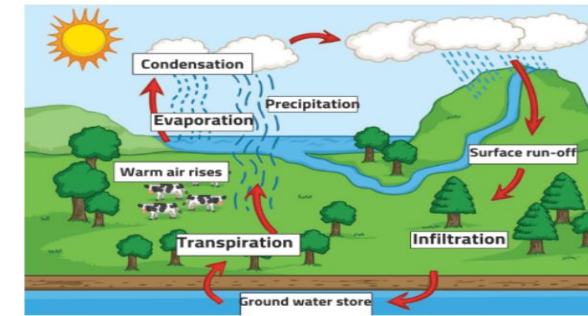
It doesn't have to be hot for water to evaporate!

The water cycle is the world's natural way to recycle water.

I've learnt that rain and snow is called precipitation.

What I have learnt before:

- In class Cremyll we learnt how to identify, name and describe a variety of everyday materials, including wood, plastic, glass, metal, water, and rock.

**Forever Facts**

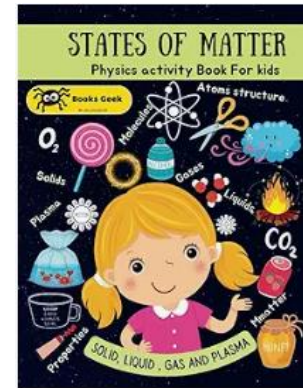
A solid is a material or object with a defined shape and a fixed volume.

A liquid is a state of matter with no fixed shape but a fixed volume

Gas is a state of matter with no fixed shape and no fixed volume.

Some materials can change state, e.g. water is in its solid state (ice) at 0°C or below, liquid state (water) between 0 and 100°C and in its gas state (steam) at 100 °C and above.

The water cycle is the natural recycling and movement of water on planet Earth

Exciting Books**Subject Specific Vocabulary**

volume	the amount of space a solid, liquid or a gas takes up
evaporation	when a liquid changes to a gas
condensation	when a gas changes into a liquid
melting	when a solid becomes a liquid
solidifying	when a liquid becomes a solid
precipitation	rain, snow, sleet and hail
degrees – Celsius (°C)	the most common unit of temperature

Our Endpoint

I can explain how solids, liquids and gases change state.

Personal development:

Develop an awareness of the world around them. Jobs you could do: working within science, education and engineering.

Skills

Measure temperature changes in water over time

Research the water cycle and how it works

Identify solids, liquids or gases