



Science

States of Matter

Evaporation Investigation



Aim

- I can investigate how water evaporates.

Success Criteria

- I can explain the effect of temperature on the process of evaporation.
- I can plan and carry out a comparative test using equipment accurately and display my results.

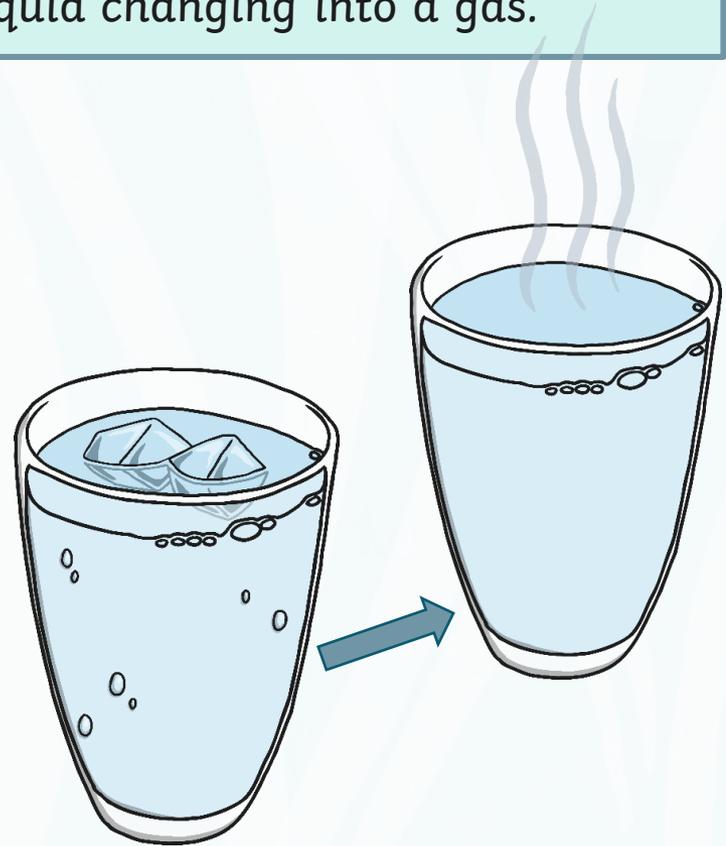
How Do Wet Clothes Dry?



Evaporation is the process of a liquid changing into a gas.

When clothes dry on the washing line, it is evaporation that causes the liquid on the wet clothes to turn into gas, leaving the clothes dry.

But how is the water evaporated from the wet clothes? Around the room are some children's ideas about what makes this happen. Have a look at each statement, think about whether you agree or disagree with it, and write your ideas around it.



How Do Wet Clothes Dry?

This boy has the answer!

The particles in a liquid have energy and are moving around each other quite fast. Some of the particles move so quickly that they turn into a gas and move away from the liquid.

This happens quickly if the liquid is boiling, but when clothes are drying it is not that hot so I think it just happens slower. Eventually all the particles will have changed into a gas and the clothes will be dry!



How Do Wet Clothes Dry?

When clothes are hung on a washing line to dry, they are exposed to heat. They are not boiling, but there is some heat.

The particles in the liquid water are moving around and over each other, and some particles move faster than others.

These particles move so fast that they change state, turning into water vapour. The particles of water vapour move away from the clothes, spreading out into the air. The particles don't turn into air!

Eventually, if the clothes are left on the washing line for long enough, all the particles of liquid water will change state into gaseous water vapour. The water will have evaporated and the clothes will be dry.



Does the Temperature Affect How Fast Towels Dry?



You are going to work in a group to plan and set up an investigation to find the answer to this question.

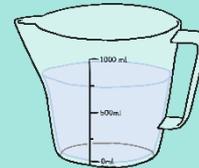
You will have access to the following equipment:



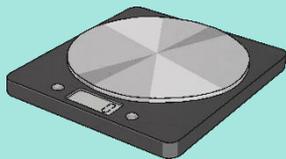
three tea towels



water



measuring jug



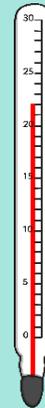
scales



washing lines



a clock



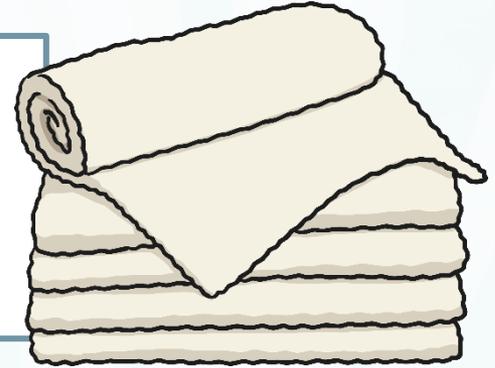
thermometer

Does the Temperature Affect How Fast Towels Dry?



You will need to decide how to use the equipment to answer this question.

You will also make a prediction about what you think the answer will be.



You must think about how you will make sure each towel is equally wet at the start of the investigation. If one towel is completely wet through but another is just damp then you won't get reliable results!

You should also think carefully about how you will be able to tell how dry the tea towels are after they have been hung up on the washing lines for some time. Will you feel them, observe them, measure their temperature, find their weight, or something else?

Does the Temperature Affect How Fast Towels Dry?



Plan your investigation on your Evaporation Investigation Activity Sheet.



Evaporation Investigation

Does the Temperature Affect How Fast Towels Dry?

You can use the following equipment:

3 tea towels 	water 	measuring jug 	thermometer 
weighing scales 	three washing lines 	three washing lines 	thermometer 

What will you do to find the answer to the question?

- How will you get the towels wet? Think about how to make sure they are equal.
- Where will you hang the towels? Think about places with different temperatures.
- When will you check the towels?
- How will you know how dry they are? What will you measure or observe? Think about the most accurate way to find out how much water has evaporated. (If you choose to use the scales, you must weigh the tea towels at the start of the investigation.)
- How will you make sure your investigation is reliable? Think about what you will keep the same, and which one thing you will change.

Write your prediction. Do you think the temperature will affect how fast the towels dry?

Carry out your investigation and record your results below.

	Temperature it was hung up in	How wet it was at the start of the investigation	How wet it was at the end of the investigation
Towel 1			
Towel 2			
Towel 3			

Evaporation Investigation

Does the Temperature Affect How Fast Towels Dry?

You can use the following equipment:

3 tea towels 	water 	measuring jug 	clock 
weighing scales 	three washing lines 	three washing lines 	thermometer 

What will you do to find the answer to the question?

- How will you get the towels wet?
- Where will you hang the towels?
- When will you check the towels?
- How will you know how dry they are? What will you measure or observe? (If you choose to use the scales, you must weigh the tea towels at the start of the investigation.)
- How will you make sure your investigation is reliable? Think about what you will keep the same, and which one thing you will change.

Write your prediction. Do you think the temperature will affect how fast the towels dry? Can you explain why you think this?

Carry out your investigation and record your results below.

	Temperature it was hung up in	How wet it was at the start of the investigation	How wet it was at the end of the investigation
Towel 1			
Towel 2			
Towel 3			

Finding the Answer



★ Evaporation Investigation

Does the Temperature Affect How Fast Towels Dry?

You can use the following equipment:

3 tea towels	water	measuring jug	
weighing scales	three washing lines		

What will you do to find the answer to the question?

- How will you get the towels wet? Think about how to make sure they are equal in size.
- Where will you hang the towels? Think about places with different temperatures.
- When will you check the towels?
- How will you know how dry they are? What will you measure or observe? Think about the most accurate way to find out how much water has evaporated. (If you choose to use the scales, you must weigh the tea towels at the start of the investigation.)
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Towel 2			
Towel 3			

When you are ready, carry out the investigation!

Record your results on the table on your Evaporation Investigation Activity Sheet.



Sharing Ideas and Evaluating



Display your results and conclusions so that others can see them.

Have a look at other children's results and conclusions.

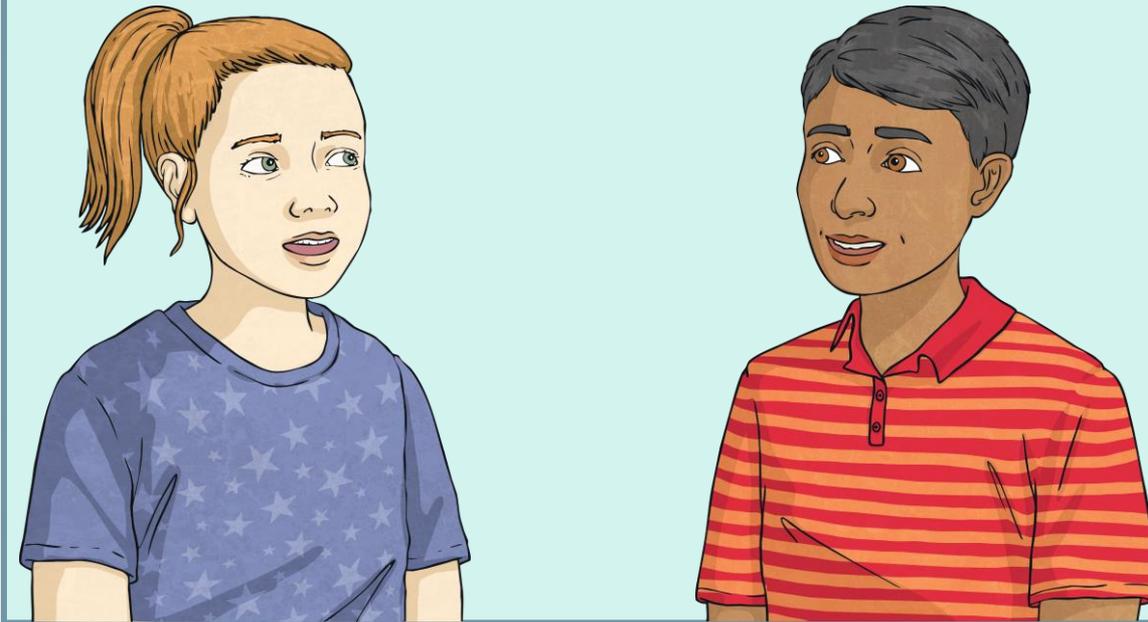
Have your classmates found out whether temperature affects how fast towels dry? Do they agree with you?

Sharing Ideas and Evaluating



How could we improve this investigation?

Are there any further questions you would like to investigate following on from this investigation?



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