

The Butterfly Effect

Water

Age	Activity Name	Resources
5-6	Looking at how we use water.	How We Use Water sheet
6-7	Exploring the surface of the water.	Water Surface Experiment Sheet
7-8	Filtering water through coagulations.	Coagulation Activity Sheet
8-9	Evaporation and the water cycle.	Evaporation Activity Sheet
9-10	Acid rain experiment	Egg Shell Activity Sheet
10-11	Freezing point experiment.	Freezing Point Activity Sheet
11-12	Empowering people to make more sustainable water choices.	Pens, pencils and recycled paper for planning. Camera if filming.

Teachers Notes:



Water

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11-12

We are learning...

that we use water in lots of different ways during the day.

We can now...

describe some of the ways we use water in our lives and why it's so important.



Activity

Class discussion, introduce children to the idea that we use water every day and that we need it to live. Ask the children for ideas about when we use water (to drink, to wash ourselves, to brush our teeth etc.) Show the pupils the PowerPoint images of the kitchen/bathroom etc. What happens if the water isn't there? Did you know that all living things need water? What would happen to the other living things on Earth if we didn't have any clean water for them anymore.

Digital / At Home Version

Activity can be completed in the same way.

Additional Challenge

Draw each room in a house where water is used.

Additional Support

Appropriate peer support.

Resources

How We Use Water PowerPoint.



Suggested Follow-On Activities

Water play.

UN Sustainable Development Goals

[Goal 6: Clean water and sanitation](#)
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We are learning...

that the water is home to all sorts of living things both above and below the surface.

We can now...

describe some of the things that live on and in the water. I understand that, what we, as humans, do to the water influences the lives of these living things



Activity

Discuss some of the things that live both above, and below, the water. Can the pupils name any of these. Some are huge, including the largest living animal on Earth, the Blue Whale, and some are microscopic and can't even be seen with the human eye. Today we will focus on things that use the surface of the water to skate and move around on. Complete Water Surface Activity Sheet. Show sheet digitally or on the board.

Digital / At Home Version

Complete the activity in the same way or watch the class teacher complete the activity.

Additional Challenge

Try adding alternative substances to water to see if this affects the surface in any way.

Additional Support

Complete the activity in larger groups or as a whole class.

Resources

Water Surface Experiment Sheet
1 x bowl of water
1 x sewing needle
Washing up liquid
Spoon to stir



Suggested Follow-On Activities

Investigate some of the other living things that live on or under the water. What do they all need to live healthy lives in these environments?

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We are learning...

how dirty water is cleaned using filtration.

We can now...

explain how water is cleaned using filtration.



Activity

Did you know that the water we use has been used by other humans, animals and plants many times before? The water that goes down our drains needs to be cleaned before it can be used again. There are lots of ways that water can be cleaned. We are going to look at one of the ways that water can be cleaned using filtration through a process called 'coagulation'. Coagulation uses air, like the air in soda drinks, to float the solids, or pulp, in the water, to the top so it can be separated from the rest of the water. Complete the Coagulation Activity Sheet. Show sheet digitally or on the board.

Digital / At Home Version

Complete the activity in the same way or watch the class teacher complete the activity.

Additional Challenge

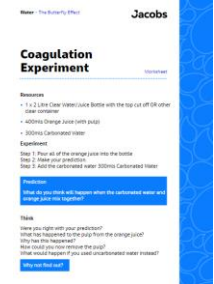
Can you find out some other ways to clean dirty water?

Additional Support

Appropriate peer support.

Resources

1 x 2 Litre Clear Water/Juice Bottle with the top cut off
OR other clear container
400mls Orange Juice (with pulp)
300mls Carbonated Water



Suggested Follow-On Activities

Use Google maps to find out where your local water treatment plant is. Investigate the website and see what you can find out about how the water is cleaned in plants such as this.

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We are learning...

about the water cycle.

We can now...

explain what happens to water in the water cycle.



Activity

Class discussion about where rain comes from. How does it get into the sky? Complete the Evaporation Activity Sheet. Show sheet digitally or on the board.

Where has the water gone/where will it go? Explain that it is absorbed into the air and will later fall as rain. Which changes sped up the evaporation process and what slowed it down?

Digital / At Home Version

Complete the activity in the same way or watch the class teacher complete the activity.

Additional Challenge

Discuss the fairness of the experiment itself. In an experiment only one factor can change at a time. Has this been achieved in this experiment?

Additional Support

Initial lesson about the water cycle if required.

Resources

Evaporation Activity Sheet

3 x 500ml glasses

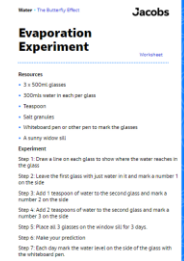
300ml water in each per glass

Tea spoon

Salt granules

Whiteboard pen or other pen to mark the glasses

A sunny windowsill



Suggested Follow-On Activities

Create a wall display to show the water cycle made from recycled materials.

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We are learning...

about how acid rain is formed and the damaging effects it can have.

We can now...

explain how acid rain is formed and describe some of the damaging effects it can have.



Activity

Class discussion, reminding the young people where rain comes from. Explain that rain, like other parts of the water cycle such as oceans and rivers, is effected by pollution in that it can become dirtied and acidic because of pollutants within the water. Explain that acid rain causes lots of damage to buildings. Can the pupils think of other things that can be damaged by acid rain? Show Egg Shell Activity Sheet and complete experiment. Show sheet digitally or on the board.

What has happened to the egg? What does this tell us about what acid rain might do?

Digital / At Home Version

Complete the activity in the same way or watch the class teacher complete the activity.

Additional Challenge

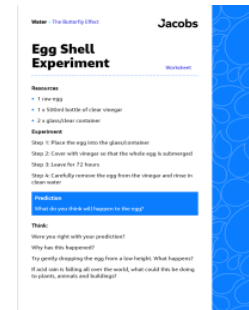
Discuss the fairness of the experiment itself. In an experiment only one factor can change at a time. Has this been achieved in this experiment?

Additional Support

Initial lesson about the water cycle if required.

Resources

Egg Shell Activity Sheet
1 raw egg
1 x 500ml bottle of clear vinegar
2 x glass/dear container



Suggested Follow-On Activities

Investigate some of the main contributors to acid rain. Can the class suggest any ways that these could be reduced?

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We are learning...

how melting ice caps cause rising sea levels.

We can now...

explain how, as the earth warms, it causes the ice caps to melt and sea levels to rise



Activity

The governments of the world come together at Climate Change Conferences, including COP27, to try to prevent the temperature increasing by more than 1.5-2 degrees Celsius. One of the many reasons why a rise in temperatures is a problem for the world is the concern around rising sea levels. Complete the Freezing Point Activity Sheet and discuss what it highlights about rising sea levels and global warming. Show sheet digitally or on the board.

Digital / At Home Version

Complete the activity in the same way or watch the class teacher complete the activity.

Additional Challenge

Discuss the fairness of the experiment itself. In an experiment only one factor can change at a time. Has this been achieved in this experiment? In science this process is called 'peer reviewing'. The findings from studies that have been 'peer reviewed' by other scientists are usually more reliable.

Additional Support

Complete the activity in larger groups or as a whole class.

Resources

Freezing Point Activity Sheet
3 x 500ml glasses
300mls water in each per glass
Tea spoon
Salt granules
Whiteboard pen or other pen to mark the glasses
A freezer



Suggested Follow-On Activities

Research online to investigate the problems caused by rising global temperatures.

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We are learning...

some of the reasons people make unsustainable choices about water.

We can now...

explain why someone might choose to use bottled rather than fresh water and explain some of the ways to encourage them to make a different choice.



Activity

Is there any reason why we should get our water from a plastic water bottle rather than a tap? Did you know that when the first companies started selling bottled water it was thought there was no way that people would buy it. Discuss why someone might choose to buy bottled water? Have a look at some different brands of bottled water; what sort of words and concepts do they promote to make the product appealing? How could you make it easier for people to make a different choice and choose a reusable water bottle? Act out an advert for a bottled water company as if you are selling a plastic bottle rather than the water inside; does it still make you want to buy the water?

Digital / At Home Version

Instead of acting out your advert make a video or design a poster on the computer.

Additional Challenge

Compare your advert to the advert created for lab-grown meat. Did you choose to do anything differently this time? Why?

Additional Support

Create a script or poster only. Use appropriate peer support.

Resources

Pencils, pens and recycled paper for planning. Camera if filming.

Suggested Follow-On Activities

Look at a map of your local area online. Where would you suggest placing water fountains so that people would get the most use out of them. Write to your local council to explain your idea and request that they consider it.

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