Topic based resource

Water

Lower Key Stage 2

Eco-Schools
Eco-Sgolion

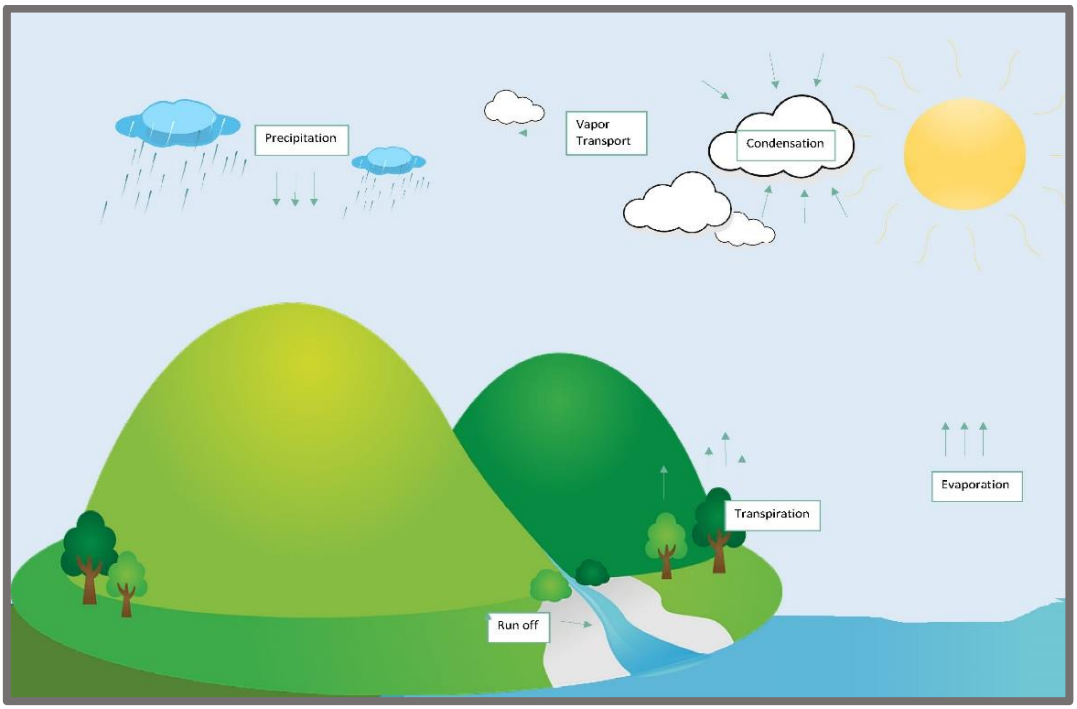
Ariennir gan
Lywodraeth Cymru
Funded by
Welsh Government

14 LIFE BELOW WATER

cadwch keep
gymru'n wales
daclus tidy

Background information

Water is one of the most important natural resources on Earth and we must learn to protect it. It is important to understand how water goes in a cycle and even after we have used it, the water continues its long journey around the circle. River systems are an important part of this, and it is important to understand their role.



Climate perspective

Although water flows in a cycle there is a delicate balance, and it is important that humans do not misuse water as this can upset the cycle. By using too much water from one area it can cause drought in that area. When water flows through our sewer systems it takes energy to convert it back into clean water so that it can be reintroduced to the cycle. We know that overuse of energy is one of the main causes of climate change which in turn is having an effect on the water cycle by raising sea level. This is one of the factors in causing extreme weather events including flooding. It is important that children understand the water cycle and their role in conserving water.

Activity – Water flow

Lower KS2

This activity explores how water flows downhill in streams, gathering into rivers before flowing out to sea. The children can talk about how flooding occurs by pouring large amounts of water down in one go, put obstacles in the streams to witness the effect of damming and then make it rain on their heads by flicking the tarpaulin and all the water up into the air!

Materials needed:

- A large tarpaulin or old shower curtain
- An area of ground with a slope
- Water in a watering can, large bottle or hose pipe.

Step 1

Place the tarpaulin on a slope and arrange ‘wrinkles’ to make streams and rivers.

Step 2

Pour the water from the top of the slope. Slowly the first time and watch how the water flows into and down the ‘streams’.

Step 3

Next, pour lots of water in one go. Does it come over the sides of the ‘streams’?

Step 4

Try putting heavy objects in the streams and sprinkle some leaves or other light debris. Watch what happens when the water flows downstream. Does the debris cause a blockage? What happens to the water as it meets this blockage?

Step 5

The next step is to think about how the landscape surface affects flooding. A hard surface such as tarmac will not absorb water so quickly which can contribute to flash floods, whereas a natural surface such as grass or woodland will absorb far more water. To test this out use the tarpaulin laid flat on the slope then use two containers of water with the same amount of water. Starting at the same time and the same height up the slope, pour one container down the tarpaulin and the other down the bank without the tarpaulin and watch to see when the water gets to the bottom of the slope. Which side reaches the bottom first?

Step 6

The next step is to work out how much water makes it to the bottom of the hill. Use a bowl or bucket to catch the water as it gets to the bottom of the ‘stream’. You can then pour it back in the bottle to see how much has disappeared.

Try the experiment again but this time without the tarpaulin. Just pour the water down the grass slope. The children should be able to see that very little water makes it to the bottom of the slope. This is because natural materials absorb water quite quickly whereas manmade materials such as plastic allow the water to run straight down which contributes to flooding. Discuss with the children how cement and artificial grass is nonporous so can contribute to problems with flooding.

Step 7

When you have finished all the experiments remove all the debris and ask the children to gather around the tarpaulin in a circle. They are going to work as a team to pick up the tarpaulin and hold it level. On the count of three they are going to flick the tarpaulin up in the air (keeping hold of it) and all the water droplets will go up in the air and 'rain' down on their heads. This will probably be quite a popular activity so have plenty of water ready to do it again!

Curriculum Links

Area of Learning and Experience - Humanities

Statement of What Matters:

Our natural world is diverse and dynamic, influenced by processes and human actions.

Area of Learning and Experience: Science and Technology **–**

Statement of What Matters:

The world around us is full of living things which depend on each other for survival.

Next steps and other ideas

- Introduce the principles of water conservation and ask the children to think about how they can save water e.g. turning off taps while brushing their teeth, having showers rather than baths, saving rainwater to water the school garden.

  Useful Websites
  https://corporate.dwrcymru.com/en/community/education/teaching-resources/primary-resources

https://canalrivertrust.org.uk/explorers/resources

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