

Eco-Schools Inspiration

Water



Teaching
Resource



KEEP
NORTHERN
IRELAND
BEAUTIFUL



ECO-SCHOOLS



Contents

Water: Introduction 03

Case Study: All Children's Integrated Primary 04

Curriculum Links and Skills 08

Primary Activity Ideas 09

Post-Primary Activity Ideas 11

Other Links 13

Click on the link to go to the page

Click on the banner within this document (top left) to return to the Contents page





“ MAKING A FEW SMALL CHANGES TO YOUR HABITS CAN HELP SAVE WATER AND MONEY FOR YOUR SCHOOL. CARRY OUT A WATER AUDIT, INSERT A HIPPO BAG INTO THE TOILET CISTERN OR TURN OF TAPS TIGHTLY. WATER IS A PRECIOUS RESOURCE. ”

JANE JACKSON, EDUCATION OFFICER, NI WATER

Introduction

Schools spend around £106m a year on water. A large post-primary school can spend as much as £20,000. Careful water management together with an effective education programme can reduce water use by two-thirds. This could save a school of 600 pupils around £5,000 every year.

Schools can reduce their water consumption by assessing how much they use every day and by looking at the size of their meter, identifying leaks and drips, adapting the flow rate on taps and reducing the amount of water used in toilets.

Why Water?

Water is a crucial aspect of our lives. We use it not just for drinking and washing but also for industry, agriculture and making almost any kind of product, from hamburgers and tin cans to newspapers and cars.

Our demand for water has grown to the point that the natural water cycle can no longer keep up. Pollution, mainly caused by sewage leaks and chemical discharges, has made clean water a rare and valuable commodity.

- Less than 2% of the world's water supply is fresh water.
- Taking showers rather than baths would save enough water every week to make 1,000 cups of tea.
- A garden sprinkler uses as much water in half an hour as a family of four in a day.

Water itself doesn't cost money but we do pay water companies for recycling water to supplement the natural recycling process of evaporation and rainfall. The more we waste water and the more polluted natural supplies get, the harder water companies have to work to make sure we have enough of the clean water we need – which means bigger water bills.

Water organisations have an important role to play in managing, treating and distributing supplies to make sure that our demand for clean, fresh water is satisfied. But this process is expensive – and will become more so as our demand for water grows.

Getting started

Water, like the other topics within the Eco-Schools programme, needs to have an action plan developed after the environmental review. This action plan highlights what key actions should be taken and when to undertake them. It may also be an idea to contact your local council or some of the Eco-Schools partner organisations who may have some ideas on local projects that your school could take part in.

Schools can reduce their water consumption by assessing how much they use every day and by monitoring their meter readings, identifying leaks and drips, adapting the flow rate on taps and reducing the amount of water used in toilets.





Case Study

School: <i>All Children's Integrated Primary School, Newcastle</i>	Teacher: <i>Paula McConville and Joyce McMeekin</i>
No. of pupils: <i>220</i>	Eco-School status: <i>Green Flag</i>

Background Information

Q: Why did you choose Water as an Eco-Schools topic? What was your Action Plan?

A: As our school is located along the coastline and beside the Shimna river, 'Water' is a very suitable topic. Our school grounds were also used to install a water turbine for the Newcastle area which has inspired us to take part in this initiative. We have already achieved the Eco-Schools Green Flag so this was a great opportunity for us.

Q: How do you integrate Water into the curriculum?

A: A number of classes focus in the use of water. P5 focus on—where does water come from? (Water Cycle), Water sources at home/school, what's so special about water? How can we save water? Work of Wateraid, Rivers in our local area and around the world and the journey of a river.

NI Water organised for a local water treatment engineer to come in and talk to the P7's about water treatment and storage in the Newcastle area. This will deliver an improved standard of discharge to local bathing waters in line with future European Directives.

The Waterbus (see page 2) is a double decker bus, which has been transformed into a mobile education unit. It concentrates on the many aspects of water and is aimed at Key Stage 2 pupils.

On the Water Bus the pupils met H2O, the Water Wise Super Hero. He introduces the Wonderful World of Water and his friends Bob and Flo and their cute little dog Soggy.



Pupils learnt by presentation and demonstration about a range of water issues such as the water cycle, water for health, water sources, water and wastewater treatment, water conservation and water in the third world. The Water Bus uses a number of educational tools such as; displays, games, models, experiments, DVDs and computer facilities.

Q: How do you co-ordinate with other teachers to ensure a whole school approach?

A: We have a very committed eco-council who meet on a weekly basis with the Principal and the eco coordinator, Mrs Murray. We also meet regularly to discuss WAU topics and to ensure a whole school approach to Eco-Schools.

Q: How did you encourage pupil participation? How did they have ownership of the project?

A: The eco-council met to discuss the usage of water in our school. The children were actively encouraged to participate in planning – add ideas and knowledge to the planning boards. They took control of specific tasks and decided on how they would organise the water tasks.





Case Study

During Implementation of Eco-Schools Inspiration case study

Q: How will pupils/whole school benefit from the Eco-Schools Inspiration project?

A: Increased awareness of importance of water to our lives – to understand that water is special and should be conserved.

Q: What is your overall aim and what actions are you going to take?

A: The overall aim is to stimulate increased knowledge of the importance of water and how it can be used efficiently.

Assist children with survey of water usage and raise awareness of importance of conserving water.

Q: How are you going to spend the £500 funding?

A: Various resources to develop Water topic as well as other WAU topics e.g. Weather station.

Q: Are you going to receive any support or resources from parents, staff or outside agencies?

A: Caretaker going to assist with monitoring water usage, Principal to assist with eco-council meetings, Mrs McConville to formulate documentation.

NI Water were invited to the school to do a Key Stage 3 assembly.





Case Study

Reporting on impact of action(s)

Q: Did you encounter any problems and, if so, how did you overcome them?

A: The only problem was the usual one, time!!

Q: Is there any advice you could offer to schools undertaking the Water topic? Do you have any useful suggestions for other teachers embarking on the topic?

A: Use of the thematic unit 'Liquid Gold' developed by CCEA and written by practising teachers. The unit referred to as Liquid Gold has active learning experiences that assist teachers to make the Water Topic come alive. http://www.nicurriculum.org.uk/docs/key_stages_1_and_2/connected_learning/primary_thematic_unit/yr5/liquid_gold.pdf

This Thematic Unit is linked to the Years 5/6 ICL, The Blue Planet. Water is often referred to as Liquid Gold. In this thematic unit, children develop an understanding of the value of water and why they must not take this precious resource for granted.



Q: Has doing this topic driven other Eco-Schools ideas? What are your future plans regarding Eco-Schools?

A: We are continuing to develop resources to help utilise our school grounds more efficiently. The purchase of the digital weather station has generated great excitement and teachers cannot wait to teach outdoors!!

All Children's Integrated Primary School Action Plan 2013/2014

We need to learn about the usage of water in our school. The Eco-Committee is to undertake a number of tasks in order to better understand how much water we use and how we could conserve it.

Action	Who	When	Complete
Locate the various water sources in our school – draw a map with each location highlighted.	Eco-Committee P5 Classes	September – October 2014	Yes
Create and complete a survey of water usage over a period of two weeks – use data provided by caretaker.	Eco-Committee Caretaker Data used in P5 Classes	September-June 2014	On-going
Make/design notices to be displayed in school toilets encouraging children to conserve water e.g. turn off taps etc.	Eco-Committee All classes	October-November 2014	Yes
Speak to all classes in assembly to explain what you are doing and to highlight the need for conserving water. Show posters/labels etc.	Eco-Committee All classes	November-January 2014	Yes



Case Study

Water

Please provide figures for the amounts of water your school used for two similar periods i.e. if the figures you are providing for last year were taken in winter months, then provide figures taken from winter months in the current year as well.

Please compare the amounts of water your school used for two periods over the duration of your Water topic.

	Start date <i>for period over which water consumption was calculated</i>	Finish date <i>for period over which water consumption was calculated</i>	No. of school days in this period	Amount of water used in litres	Average No. of litres used per person per day * 230 staff and pupils	How did you measure your water consumption?
Previous Year	01/02/2013	01/03/2013	20	174800 litres	38	The caretaker got the results from the water meter
Current Year	01/02/2014	01/03/2014	20	138000 litres	30	The caretaker got the results from the water meter

*This is calculated by dividing the amount of water used by the average number of persons in the school and the number of school days in the monitoring period.

If you have experienced an increase in water consumption, please outline the reasons:

- Leak
- Increase in school population/building size
- Other, please specify _____

Make Every Drop Count



Education Resource for Primary Schools

Sample activity: Investigate how much water your family waste by leaving the tap on when brushing their teeth. Students can carry out this investigation by leaving the plug in the sink while brushing their teeth and spitting their toothpaste into a container.

When finished brushing teeth, measure how much water is collected.



Curriculum Links and Skills

The Water topic allows you to incorporate and promote **Thinking Skills & Personal Capabilities** and **Cross-Curricular Skills** into your lessons.

Lesson Suggested Learning Intentions

(taken from W.A.U. strands on Northern Ireland Curriculum website)

Strand 1: Interdependence

'How lifestyle choices can affect the health of themselves and others (S&T); about the variety of living things and the conditions necessary for their growth and survival (S&T); about issues associated with the conservation, preservation and regeneration of the environment (G).'

Strand 2: Movement and Energy

'The advantages and disadvantages of renewable and non-renewable energy sources (G); how natural disasters and extreme weather cause the movement of people and animals (G); about the impact of drought, floods on the everyday lives of people (H); how the lack of basic resources impacts on the lives of people in different countries (G).'

Strand 3: Place

'How weather affects the lives of people and animals here and elsewhere (G); about the importance and use of natural resources locally and globally (G); how locations in Northern Ireland can depend on one another (G); how some living things can change in order to adapt and survive in their environment and that there are places where living things cannot survive (S&T); about the ways in which people may conserve and change the environment both locally and globally (G).'

Strand 4: Change Over Time

'About the relevance of the water cycle (S&T) (G); about organisations who work to protect the environment and wildlife (G); how long or short term climatic changes are impacting on our environment (G) (S&T); about the effects of heating and cooling (S&T); that some substances dissolve and others do not (S&T); about the depletion of the world's resources and how this has occurred (G); that there are things we can do to prevent water pollution (G).'

Managing Information

Example: Use text and internet sources to complete a project about the importance of water for life and wellbeing.

Thinking, Problem-Solving and Decision-Making

Example: Investigate the water cycle, how it impacts upon the supply of water, provides us with clean water and its role in sustaining life on earth.

Using ICT

Example: Use the internet to discover how water is supplied and sourced in other countries. Make links with schools in Developing countries.

Self-Management

Example: Raise awareness of the changes that we all can make to improve the amount of water we use. Create some Tap Tips for children to use in school and at home.

Being Creative

Example: Create games, artwork or songs that highlight the importance of water in our lives. Use these to reinforce scientific and technological knowledge and understanding gained through other projects on water.

Communication

Example: Get in touch with other Eco-Schools from around the world, find out what they are doing to conserve water.

Using Mathematics

Example: Collect data on water usage at home and in school or on rainfall. Read, interpret, organise and present the information found in mathematical formats such as a bar chart or line graph.

Working with Others

Example: Create an awareness raising campaign on water and present this to the school. Raise money for water projects in the Developing world. Invite Trócaire or NI Water to the school to be part of a Water Assembly.



Primary Activity Ideas

Language & Literacy

Writing

- Creating presentations on the Water theme.
- Write a report on how and where water is used and how we can conserve it.
- Write an article about how a lack of water affects people in the Developing world.
- Create poems such as an acrostic about the water theme.
- Take notes during observations of water usage in the school.
- Write an outline plan for tackling a Water-based issue.
- Spellings-high frequency Water topic words.
- Phonic work in the context of the theme of Water.

Talking & Listening

- Discuss video clips related to Water.
- Storytelling.
- Interview locals about water use in the area. Where does it come from and where is it used? Ask about flooding in the local area.
- Carry out interviews with staff of organisations who look after our water and promote sustainable water usage.

Reading

- Gathering articles about Water.
- Fiction and non-fiction books on Water.
- Finding out about the impacts
- Collect a range of reading material for display which focuses on the Water theme.

Religious Education

- Explore the importance of rivers to human spirituality and wellbeing.
- Stewardship-care for the planet.

Mathematics & Numeracy

Number

- Conduct a survey on water usage in the school; apply knowledge of percentages to ascertain any change in use over time.
- Find out how much money is spent by the school on water/year. How much money could the school save by reducing water usage?
- Use the four operations to solve more complex word problems and puzzles involving numbers and measures related to a Water investigation.

Measures

- Undertake monitoring of water use in school and at home.
- Estimate, measure and record capacities/volumes using appropriate units.
- Read and interpret simple graphs and apply knowledge to solve related problems. E.g. water availability statistics.
- Relate water volumes figures to common objects. Such as swimming pools.

Shape & Space

- Fill different shaped containers with water and see how it acts? Try a similar experiment with ice.

Handling Data

- Apply findings on water through graphs, diagrams, charts etc.
- Discuss, plan, collect, organise and represent data in response to a question or statement such as have we saved water by raising awareness? Interpret information and evaluate the effectiveness of the process.
- Insert water data into a prepared relevant computer database and interrogate.
- Discuss examples of water data represented in newspapers, magazines and multimedia sources.
- Carry out a simple class/school survey on water habits. Do you turn the tap off when you brush your teeth? etc.



Primary Activity Ideas

The World Around Us

Geography

- Complete a project on your local river. Draw it on maps and pinpoint interesting or unusual features. Fly along its course using Google Maps. Zoom in on places of interest.
- Investigate the movement of water through the Water Cycle. Draw posters or build models of the water cycle.
- Measure local weather conditions, such as rainfall. Ask why certain locations have different weather conditions.
- Find out about water resources in different regions of the world.

History

- Find out how water was collected and accessed in the past.
- Research how water has been used in transport and exploration.

Science & Technology

- Investigate the importance of water to animals and plants.
- Do a project on water in the human body.
- How water is made safe to drink?
- Investigate ways to reduce water consumption. How much water do we use in everyday life?
- KWL exercise on Water.

Personal Development & Mutual Understanding

- Look at the work charities do in developing countries to provide access to clean drinking water.
- Develop care for their local environment through playing an active and meaningful part in the life of the community e.g. litter pick or gardening in the local area.
- Actively taking care of self and others near water.
- Learning how to swim.

The Arts

Art & Design

- Look at and talk about the work of local artists who paint pictures of water scenes.
- Water posters, leaflets etc.
- Have a school poster competition with the aim of designing posters to promote better use of water resources.
- Make water collection devices.

Music

- Make instruments out of recycled bottles and water. E.g. Musical glasses or water bells.
- Create musical stories, pictures, patterns, conversations etc. based on a Climate theme or issue e.g. the sounds of water.
- Compose a Water rap or song.

Drama

- Explore a range of cultural and human issues impacted by water shortages/floods by using drama to begin to explore their own and others' feeling about issues, and by negotiating situations both in and out of role.
- Use the Water theme to develop a range of drama strategies including freeze frame, tableau, hot seating, thought tracking and conscience alley.

Physical Education

- Take part in a water hike to raise money for a water charity.
- Learn about the importance of hydration in sport.



Post-Primary Activity Ideas

Environment & Society

Geography

- Study local weather conditions and data.
- Map rivers and associated habitats, look at issues surrounding run-off and water pollution.
- Look at the impact of flooding locally and globally.
- Investigate the water cycle.
- Do a project on water capture and storage. E.g. Aswan Dam, Egypt.

History

- Study the history of water treatment and sewage over time.
- Complete a project on the use of water as a transport medium, for example in Exploration.

Language & Literacy

English/Irish Medium with Media Education

- Carry out an awareness raising campaign, on the water topic.
- Write a newspaper article about the measures and initiatives that your school has adopted to improve its water use.

Modern Languages

- Make and maintain links with other International Eco-Schools. Find out initiatives they have undertaken to reduce their impact on the environment.

Physical Education

- Take part in a sponsored walk to raise money for a water charity.
- Take part in responsible outdoor practical work.

Learning for Life & Work

Local & Global Citizenship

- Actively engage and participate in a local water project/issue.
- Participate in a water action project. Raise money for developing countries.
- Research the local and global implications of lifestyle choices and our use of water.

Education for Employability

- Find out about jobs and careers in the environmental and water sectors.
- Invite representatives of the community to take part in lessons. These could include non-teaching staff, parents, former pupils, local role models, entrepreneurs and particularly employers.

Personal Development

- Managing own personal health and safety in field and lab, sharing ideas and working as a team.

Home Economics

- Water saving measures at home.



Post-Primary Activity Ideas

The Arts

Art & Design

- Communicating graphically, producing engaging presentations e.g. posters.
- Have a school poster competition with the aim of designing posters to promote the responsible use of water.

Drama

- Use drama to begin to explore their own and others' feeling about issues, and by negotiating situations both in and out of role.
- Use the Water theme to develop a range of drama strategies.

Music

- Composing and performing music in response to Water issues and in response to observations.
- Make instruments out of recycled bottles and water. E.g. Musical glasses or water bells.

Mathematics

- Solve numerical problems relating to water usage.
- Record measurements of water use at school.
- Discuss, plan, collect, organise and represent data in response to a question or statement.
- Apply findings on water use and habits through graphs, diagrams, charts etc.
- Discuss examples of water data represented in newspapers, magazines and multimedia sources.

Science & Technology

- Design a water collection system.
- Conduct a project on Water treatment, e.g. chemical, physical purification.
- Why water is important to plants and animals. E.g. at the cellular level.
- Investigate the properties of water.
- Look at how water is delivered to homes and businesses.
- Investigate hydroelectric power.

Religious Education

- Explore the importance of rivers to human spirituality and wellbeing.
- Stewardship-care for the planet.



Useful links

[Trócaire](#)



Primary resource focusing on the impact of the global water crisis. This resource aims to use active teaching methodologies to critically examine the theme of water.

[NI Water: Tools for Schools: Education](#)



[NI Water: Tools for Schools: Water Cycle](#)



[NI Water: Tools for Schools: Worksheet](#)



[Eco-Schools delivery partners](#)



Keep Northern Ireland Beautiful works closely with a number of education and environmental organisations to help deliver the programme.

[Eco-Schools Water Topic Web Page](#)



[Eco-Schools delivery partner resources](#)



[Eco-Schools document templates](#)



Click on the link to visit the website



Funded by



Administered by

