

Let's Investigate Water

Steps for Learning 3

Geography KS2 Year 3



Let's Investigate Water: Steps for Learning 3

Geography

Key Stage 2

Year 3

Key Questions

- why doesn't the planet run out of water?
- where does our water go when it goes down the sink?
- what is the water cycle and how does it work?

Learning Outcomes

- to understand the water cycle and that it is a closed system
- to learn vocabulary associated with the water cycle

Curriculum Links

Purpose and Aims

- deepen pupil's understanding of the physical processes

Human and Physical Geography

- describe and understand key aspects of the water cycle

Big Ideas

- place
- space
- scale

Formative Assessment Opportunities

- water cycle vocabulary
- real life examples of evaporation/ condensation

Key Vocabulary

Water cycle/Hydrological cycle. Physical Geography. Human Geography.

These are also on the previous Step for Learning.

Evaporation. Condensation. Surface run-off. Infiltration. Transpiration. Precipitation.

This can also be found at the end of this PDF in printable format for your working wall.



Resources

- sandwich bags
- jar/s (or cut off plastic bottle)
- marker pens
- pebbles
- soil
- plants

Useful Links

Watch these videos ahead of your lesson. These can then be shown to the children during the Activities.

See the Water Cycle in a Bag (Science Museum Oklahoma)

https://www.youtube.com/watch?v=VZB44_X0pFw

Water cycle and terrarium experiment (Sydney Water TV)

<https://www.youtube.com/watch?v=JaJf2UrKe9A>

Links for Further Research

Make your own terrarium (Royal Botanical Gardens, Kew)

<https://www.kew.org/read-and-watch/how-to-make-terrarium>

How the Wardian Case changed the botanical world (Royal Botanical Gardens, Kew)

<https://www.kew.org/read-and-watch/how-wardian-case-changed-botanical-world>



Activities

1. Revisit: 'Why doesn't the planet run out of water?' from the enquiry wall. Discuss where water goes once it has run off the roof, playground or down the sink and where it ends up.
2. How to make a water cycle in a jar. Show the children the video from the Wildfowl & Wetlands Trust: Water Cycle in a jar (<https://www.youtube.com/watch?v=o1NSadfMefA>), which is featured on slide 4 of the PowerPoint.
Following this video, model the creation of your class's own 'water cycle in a jar'.
Emphasise the vocabulary as you create it. Can the children remember what the different terms mean?
Discuss with the children where else they can see the water cycle in action. Clue: rainfall, streams etc., but also in our bathrooms, clothes on a washing line - and even our own sweat!
3. Ask what happens to precipitation that falls on the land? Show the children the diagram of the full water cycle on slides 5 and 6 of the PowerPoint. The first has the full cycle labelled. The second slide gives the children the chance to remember the cycle, which you can then click through to reveal one at a time.
4. Now that children have seen their own 'water cycle in a jar', they can take this a step further with a 'water cycle in a bag', using sandwich bags with a seal. Model this first, with the following steps:
 - Label the plastic bag, showing the stages of the water cycle:
 - draw in the water line and a sun
 - evaporation
 - condensation
 - precipitation
 - Pour water into your bag.
 - Add some food colouring to help children see the water better.
 - Seal bag.
 - Tape the bag to a window, where it will catch the sun.

For a demonstration of this activity, watch this video from the Science Museum Oklahoma:
https://www.youtube.com/watch?v=VZB44_X0pFw



5. Following this demonstration, ask your pupils, either individually or in small groups, to make their own labelled water cycle bags to place on the classroom's windows.

The children can check their bag about an hour later (or whenever fits into your school day schedule).

They will be able to see drops of water forming at the top of the bag.

For the next week or two, ask the pupils to monitor the water cycle in their bags. Ask them whether there is ever a decrease in the amount of water? This is a closed system, so no water should be leaving or being added. Explain that this is much like Earth, with the extreme cold of the upper atmosphere coupled with gravity ensuring that the water freezes and falls back to Earth as ice and then rain.

6. Create a terrarium with your pupils. A terrarium is an indoor garden in a sealed container, basically an enclosed glass container with a display of plants. This takes the concept of the same water recycling a step further than the experiment carried out with the water bag.

- Use a glass container in which you can fit your chosen plant. You could also use a plastic bottle, after cutting off the top.
- At the bottom place small stones or pebbles. Perhaps the children could gather some from the school grounds for this!
- Place some soil on top of the pebbles. Perhaps the children could also collect some soil!
- Add some charcoal.
- Then plant your plant.
- Next add some water.
- Seal the container.
- Place it in sunlight.
- Watch and wait!

A terrarium can take a few days to 'clear' and for the water to start 'recycling', but it should be very interesting for the children to observe 'their' plant/s throughout the remaining weeks of the unit/year. Again, as in the bag, this illustrates that the same water is being recycled throughout the terrarium, and that it will not run out.

7. Ask pupils: 'How is our dirty water from washing machines, baths and toilets cleaned before returning to rivers and seas?' Post the response to the enquiry wall.



PowerPoint Presentation

The activities in this Step for Learning are practical, so the PowerPoint slides provide visuals to introduce and support them, as well as allowing you to display the videos to the class. The slides are as follows:

- Slides 1 and 2 introduce the Step for Learning.
- Slide 3 supports Activity 1. You can display this while you revisit the enquiry, 'why doesn't the planet run out of water'?
- Slide 4 supports Activity 2. It features the video, 'Water Cycle in a Jar' video, from the Wildfowl & Wetlands Trust. Simply click on the link to show it to the class!
- Slides 5 and 6 support Activity 3. They feature the diagram of the full water cycle: slide 5 with all the descriptions; slide 6 has the description animated, so that you can play the memory game first.
- Slide 7 supports Activity 4 and you can animate the descriptions while you model preparing your own 'water cycle in a bag'. It can remain as a display for Activity 5, while the children prepare their own.
- Slide 8 features an example terrarium, and can be displayed during Activity 6, while the class create their own terrarium.
- Slide 9 can be displayed during the classroom discussion for Activity 7, 'how is our dirty water from washing machines, baths and toilets cleaned?'
- Slide 10 is the closing slide.



Let's Investigate Water KS2: Keywords Flashcards



**Water cycle /
Hydrological
cycle**

**Physical
Geography**

**Human
Geography**

Evaporation

Condensation

**Surface
run-off**

Infiltration

Transpiration

Precipitation



Evaporation



Condensation



Surface run-off



Infiltration



Transpiration



Precipitation

