

## 13. Water

This unit investigates the water cycle and where our water comes from. There are a number of experiments involving water to demonstrate how water is purified and filtered before being able to use it.

Notes
<p>Due to the nature of this unit, there is a certain amount of scientific vocabulary, some of which may be unfamiliar to children and make the reading of the text more challenging. It may be useful to pre-teach vocabulary such as evaporate, condensation, precipitation, dissolve, particles, sedimentation and filtering.</p> <p>When carrying out an investigation refer to Skills: Working Scientifically on pp. 80–81 of the Student Book.</p>

Curriculum Information	
Geography	
Strand and Strand Unit	Skills
<p><b>Natural environments: Weather, climate and atmosphere</b></p> <ul style="list-style-type: none"> <li>• use simple equipment to observe and record weather phenomena</li> <li>• use analysis of weather recordings to begin to associate simple descriptions of clouds, amount of cloud cover, wind direction and other conditions with particular types of weather; make and test weather predictions</li> <li>• begin to appreciate the importance of solar energy for the Earth</li> </ul>	<p><b>A sense of place and space</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> A sense of place</li> <li><input type="checkbox"/> A sense of space</li> </ul> <p><b>Maps, globes and graphical skills</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Using pictures, maps and globes</li> </ul> <p><b>Geographical investigation skills</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Questioning</li> <li><input checked="" type="checkbox"/> Observing</li> <li><input checked="" type="checkbox"/> Predicting</li> <li><input checked="" type="checkbox"/> Investigating and experimenting</li> <li><input checked="" type="checkbox"/> Estimating and measuring</li> <li><input checked="" type="checkbox"/> Analysing</li> <li><input checked="" type="checkbox"/> Recording and communicating</li> </ul>
Science	
Strand and Strand Unit	Skills
<p><b>Materials: Materials and change – Mixing and other changes</b></p> <ul style="list-style-type: none"> <li>• explore the effects of heating and cooling on a range of liquids, solids and gases</li> <li>• investigate how materials may be changed by mixing</li> <li>• investigate the characteristics of different materials when wet and dry</li> <li>• explore some simple ways in which materials may be separated</li> </ul>	<p><b>Working scientifically</b></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Questioning</li> <li><input checked="" type="checkbox"/> Observing</li> <li><input checked="" type="checkbox"/> Predicting</li> <li><input checked="" type="checkbox"/> Investigating and experimenting</li> <li><input checked="" type="checkbox"/> Estimating and measuring</li> <li><input checked="" type="checkbox"/> Analysing</li> <li><input checked="" type="checkbox"/> Recording and communicating</li> <li><input type="checkbox"/> Designing and making</li> </ul>

### Resources

- *Explorers Geography & Science 3rd Class Digital: 13. Water: Unit Stimulus*
- *Explorers Geography & Science 3rd Class Student Book: 13. Water pp. 68–73*
- Materials for ‘Investigate: Separate Salt from Water by Evaporation’ on p. 70 of the Student Book: baking sheet, black pepper, salt water, water, cooking pot
- Materials for ‘Investigate: Separate a Mixture of Clay and Water’ activity on p. 71 of the Student Book: jar of water, garden clay
- By way of extension, it might be useful to have a number of other materials available to mix with water: cooking oil, food colouring, sugar, honey etc. A kettle, plate and fridge would also be helpful (see second bullet in the ‘Lesson Suggestions’ section).
- Investigate template is available as an online printable

### Useful Links

Scoilnet has a theme page dedicated to the water cycle:

[www.scoilnet.ie/index.php?id=989](http://www.scoilnet.ie/index.php?id=989)

NASA have a very comprehensive guide to the water cycle:

<https://gpm.nasa.gov/education/water-cycle>

The DK Find Out! website has a simple animation explaining the stages of the water cycle:

[www.dkfindout.com/uk/earth/water-cycle/how-does-water-cycle-work/](http://www.dkfindout.com/uk/earth/water-cycle/how-does-water-cycle-work/)

The National Geographic Kids website has a great explanation of the water cycle and lots of information about water conservation:

[www.natgeokids.com/uk/discover/science/nature/water-cycle/](http://www.natgeokids.com/uk/discover/science/nature/water-cycle/)

The SFI (Science Federation of Ireland) have a detailed experiment on how to clean dirty water:

[www.sfi.ie/site-files/primary-science/media/pdfs/col/cleaning\\_water\\_activity.pdf](http://www.sfi.ie/site-files/primary-science/media/pdfs/col/cleaning_water_activity.pdf)

Ask About Ireland provides some background information on water conservation:

[www.askaboutireland.ie/enfo/irelands-environment/water/water-conservation/](http://www.askaboutireland.ie/enfo/irelands-environment/water/water-conservation/)

Search online for songs about the water cycle, there are lots to choose from. One to get you started is the ‘Water Cycle’ song from Go Noodle:

<https://family.gonoodle.com/activities/water-cycle>

### Keywords

water cycle, evaporate, water vapour, condense, dissolve, mixture, water treatment plant, sedimentation, filtering, particles, sediment, disinfect

### Lesson Suggestions

- Use the digital Unit Stimulus to examine the water cycle. Heat from the Sun warms the water on the land, and in lakes and seas. Some of the water evaporates. This means it turns into water vapour (gas). Warm air rises. It carries the water vapour up high into the sky. Higher up, it is much colder. As warm air rises into the sky, it cools down. The water vapour in the air condenses. This means it turns back into droplets of liquid water. These droplets join to make clouds. Clouds are blown to different places by the wind. Over time, the droplets of water grow bigger and heavier and eventually fall out of the sky as rain. Liquid water runs across the ground and flows into rivers and streams. It collects in lakes and seas. Some soaks into the ground. Water from a puddle is not safe to drink as it might contain dirt and other harmful materials. Water from the sea is not safe to drink as it contains a lot of dissolved salt. When ocean water evaporates, the salt is left in the water. This is why rainwater is safe to drink once it has been treated.

### Lesson Suggestions

- Why not demonstrate the water cycle in your classroom using a kettle of boiling water and a plate left in a cold fridge? Hold the plate carefully over the kettle and allow the steam to condense on the surface of the cold plate – the children will be able to see the water droplets forming and when you turn the plate on its side, the droplets will fall off – simulating rain. (This activity should only be carried out by an adult.)
- Keep a water journal, detailing all of the water that the students use over the course of a day. This could be carried out over a number of days to compare usage on different days of the week.
- Make a list of all of the things that we use water for. Discuss each entry on the list and decide whether certain uses are necessary or a luxury.
- Listen to the ‘Water Cycle’ song from Go Noodle (see ‘Useful Links’)
- Collect samples of water from a number of sources e.g. water from the tap, water from a puddle outside, water from a rain gauge. Compare and contrast the samples in terms of clarity, sediment etc.
- Carry out the ‘Investigate: Separate Salt from Water by Evaporation’ activity on p. 70 of the Student Book and discuss the evaporation process. Explore how other substances such as sugar dissolve in water. What will happen when the water and sugar solution is boiled?
- Carry out the ‘Investigate: Separate a Mixture of Clay and Water’ activity on p. 71 of the Student Book and discuss the desalination process. Explore how other substances such as oil mix with water. Do they mix? Why does this happen? Try the same experiment mixing honey with water. What happens in this case?
- As per the ‘Working as a Geographer and Scientist: Estimating and Measuring’ activity on p. 73 of the Student Book. Estimate how much water is used to carry out everyday tasks.
- As per the ‘Working as a Scientist: Predicting’ activity on p. 73 of the Student Book. Examine the two images and make predictions about what will happen to each mixture as time passes.
- Choose a river that is close to your own locality. Follow the course of the river from source to the sea.

### Linkage and Integration

**Geography & Science:** 16. Whatever the Weather pp. 86–91. Also linked to *Environmental awareness and care: Environmental awareness, Caring for the environment*.

**Mathematics:** *Data: Representing and interpreting data.*

**SPHE:** *Myself and the wider world: Developing citizenship.*

**Music:** *Listening and responding: Listening and responding to music* – listen to the ‘Water Cycle’ song from Go Noodle.

**Language:** Oral discussion of water conservation and water use in general.

### Home/Parental Involvement

Discuss water usage at home with your children. Try to figure out what are the main uses of water in the household.

Keep a water journal, detailing water usage in the household over the course of a week.

Discuss how rainwater could be gathered for use in your household - a bucket for watering plants etc.