

LO: I can investigate how heat affects (the rate of) evaporation.



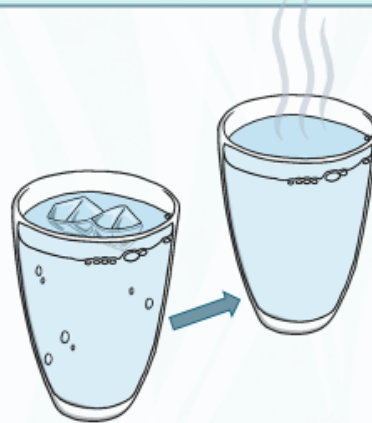
How Do Wet Clothes Dry?



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? Have a look at each of these statements and think about whether you agree or disagree with them.



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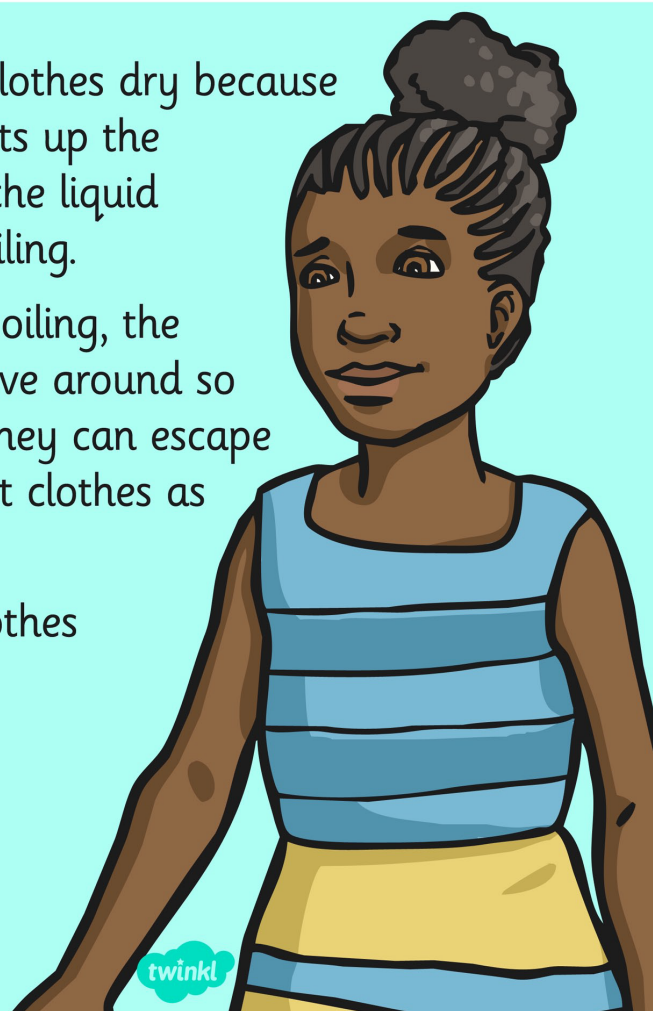
1

How Do Wet Clothes Dry?

I think the clothes dry because the Sun heats up the particles in the liquid until it is boiling.

When it is boiling, the particles move around so much that they can escape from the wet clothes as steam.

Then the clothes will be dry!



2

How Do Wet Clothes Dry?

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 the clothes will be dry!



3

How Do Wet Clothes Dry?

The Sun shines on the wet clothes and sucks the particles of liquid out of the clothes.

The liquid turns into air and the clothes will be dry!

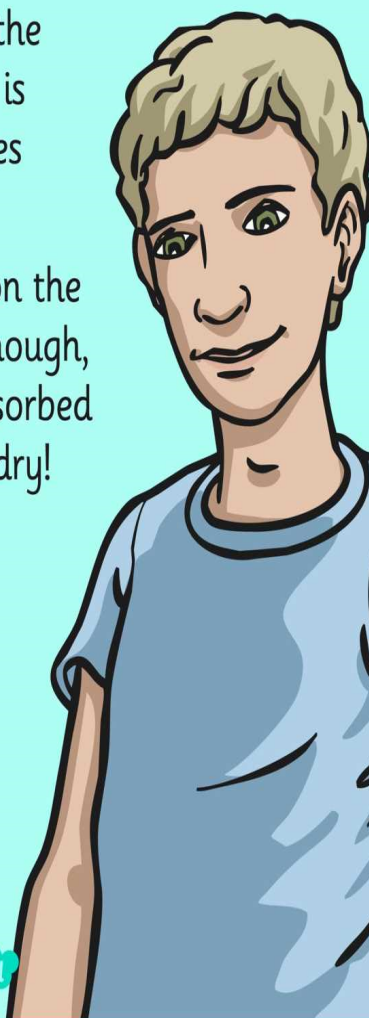


4

How Do Wet Clothes Dry?

When clothes hang on the washing line, the water is absorbed into the clothes by the Sun.

When they have been on the washing line for long enough, all the water will be absorbed and the clothes will be dry!



Which child had the right idea?

Number 2!

How Do Wet Clothes Dry?

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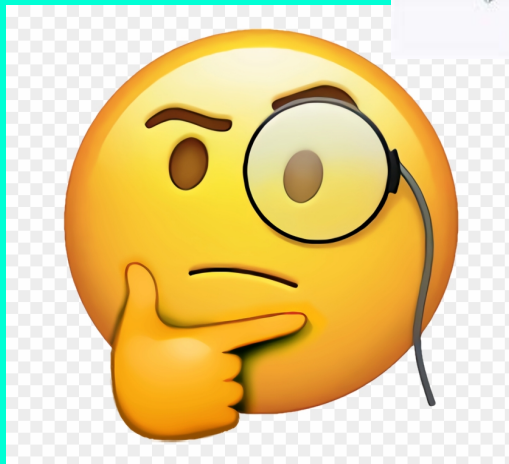
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After it has rained, our school playground is wet and there are puddles. The next day, our playground might be dry and all the water, including the puddles, has gone or, as we say, 'dried up'!



So, where has the water gone?



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.

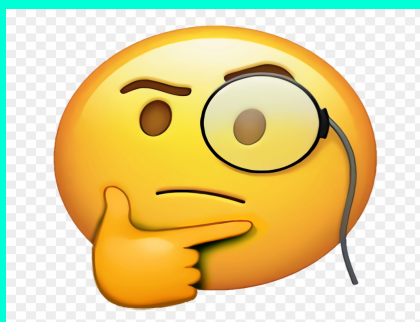


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So now we know how evaporation happens, how could we investigate how heat (warmth) can affect how fast evaporation happens?

In other words, how can we find out if evaporation happens faster or slower when it's warmer or colder?

Any ideas?



This is how we're going to investigate!



Copy this investigation into your books after you have set up the investigation!!! We will carry out the investigation when you are back in school.

Equipment (or apparatus)

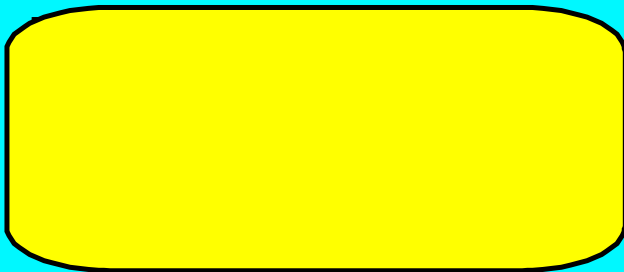
- Three paper towels
- Syringe
- Water
- Weighing scales
- Radiator
- Timer



Method

We wet three paper towels each with 5ml of water. We weighed them and then put one in a cold place (cloakroom), warm place (classroom) and hot place (radiator). We left them for 10 minutes, then weighed them again.

*When we do an investigation, we need to make sure it's a fair test.
What does this mean?*



Prediction

Based on what you have learnt about evaporation, can you predict which paper towel will lose most weight (water) in 10 minutes. This will tell us whether warmth affects the rate of evaporation.

I predict that the paper towel in the _____ place will lose most weight because _____ .

Results

	Weight at start (g)	Weight at end (g)	Difference in weight (g)
Cold place			
Warm place			
Hot place			

**The one that lost most weight (water) was the paper towel
in the _____ place.**

Conclusion


*What was our learning objective?
What have we found out?*



The _____ the temperature, the faster the rate of evaporation.

So, things dry quicker when it's warmer!

*That's why we hang our washing outside to dry in summer
and dry it on the radiators in winter!*

 <https://youtu.be/iRLqAhaniyg>

