

Rivers of the World

The Story
of Water

Education Pack



Introduction and aims of this resource



Dawlish Community College
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Rivers of the World is the Thames Festival Trust's flagship art and education project, delivered in partnership with the British Council. Rivers of the World has been inspiring teachers and secondary school learners across the world since 2006, enabling young people to explore and celebrate their local environment, learn about other cultures and engage with global issues.

This learning resource focuses on a new project: The Story of Water which can be used by primary schools globally, either individually or as part of a school partnership. It provides cross-curricular activities for learners aged 7–11, and is designed to expand learners' knowledge and understanding, develop their core skills, and encourage them to explore and reflect on local and global issues. It also links learning to the Global Goals, and aims to inspire learners to develop imaginative and creative ways of expressing their commitment to the environment.

This resource:

- Supports global learning, and develops pupils' knowledge of global themes, including the Global Goals and interdependence; global learning skills, including problem solving, critical thinking and multiple perspectives; and active engagement in school and community life as global citizens.
- Supports the development of core skills, including critical thinking and problem solving, creativity and imagination, digital literacy, communication and collaboration, student leadership and personal development.
- Includes activities to support the British Council International School Award and the Arts Award.
- Provides activities to undertake with partner schools and opportunities to share educational practice.
- Encourages the use of assessment activities to help evaluate pupils' learning.



Martley Primary School
© Kate Forde

Contents

This resource is structured around six key themes, and each section contains background information, ideas for discussion and suggestions for cross-curricular activities.

Designed to be used in a variety of learning settings, it includes learning objectives, suggested additional resources, and references to global issues, to help pupils develop their skills and attitudes in relation to tackling those issues.

Each activity can be used as a starting point in individual lessons or as an element of larger cross-curricular projects and collaborative activities with partner schools. However you use these materials, we hope you enjoy your exploration of The Story of Water.

THEME 1: RIVER OF LIFE 8 – 11
explores rivers from a physical perspective, focusing on their geographical features, and provides opportunities for fieldwork.

THEME 2: RESOURCEFUL RIVER 12 – 17
investigates our water use and develops pupils' understanding of the water cycle through the skill of problem solving.

THEME 3: GLOBAL RIVER 18 – 23
focuses on a major global river, the Nile, and offers opportunities to think about the local and global issues that affect communities.

THEME 4: POLLUTED RIVER 24 – 25
helps pupils consider the environmental impact of polluted rivers, and the effect this has on communities, wildlife and the environment.

THEME 5: IMAGINATIVE RIVER 26 – 31
develops creativity in learners as they are introduced to rivers and water through the arts, encouraging them to respond creatively through literature, art and music.

THEME 6: PRESERVING RIVERS 32 – 34
develops pupils' active global citizenship by encouraging their participation in positive actions for change.



Egypt

Istanbul



Measuring Impact

How can I ensure that my pupils are developing as thoughtful global citizens?

You can measure the impact of teaching and learning through simple evaluation tools.

Before using this learning resource, it's important to investigate what your pupils already know and think about rivers and water. This will give you a starting point from which to plan effective learning activities. It will also help you understand pupils' attitudes towards important issues, such as water conservation and sustainability, so you can begin to measure deeper perceptions, as well as knowledge and understanding.

These activities have been successfully used and adapted within international school partnerships, and can be a powerful method to measure the impact of your teaching by undertaking a baseline activity and repeating this at the end of your learning cycle. Results can be shared and discussed in meaningful exchanges.

We've included one suggested evaluation activity to use before and after your learning, based on widely-used evaluation practices in the field of global learning, drawn from the online resource: <http://toolkit.risc.org.uk/>

We encourage you to use this baseline activity before starting your learning, and then again at either an interim period or at the end of the cycle, depending on the duration and depth of your project. We hope you will find this a useful way to focus your planning and teaching, and to capture attitudinal change.



My Story of Water project, Nigeria
© Polly Alakija

Baseline activity

What do I want to find out?

What your pupils think and know about the impact of their choices on the environment, the global impact of their local environmental actions, and their own willingness to take action for the environment.

What do I need?

- Nine water conservation statement cards for use in small groups (see Appendix A).
- Pen and paper to record notes of discussion.

Suggested statement cards (feel free to adapt and amend for your class):

- Have your own cup or bottle at home and school to reuse throughout the day.
- Drink tap water rather than bottled water.
- Take short showers instead of a bath.
- Water your plants with collected rainwater or cooking water, e.g., pasta water.
- Report and fix leaky taps or fountains.
- Wash clothes only when they are dirty.
- Ask your head teacher to install water-saving taps throughout the school, and to put a full bottle of water in the toilet cisterns to reduce water use when flushing.



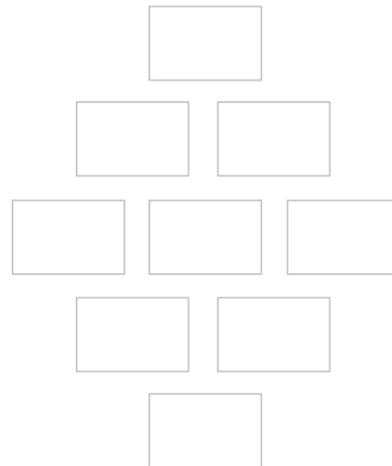
Victoria Falls, Zambia

- Use a watering can to water your plants instead of a hosepipe.
- Wash fruit or vegetables in a bowl of water instead of under a running tap.

What do I do?

Give small groups of pupils the nine statement cards in an envelope and ask them to read and consider each statement. Then ask them to arrange the statements in a diamond formation in order of importance (see diagram), with their highest priority at the top, and the least important at the bottom. There is no right or wrong answer; it's about their opinions.

Diamond Ranking Template



Pupils may ask for further clarification, e.g., whether they need to sort the cards by water-saving efficiency or environmental impact. Reassure them that this is for them to decide, but note down their responses, and allow them to discuss and arrange the cards in their own time.

For younger learners, you may want to offer four statement cards instead of nine, and have the group organise them into a four-card diamond formation.

After completing the task, each group is asked to explain their choices. Note down their decisions and, if possible, take photos of each diamond.

How do I analyse the results?

- Look and listen to what pupils decide about their priorities.
- Note any other suggestions pupils have, including any real-life water-saving actions they think of during the activity.
- In a repeat activity after their learning, note whether pupils are able to discuss the wider implications of local actions to save water. Do they make connections between their behaviour and the wider global impact?

How do I measure change?

- You can repeat the activity using the same or new cards.
- Look at whether pupils are more able to discuss the pros and cons of different actions, and whether they are better able to listen to each other's ideas.
- If you have used the activity in a partnership, look at what have pupils say about their choices and those of their partner schools.
- Listen for changes in their attitudes towards their own actions for the environment, and see if they have a deeper understanding of the impact of their actions on the lives of others. Are pupils more willing to persuade others to change environmentally damaging behaviours?

Other effective baseline activities from the same online resource:

How much water can you save?

<http://toolkit.risc.org.uk/collection/how-much-water-can-you-save/>

Re-activity

<http://toolkit.risc.org.uk/collection/re-activity/>

You can also design your own baseline activities for your class.



Ethiopian workshop
© Martha Hardy

River of Life

Learning Objectives

- Teach, think and talk about the features of rivers.
- Learn outside of the classroom by undertaking fieldwork.
- Explore the habitats and wildlife found in and around rivers.
- Use maps, atlases, globes and digital media to locate countries and geographical features.
- Use fieldwork to observe, measure, record and present using a range of methods.
- Learn how to keep safe near water.

A river that forgets its source will surely dry up
Yoruba proverb

CORE SKILLS:

Critical thinking and problem solving, creativity and imagination, digital literacy, communication and collaboration, personal development

SUBJECTS:

English, Science, ICT, Geography, Personal, Social, Health and Citizenship Education (PHSCE), Art

What is a river and why are rivers important?

Using a KWL grid, first find out what pupils' already know and would like to know about rivers.



Satellite image of mouths of Amazon river in Brazil (PD-WorldWind)

What we already Know	What we Want to learn	What has been Learnt

Ask pupils to find out what colour Earth is from space by looking at Google Earth, a globe or a photo. Our planet looks so blue because so much of it is covered with water. Each of these areas of water has a different name, but they are all connected. Introduce the vocabulary of ocean, sea and river, and that each is made of fresh or salt water.

Rivers are usually made of fresh water; they flow into the sea; they come in different sizes; and they have different names in each language, e.g., brook, stream, river.

Show a selection of images of rivers you have sourced online, and encourage your pupils to locate a number of these on a world map, globe or Google Earth.

Rivers are large, natural streams of flowing water that flow downhill, usually into the sea. On its journey, a river will cross the land and change direction and strength. On flatter land it will flow more slowly. It might meander around in twists or bends, just like a road

or path, depositing mud and soil on its banks, which enables even dry areas to be farmed by people. In steeper sections of the river, we might see waterfalls or rapids. Rivers shape the landscape through a process of wearing away called erosion.

Rivers sustain life by supplying food, water and habitats for animals, plants and humans. As a river approaches the sea, it becomes very wide, and at its mouth, sea water mixes with fresh river water. It is here where we can see an explosion of life in the form of abundant plants and green growth, and often wildlife.

As well as rivers, ask pupils to also locate their school and any partner schools. Google Maps is likely to enable street views in urbanised areas. Locate the nearest river to your school and the main rivers of each country. Ask pupils what they notice about rivers and record their observations on paper, discussing any thoughts.

Ask the class to share why they think rivers are important. As a stimulus, show them some images of domestic use, trade, transport, food and fishing, power (hydro), and religious and spiritual purposes.

As a possible homework activity, ask pupils to talk to their families about a local river, and ask what they value about this place and anything that concerns them, e.g., water pollution or flooding.

Field Trip

If possible, plan a field trip to visit your nearest river, taking account of local conditions, health and safety and risk assessments, and relevant water safety briefings. Some information on water safety is included at the end of this section. Field trips can prove to be a rich source of curriculum exchange with partner schools, where real data can be shared.

This can be used as a stimulus for future lessons, including opportunities to:

- Take water quality readings.
- Make sketches and notes.
- Take and exchange photographs.
- Create simple maps and routes.
- Consider water safety issues.
- Spot plants and wildlife.
- Investigate the history of the river (was it previously used for industry, leisure, transport, and how is it used today?).

If a field trip is not possible, you could use technology to take a virtual trip. As a starter, you could ask pupils to walk around the school looking for evidence of water, noticing where it might enter and leave the school, e.g., pipes and gutters. Children can mark these up on a plan of the school.



© Ed Stone

On a visit to a local waterway, ask pupils to make notes on the condition of the water – what they can see in it (rubbish, plants, wildlife), how polluted they think the water might be, and whether the water level is normal or in a seasonal state, e.g., in drought. Most communities have similar stories about too much, or too little, water, and these can be compared in various ways. In the UK, this is usually seasonal, but in countries with more flood-prone regions, this can be a continual danger.

Share information on your research with your partner school, and study theirs:

- Where is their nearest river? What is it used for? Is it famous for anything?
- What similarities and differences did you notice between the two rivers?
- Write down what you liked about your partner school's work and any questions you may have about their rivers.

Schools may be interested in the open source materials from the Teacher Education in Sub-Saharan Africa website on developing a sense of place, available in English, French, Arabic and Kiswahili: <https://www.open.edu/openlearncreate/mod/oucontent/view.php?id=80637>

This website: <http://www.tessafrica.net> is an international initiative offering a range of multilingual teaching materials for classrooms in low resource contexts.

Divide learners into small groups, and ask them to choose a river and create a large picture of its journey from source to mouth on the playground floor using chalk, magazine pictures and junk or recycled materials. Encourage each group to photograph the results and create an interesting fact file about their river on paper, or as a draft plan for a set of class "Top Trumps" cards.

*Top Trumps is a pocket-sized card game, and each set focuses



Ethiopian workshop
© Martha Hardy

on a different theme, e.g., transport or fictional characters. Each card contains a short list of numerical data, and the aim of the game is to compare these values to try to 'trump' and win your opponent's card. A set of around 30 works best, so asking every pupil to create their own card will provide an entire set (there should be a different river on each card). A Rivers of the World set might include numerical data on: length of river, number of countries crossed, and so on. Allow pupils to decide what information categories will be on each card, and what visual image they will include. Children play the game in pairs by holding half a set each and choosing which statistic to read out. The partner with the highest statistic in that category wins the card. Repeat until the winner holds all the cards!

Water safety

Field trips can be valuable experiential learning opportunities, but they also come with risks. In a global context, drowning is a silent epidemic that

claims an estimated 360,000 lives every year, many of them children. This shocking fact receives little global attention. It is, therefore, vital that children have the awareness and skills to stay safe near water on visits, and at all times.

The Royal National Lifeboat Institute, a UK charity, have developed the *Aquatic Survival Water Safety Education Manual (2017)* for low-resource areas, which is available to download here: <https://rnli.org/what-we-do/international/international-resources>

This education resource includes classroom-based lessons that deliver ten water safety messages through interactive, hour-long lessons, using a variety of techniques, including picture cards, song and dance. This resource would be particularly appropriate to use and share with partner schools in low-resource contexts.



Palestinian workshop
© Amer Shomali

Resourceful River

Learning Objectives

- Understand the water cycle.
- Understand similarities and differences in water use and wastage.
- Preparing to play an active role as citizens.
- Carry out real-life practical filtration and problem solving activities and investigations.

This section emphasises the importance of rivers as vital resources fed by the water cycle, and the fact that they need to be preserved for current and future generations.

Water is so much a part of our daily lives that we sometimes take it for granted. Where does this water come from, and how can it be the same water that was here before humankind even evolved? The answer is the water cycle – the essential system for making sure rain falls, from which rivers can start to form.

When the well's dry, we know the worth of water

Benjamin Franklin

CORE SKILLS:

Critical thinking and problem solving, communication and collaboration

SUBJECTS:

Maths, Science, Geography, Personal, Social, Health and Citizenship Education (PHSCE)

Introductory activity

Gather your learners around a covered bowl or container of water. Tell them you are about to show them something that could be a billion years old. Ask them to guess what it might be.

Reveal the bowl of water. The pupils are likely to be disappointed at first! But this is when you can share the important fact that all of the water in the world – in the rivers, the seas, the vast oceans and polar ice caps, and even water hidden underground – just keeps moving around the planet and the atmosphere, changing in state, from rain to sea, from water or ice. This is the same water that has always been on Earth. Rather mind boggling!

Show the class a globe or Google Earth, and ask them to estimate how much of our planet is covered in water. The answer is about 70 per cent. Ask how much of this water they think we can drink? Freshwater – the water we need to drink – makes up a tiny fraction of all water on the planet, and only one per cent of our freshwater is easily accessible for drinking. You could demonstrate this by dropping a small drop of food colouring, paint or dark vinegar into your bowl of water, to show just how tiny a fraction this might be.

If we already have all the water on earth we will ever have, this means we need to look after it very carefully. Our water is so ancient that it is perfectly feasible that a dinosaur once drank your next drink of water, too! Water can be fresh, but never new. It just keeps cycling around in what's called the water cycle.



Sierra Leone



Taiwan

Water use diaries

Ask learners in your class, and any partner school classes, to keep a water use diary over the course of a week. Take photographs of or draw the daily activities that use water, and share these in class and with your partner school. Compare and contrast water use amongst pupils. You could analyse this real-life data in maths lessons.

In a comparison activity, ask pupils to calculate their water consumption for the whole week, and then calculate that as a class total. Again, compare this with your partner school.

You can use the following estimates based on average UK use. Have a one-litre jug available, so pupils can see what a single litre looks like. A larger copy of this sheet is available in Appendix B.

Water I used today	Amount of water (litres)	Total water used							Week
		M	T	W	T	F	S	S	
Taking a bath	80 litres								
Taking a shower	5 litres per minute								
Flushing the toilet	9.5 litres								



Ask learners:

- If working with a partner school, which class is more responsible with water?
- How can we help each other conserve water and waste less?
- How can we share our learning with our communities?
- What can we do to reduce our water usage?

Images of the water cycle in 36 different languages can be downloaded from: https://www.usgs.gov/special-topic/water-science-school/science/water-cycle-schools-and-kids?qt-science_center_objects=0#qt-science_center_objects

Interactive versions, from beginner to advanced level, are also available at: <https://water.usgs.gov/edu/watercycle-kids-beg.html>

The water cycle

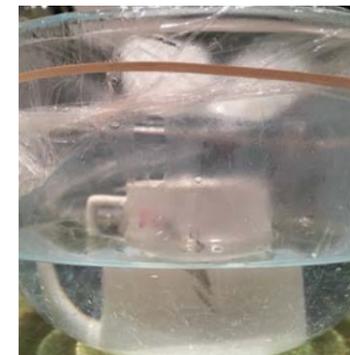
Share images and, if possible, an animation of the water cycle with your pupils, and inform them that they are going to make their own mini water cycle!

Make your own mini water cycle

You will need:

- A large, clear bowl
- Plastic wrap/cling film
- A rubber band
- Ice cubes
- A ceramic mug

What to do



Place the mug or cup in the middle of the large bowl. Fill the bowl with water to around halfway up the side of the mug (be careful not to spill any inside of the mug). Using warm water will speed up the experiment. In this example, the teacher has placed some fine sand to make any water droplets more apparent. Cover the bowl with the cling film, and secure it with the rubber band. You can double-wrap the cling film if you have no rubber band.

Place two or three ice cubes on the centre of the cling film, and put your water cycle somewhere warm, e.g., outside in the sun, or on a sunny windowsill.

How long does it take for the water (which represents the ocean) to evaporate and condense on the inside of the cling film? Where does the water go after it condenses? In this example, the water droplets have 'precipitated' into the mug (which represents land).

What's happening?

The heat of the sun evaporates the water (oceans, rivers, seas), which then rises and hits the cooler atmosphere (ice cubes). At this point it condenses on the cooler plastic, and falls

as precipitation (rain) into the mug. After an hour or so, you should see a small amount of water has fallen into the mug. You've created a replica of Earth's water cycle!



How do people get their water?

In many parts of the world, people have no direct access to clean water at home. Families must walk long distances to reach a source of water, and this water may still be polluted. It is often children who might help their families in this way, which is an example of how a local issue relating to water and sanitation is linked to other global issues, such as Global Goal 4, Quality Education. If children need to support their families by fetching water several times per day, they have less time for learning and, sometimes, even attending school.

Filtering dirty water activity

Ask pupils if they think muddy water can be turned back into clean water. Explain that filtration is a vital step in the treatment of water to make it safe to drink. Drinking dirty water can make us very ill, and as we've found out already, many people in the world do not have access to clean drinking water.

You will need:

- A sample of muddy water in a jug (note: pupils should be reminded not to drink the water sample).
- A funnel or large, clear plastic bottle with the top cut off.
- A beaker.
- Fine sand, clean gravel and clean small stones; large stone or wire mesh.



Ethiopian workshop
© Martha Hardy

Put a large stone or a piece of wire mesh over the hole inside the funnel/bottle. This will hold the filter materials in place, whilst still allowing water to drip through. Add a layer of fine sand, a layer of gravel, and, finally, layer of small stones. This forms the filter. Place the funnel over a beaker, and slowly pour some muddy water into it. Ask the class to observe the muddy water passing through the filter made from the stones, gravel and sand.

Compare the water that has passed through the filter and collected in the beaker with the muddy water that is still left in the funnel.

My Story of Water project, Nigeria
© Polly Alakija



How well does the filter work? How clean is this water? What do you think has happened to the mud in the water? Explain that this experiment replicates, in a very simple form, one of the stages of water treatment and natural filtration.

Ask pupils if they think this is now clean enough to drink. The answer is no, as drinking water must go through a series of processes to be clean enough to drink. It might look clean, but it might contain harmful bacteria.

Water problem-solving activity

In many schools around the world, there is no access to clean water or sanitation. Your school or partner school might be faced with this very real situation, which should be addressed sensitively in classroom exchanges. In this activity, imagine a context in which there is no water supply in your classroom. Perhaps it has been cut off due to drought. How could we get clean water to our class if we have no tap?

In groups of three, encourage pupils to discuss how to solve this problem. What equipment, if any, would they need? Ask them to make drawings and notes on their ideas. In contexts where this is a real problem, it must be sensitively addressed by schools, and include partner schools as you see fit.

Share the ideas in class and ask pupils to vote on the solution they think will be the most successful. Gather the resources needed, and allow children to carry out their water carrying ideas. Alternatively, set this as a challenge of moving water from one side of an outside area to another, e.g., across the playground, or to water some plants, in small teams. This task will enable learners to apply practical mathematical skills in relation to volume, which may need to be pre-taught.

In a class plenary, discuss the problem-solving activity of transporting water. This is a good activity to do once learners have discussed how much water is used in their own lives, as it gives a real sense of the volumes of water we use – and, perhaps, waste.

Exchange your learning with your partner school. What are their experiences of domestic and school water use?



Ethiopian workshop
© Martha Hardy

Global River

Learning Objectives

- Understand that access to resources such as clean water is unfairly distributed around the world.
- Understand the Global Goals.
- Understand the global river and some of the issues for the citizens of the countries it runs through.
- Understand similarities and differences through an international study.

What are the Global Goals?

Water is so important to us, that, in 2015, when world leaders agreed on 17 goals for a better world by 2030, they included two goals in relation to looking after our planet's water.

These goals, known as the Global Goals, or Sustainable Development Goals, have the power to end poverty, fight inequality and stop climate change. Guided by these goals, it is now up to all of us to work together to build a better future for everyone. Whilst these goals are all connected, two are closely linked to this resource:



https://support.wikimedia.org/wiki/Project:Commons:4-16/Sustainable_Development_Goals.jpg

A river seems a magic thing.
A magic, moving, living part
of the very earth itself.

Laura Gilpin, *The Rio Grande* (1949)

CORE SKILLS:

Critical thinking and problem solving, digital literacy, communication and collaboration, personal development.

SUBJECTS:

English, Geography, History, Personal, Social, Health and Citizenship Education (PHSCE).

Global Goal 6: Clean Water and Sanitation – this is about providing clean drinking water and sanitation for everybody on our planet, helping to reduce unnecessary suffering, illness and loss of life.

Global Goal 14: Life Below Water – this is about protecting our precious oceans, seas and marine resources, so we can responsibly manage and protect all marine life around the world.

Together as a class, you could investigate these two goals within the context of the 17 Global Goals as a whole. Ask your pupils to visit the Global Goals or the World's Largest Lesson websites (links available below) to find out what the aims of the goals are and what actions we can take to support them.

Watch an animation introducing the goals together as a class: <https://worldslargestlesson.globalgoals.org/>

In pairs, ask pupils to research a goal each, with the aim of being able to explain that goal to a friend in more detail, along with a suggestion on how they could support that goal. For example, to support Global Goal 14, we could commit to never throwing anything in the toilet other than toilet paper, to avoid creating blockages in waterways. Using the World's Largest Lesson activity passport, in a 'market' activity, ask pupils to mix and mingle with the whole class, perhaps in a larger space outside, with the aim of completing all of their Global Goal activity cards.

As a 'talking homework' activity, ask pupils to discuss what they have found out with their families, and, if possible, to show one of the animations on a mobile device. Do parents and carers already know about the Global Goals?

Print out and keep a copy of the Global Goals on your classroom wall. During your study of rivers – and perhaps during other learning activities throughout the year – ask pupils to acknowledge when they can see a link to a certain Global Goal, and record this by putting a mark on the wall printout each time. This could be developed into a longer term project with your partner school, where pupils become ambassador 'goal keepers'.



The United Nations Convention on the Rights of the Child

As well as the Global Goals, all children everywhere have a set of rights that are there to protect them. The United Nations Convention on the Rights of the Child (UNCRC), from 1989, sets out a series of articles, which state every right that every child, no matter where they live, should have.

Suggested websites:

<http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

<http://globaldimension.org.uk/resources/search/?fwptopic=sustainable-development-goals>

<http://worldslargestlesson.globalgoals.org>

<http://www.un.org/sustainabledevelopment/wp-content/uploads/2015/03/SDGs-child-friendly.pdf>

<https://www.unicef.org/sop/convention-rights-child-child-friendly-version>



Felucca boat



“Every child has the right to the best possible health. Governments must provide good quality health care, clean water, nutritious food and a clean environment so that children can stay healthy. Richer countries must help poorer countries to achieve this.”

UNCRC, Article 24



River Nile

Global rivers: the Nile

The Nile, which many recognise as the longest river in the world, is not just an Egyptian river. It is fed by two rivers: the Blue Nile, which originates in Ethiopia, and the White Nile, which starts in South Sudan. Both rivers merge in Sudan to form the main waterway, which flows north through Egypt to the Mediterranean. It flows through 11 countries altogether.

Look at satellite pictures of the green growth surrounding the Nile in Sudan and Egypt as it heads north to the Mediterranean. You can use the satellite setting on Google Maps or Google Earth.

Additional materials:

<https://www.natgeokids.com/uk/discover/geography/physical-geography/nile-river-facts/>

The Nile has not flooded since the Aswan High Dam was built in 1970. This huge construction controls the flow of the river to generate electricity, irrigate (water) farms and provide homes with drinking water.

A brand new dam is being built in Ethiopia on the Blue Nile, called the Grand Ethiopian Renaissance Dam.

Share this 360 interactive video, called 'Damming the Nile', with your class, and ask them to consider different viewpoints to prepare for a class debate: <http://www.bbc.co.uk/guides/zb3ggdm>

The dam is being built to provide hydroelectric power to Ethiopia, meaning they can turn water on and off upstream, before it reaches Egypt. This has raised concerns.

Who might benefit from this dam? Who might lose out?

Some people fear it will lead to water shortages, which could lead to war and conflict in such a dry region of the world that is already dealing with the pressures of climate change.

The original uploader was DanMS at English Wikipedia. [CC BY-SA 3.0 <http://creativecommons.org/licenses/by-sa/3.0/>], via Wikimedia Commons



Happenny Bridge

What issues affect us locally and globally?

Schools with international partnerships can investigate local, national and international issues that affect communities.

Some issues to consider are:

- **Flooding:** compare flooding or rising water level in local rivers and any measures being taken to make this less damaging.
- **Pollution and waste pollution:** look at both domestic and industrial waste and its impact, e.g., how plastic waste impacts on the environment, humans, and animal and plant biodiversity.
- **Sanitation:** look at access to safe toilets, washing facilities and safe, clean drinking water.
- **Access to water:** investigate the distance to a safe source of water, drainage, and irrigation for growing food crops.

Ask pupils to think what life is like for a variety of communities by sharing some global stories from Gapminder's interactive website:

<https://www.gapminder.org/dollar-street/matrix>

and look for comparisons of domestic water use around the world

Your partnership work or classroom research will highlight that there is unequal access to water resources. Drought, water shortages and water conservation raise questions about rights and responsibilities, power and poverty, and consumption and sustainability.

These can be explored further through Philosophy for Children activities (see Theme 5 for more details) and linked back to your water diary activities, comparing fair usage.

Polluted River

Learning Objectives

- Build on pupils' developing knowledge of environmental issues
- Begin to form opinions and share learning for positive benefits locally and internationally through partnerships.

Water pollution is a serious problem for a number of communities globally. Often families and communities, through no fault of their own, have to live with the environmental damage caused by the poor decisions of industries and international organisations, leading to polluted drinking water and damage to their health and wellbeing.

Two such examples of mass river pollution are in Nigeria, in Africa, and Colombia, in South America.

The banks of a river may belong to one man or one industry or one State, but the waters which flow between the banks should belong to all the people

Lyndon B. Johnson

CORE SKILLS:

Critical thinking and problem solving, creativity and imagination, communication and collaboration, student leadership, personal development.

SUBJECTS:

English, Science, Geography, Personal, Social, Health and Citizenship Education (PHSCE), Design Technology, Art.

Oil spills in the Niger Delta, Nigeria

Oil spills in the Niger Delta, in Nigeria over the past five decades have contaminated a 386 square-mile (1,000 square-kilometre) area with disastrous consequences for human health and wildlife. Estimates say it will take 25-30 years to restore the environment. Impacts include:

- Contaminated land and underground water sources, even 40 years after oil was spilled.
- Dangerously polluted drinking water.
- Contaminated soil, up to five metres deep, meaning crops cannot grow or are poisonous.

A physical representation of this can be carried out in the classroom by pouring oil into a container of water allowing learners to observe what happens. Dropping feathers found outside into the liquid can replicate the damage to wildlife, e.g. how this would impact a bird's ability to keep clean and dry, their need for thermal insulation, or their swimming and flight capabilities, which are likely to be devastated. Trying to clean feathers with water will be unsuccessful and will require detergents. Carry out an activity with oil, feathers, an old toothbrush and some household detergent to demonstrate how oil removal is so difficult.

Niger Delta: an Amnesty International mission delegate's fingers covered in oil from an oil spill at Ikarama, Bayelsa State. This photograph was taken by Amnesty International researchers eight months after the spill. There are often long delays in cleaning up after oil spills in the Niger Delta <https://www.flickr.com/photos/jennifarr/3967961775/in/photostream/> credit Amnesty International, CC BY-NC-SA 2.0.

Oil spills in the Magdalena River, Colombia

In 2018, 23,000 gallons of crude oil spilt into the Magdalena River, in Colombia, killing more than 2,400 animals, including cattle, fish, birds and reptiles. More than 1,000 tree species in the area have been damaged and local families have become so ill that they have needed to be moved to new homes.

A physical representation of this can be carried out in the classroom, by pouring oil into a container of water and dropping feathers found outside into the liquid. Trying to clean the feathers with water is likely to be unsuccessful and will require detergents. An experiment to demonstrate this can be carried out using this idea: <https://gb.education.com/activity/article/oil-spills-harm-wildlife/>

As these cases and the experiment show, oil spills can be devastating to humans and animals, and they can be the cause of serious illness, death and even conflict or war.

How do these global issues link to the Global Goals? And what can we do about them?

Some communities that lie below sea level are already suffering from the effects of climate change. Farmer's fields have become flooded with water, making their ability to grow crops extremely difficult. In Bangladesh, this is a problem right now.

Classroom investigation

Ask pupils to work together to design and build a sustainable solution to a problem. In this activity, we will design a flood-proof way to grow food – a floating garden. Can we design and make a structure that will enable us to grow crops that float, e.g., on small rafts? Full instructions can be found at: <https://practicalaction.org/schools/floating-garden-challenge/>

Ask your pupils to make a poster about the dangers of environmental damage to wildlife. They can take one issue each (e.g., oil spills) or one animal (e.g., turtles) and share ideas for maximum impact. Display the posters around the school and ask pupils to be ready to explain their posters to others learners. You can tell them that this is a similar way to how students at universities sometimes share their work.



Imaginative River

Learning Objectives

- Develop critical thinking skills through Philosophy for Children activities.
- Enjoy and respond to literature, music and visual art.
- Appreciate the importance of rivers and water to a wide variety of individuals and communities.

A celebration of rivers through the arts

Many visual and musical artists from different times and cultures have created works depicting rivers. If possible, try and visit a gallery as a class, carry out a virtual tour online or invite a local artist into your school to talk about their work.

The National Gallery is one of many national treasures where you could take a virtual field trip: <https://www.nationalgallery.org.uk>

Artists sometimes create art to inform and to educate, e.g., as a statement about the way humans are treating their planet. Several examples use junk or waste materials to show the vast amount of plastics that end up in rivers and oceans.

This short film shows how artists installed a huge whale in a canal in Bruges, Belgium, made from five tons of plastic waste: <https://www.designboom.com/art/studiokca-whale-plastic-waste-bruges-triennale-ocean-pollution-installation-06-27-2018/>

Raise your words,
not voice. It is rain
that grows flowers,
not thunder

Rumi, 13th Century

CORE SKILLS:

Critical thinking and problem solving, creativity and imagination, communication and collaboration, personal development.

SUBJECTS:

English, Geography, History, Religious Education, Personal, Social, Health and Citizenship Education (PHSCE), Design Technology, Art, Music.

Investigating rivers through literacy and language

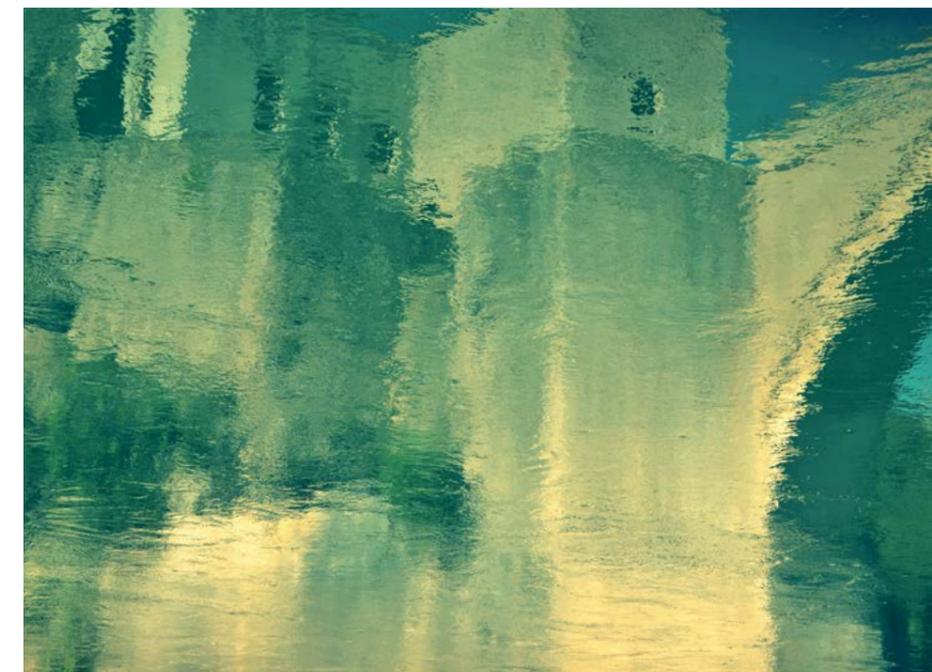
There are a wealth of story and picture books that use rivers and water as their themes. Read fiction and non-fiction books, and look at picture books, relating to rivers and/or the effects of pollution on people and the planet as a class. Ask pupils to share these books at home.

Suggested books:

- *Dinosaurs and all that rubbish*, Michael Foreman
- *Angel Falls: a South American journey*, Martin Jordan
- *Manu and the talking fish*, Roberta Arenson
- *Minnow and the bear*, Ben Blathwayt
- *One Well: the story of water on Earth*, Rochelle Strauss
- *Where the forest meets the sea*, Jeannie Baker (for younger learners)

Examples of other literacy activities:

- Develop oracy through roleplay and debate, e.g., P4C activities (see below).
- Debate issues from multiple perspectives, e.g., citizens in a flood-prone area, farmers in a drought-hit region, fishing communities, businesses and subsistence farming communities. Use hot seating and freeze framing as a tool.
- Talk and write about developing opinions on these topics, inform others about what you find out, by raising public awareness and take action for change.
- Design and make water-saving posters to inform and educate your community. Promote one or more ideas for saving water – choosing from the list in the baseline activity or pupils' own ideas.
- Write explanation texts to describe the water cycle.
- Respond to shared texts, or the wider theme of rivers, through puppetry, by creating animations with plasticine or small world play, or by writing newspaper reports.
- Use existing artworks as inspiration for your own art works, e.g., through relief collage or creating small books for younger readers.



River Neretva, Mostar

Philosophy for Children (P4C)

P4C is an approach to learning and teaching where young people are taught how to create their own philosophical questions through a 'community of enquiry' approach, or by exploring a question that has lots of answers. The teacher, as facilitator, supports the learners in their thinking.

P4C benefits children as it helps them develop higher order thinking skills and communication and cooperation skills. It gives young people the possibility of seeing that everybody's ideas have value, and to realise that they don't always have to be right. It gives voice and value to all pupils and can be empowering for learners with additional needs or those who feel marginalised. More information on P4C is available from HEC Global Learning Centre, London: <http://www.globallearninglondon.org>

The session starts with a stimulus. This could be a story, an object, or a video clip.

1. Pupils are encouraged to think and to ask a question based on the stimulus they've shared (e.g., I wonder why ...?)
2. They then make a collective decision on the question they are most interested in.
3. The discussion starts, but is then not contained. It follows its own path guided by the learners' thoughts and ideas, through agreeing and disagreeing. But learners always give a reason for their point of view.

For the theme of this resource, an image of a padlocked stand pipe or a polluted river might prove a powerful stimuli: https://oxfamblogs.org/education/water_for_all/water/gettingstarted.htm

Questions or themes these may raise include:

- Who owns the world's water?
- Is water used fairly?

You can follow up on a P4C enquiry with a 'consequences' activity in small groups: https://oxfamblogs.org/education/water_for_all/water/photoactiv/pupil_framework5.htm



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<https://www.flickr.com/photos/zoetner/39705636574>

What do we celebrate about rivers and water?

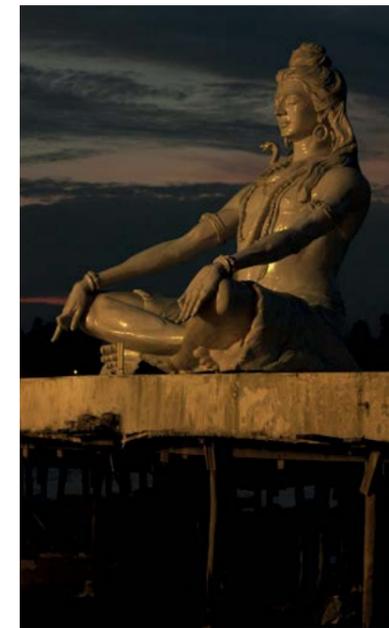
Rivers can be explored creatively through a religious or cultural lens. We can examine a variety of religious and non-religious attitudes to rivers and water, including agnostic or humanist beliefs. We can consider other sources of wisdom that remind us of our collective responsibility of guardianship of the Earth through stewardship, respect and the acknowledgement of the interdependence of people and all life.

We can start by thinking about how rivers are important to a variety of communities for religious, spiritual or cultural purposes and celebrations, as well as for trade, transport, food and fishing.

Pupils can research the Ganges, India's most sacred river, dragon boat racing in China, or local traditions in your partner school. Pupils can consider flood-based myths and religious stories, e.g., Noah's Ark or the traditional Hindu tale Manu and the talking fish (see list of suggested books above).

Water and spirituality

Indigenous people from around the world share similar beliefs about the sacredness of water. For example, the Maori people of New Zealand have always believed in the sacredness of water and its connections to ancestors, something that the government of New Zealand has recently recognised through laws that protect the status of the Whanganui River, one of the largest rivers on the country's North Island. This river has come to be recognised as having 'all the rights, powers, duties, and liabilities of a legal person'— something the Maori believed all along.



"IMG_4212_e" by Sandi Pruitt is licensed under CC BY-NC 2.0

Young people let their imaginations run wild

Visual and musical arts can be powerful stimuli for young people to produce their own works in a variety of forms and media.

They can respond in a number of ways, e.g., through poetry, puppetry, painting or creating animations with plasticine or small world play. Pupils can do modelling, drawing, collage work and photography, and can experience taking part in arts activities, by researching artists and craftspeople and sharing their art discoveries, perhaps in the classroom or at school-curated events or exhibitions.

Start by sharing a range of visual representations of rivers, e.g., the works of Nicolás García Urriburu, an Argentine contemporary artist, who has raised public consciousness about environmental issues, such as water pollution, by dyeing famous rivers and bodies of water with an ecologically safe pigment. When this pigment mixed with micro-organisms in the water, it caused the water to turn bright green. He has worked on New York's East River, the Seine in France, and, perhaps most famously, the waters of Venice's Grand Canal, recording the process through film and photography.

Images p.30.



"Waka taua (War Canoe) delivering the Taonga" by DEΠΠIS is licensed under CC BY-NC-SA 2.0

Preview of the exhibition 'Venice in the Key of Green'. Nicolás García Urriburu and the colouration of the Grand Canal of Venice.

<https://www.flickr.com/photos/culturaargentina/28214480707>

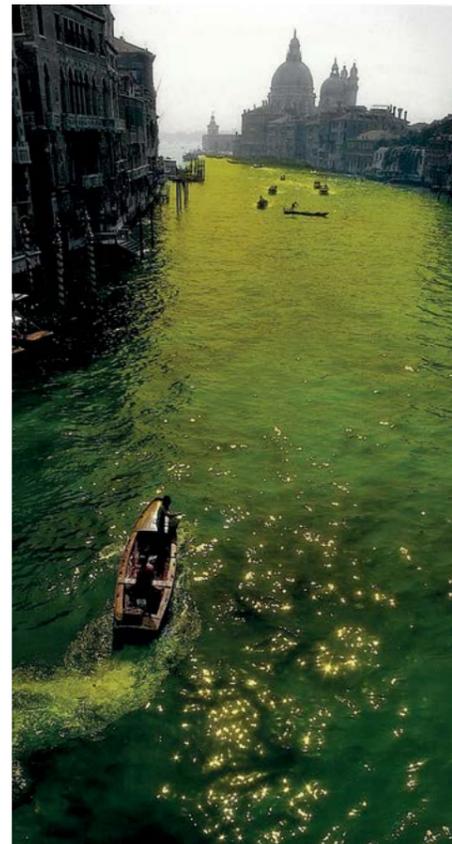


Coloración del Gran Canal de Venecia, 1968. Fotografía, colección Fundación García Urriburu. Attribution-NonCommercial-ShareAlike 2.0 Generic (CC BY-NC-SA 2.0)

<https://www.flickr.com/photos/museonacionaldebellasartes/41835736535>

Other visual art to investigate includes:

- *Starry Night Over the Rhône*, Vincent van Gogh
- *Charing Cross Bridge series*, Monet
- *Bathers at Asnières*, Seurat
- *The City Seen Through the Arch of Westminster Bridge*, Canaletto



Pupils can also study the arts and crafts of their own and partner countries, e.g., Adinkra printing from Ghana, a printed or stamped traditional cloth made by the Ashanti people.

One appropriate symbol could be ASASE YE DURU 'the Earth has weight', a symbol of providence and the divinity of Mother Earth. This symbol represents the importance of the Earth in sustaining life. Can pupils recreate these prints or design their own?



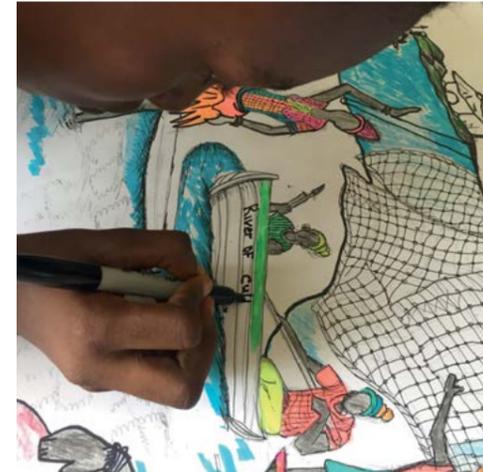
© Amer Shomali



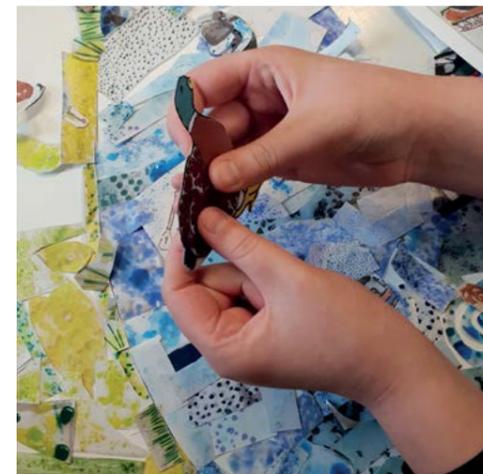
ASASE YE DURU
'the Earth
has weight'

Pupils can listen and respond to music, e.g., the Czech composer Bedřich Smetana's composition Vltava, which portrays the river Moldau.

Pupils can use voice, musical instruments or body percussion to respond to and represent a river's journey from source to tributary/the sea, e.g., the rain, a storm, a waterfall, a meander, slowing down for a wide, deep river and when reaching the mouth of the river and the sea.



© Barmmy Boy



© Ed Stone

Preserving Rivers

Learning Objectives

- Understand the distribution of natural resources and recognise that access to these resources is unfair.
- Prepare to play an active role as citizens and encourage participation in positive actions for change.

In previous sections we learnt how important it is for us to conserve water, to keep waterways clean, and to recognise the damage that humans cause on a local and global scale. In this section, we will look at examples of practical actions pupils can take, including thinking, informing or campaigning, organised clean-ups, reducing waste, and organising events to inform others, e.g., campaigning for single use water bottles, organising taste tests.

We forget that the water cycle and the life cycle are one

Jacques Yves Cousteau

CORE SKILLS:

Critical thinking and problem solving, creativity and imagination, digital literacy, communication and collaboration, student leadership, personal development.

SUBJECTS:

Maths, English, Science, Geography, Personal, Social, Health and Citizenship Education (PHSCE).

Encourage your learners to come up with their own ideas and to choose what they would like to do. Some examples are:

- Rethink and refill. Ask head teachers to provide sufficient working water fountains, reusable water bottles with places where these can be washed and kept hygienic.
- Refuse single-use plastics, e.g., single water bottles, plastic carrier bags, cling film. What else can we use instead?

What's the problem with plastic?

Plastic is indestructible. Every item of plastic that has ever been created is still on planet Earth. People believe these items can be thrown away. But where is 'away'?

According to the television programme *Blue Planet 2*, there are one million pieces of plastic per square mile of ocean, and this is killing and harming marine life. We MUST reduce our use of plastic.

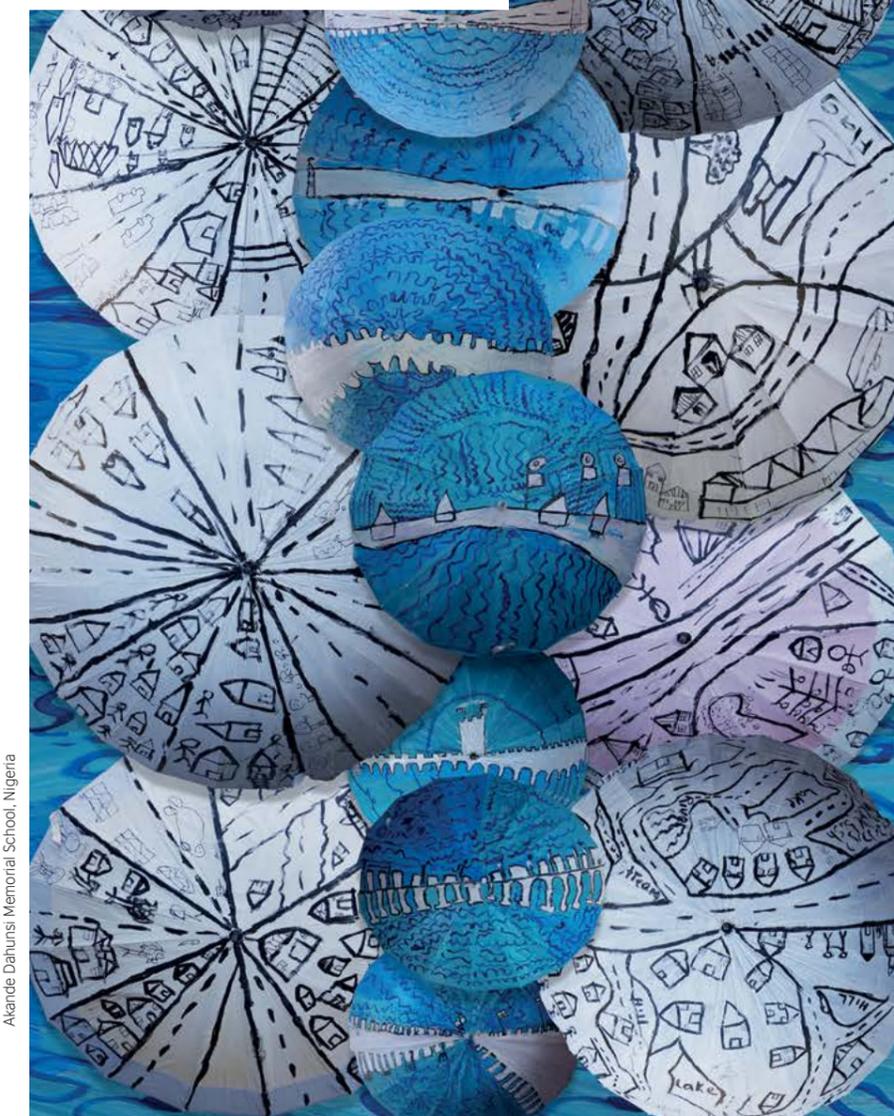
- Turtles can eat plastic bags mistaking them for jellyfish.
- Seabirds are found with their stomachs full of plastic items.
- Microplastics are consumed by animals such as plankton, which passes the problem back up the food chain – ultimately to us.



Recycling makes us believe we are doing the right thing, but should be considered a last resort after ideally refusing plastics, or reducing and reusing plastics.

Consider keeping a plastics diary (see Appendix C) and share the results with your partner school.

You might think your small efforts make no difference, but, collectively, our actions are extremely powerful. Think about how you can affect larger or quicker change. Ask pupils to think about the impact of one action over another, e.g., by refusing to take a single-use bottle to school, which saves one bottle, and the impact of asking your school not to sell or provide those bottles, and educating adults about what you have learnt.



Akande Dahuns Memorial School, Nigeria

6

Now revisit the baseline activities

Congratulate your learners on their development and thinking. What do we now know that we didn't at the start of our learning? How has our thinking changed?

Now it's time to revisit your baseline activity in order to reflect on your pupils' learning and their attitudes towards the global issues we've explored.

Check back on the original activities. What has changed? Are your learners expressing a greater awareness about the importance of water? Are they taking more of an interest in taking action for sustainable development?

If your school has an active school partnership, it would be an excellent idea to compare the experiences of using the activities in this resource, and how your learners have responded to them.

Also consider how you can share your learning – through displays, mini-exhibitions, class assemblies, podcasts and water awareness posters.

We hope your pupils have enjoyed learning about The Story of Water.



Bangladesh

Useful resources & websites

<http://www.globallearninglondon.org/archive/school-support/curriculum-ideas/water/>

<https://www.wateraid.org/uk/get-involved/teaching/ks2-resources>

<https://www.nationalgeographic.org/encyclopedia/river/>

<https://www.geography.org.uk/>

[https://www.rgs.org/schools/teaching-resources/rivers-\(1\)/](https://www.rgs.org/schools/teaching-resources/rivers-(1)/)

<https://www.un.org/sustainabledevelopment/wp-content/uploads/2015/03/SDGs-child-friendly.pdf>

<https://www.globalgoals.org/>

<https://worldslargestlesson.globalgoals.org/>

<https://www.wwf.org.uk/fight-plastic-pollution>

Appendix A: Baseline activity

Have your own cup or bottle at home and school to reuse throughout the day	Drink tap water rather than bottled water	Take short showers instead of baths
Water your plants with collected rainwater or cooking water, e.g., pasta water	Report and fix leaky taps or fountains	Wash clothes only when they are dirty
Ask your head teacher to install water-saving taps throughout the school and to put a full bottle of water in the toilet cisterns to reduce water use when flushing	Use a watering can to water your plants, instead of a hosepipe	Wash fruit or vegetables in a bowl of water instead of under a running tap

Appendix B: Water Diary

Water I used today	Amount of water (litres)	Total water used							
		M	T	W	T	F	S	S	Week
Taking a bath	80 litres								
Taking a shower	5 litres per minute								
Flushing the toilet	9.5 litres								

Appendix C: Plastics Diary

Plastic use	No. of items								Ideas to reduce our use
	M	T	W	T	F	S	S	Week	
New plastic bags received									E.g., refuse them, take your own bag, remind parents to take bags from home
Old plastic bags re-used									
Plastic bottles									
Plastic food wrappers (e.g., cling film) and packets									
Yoghurt pots									Ask parents to get large pots instead of small individual ones
Food containers									
Plastic drinking straws									

- How can we help reduce plastic use?
- How can we let others know about the importance of this?
- Which Global Goal does this relate to?
- Can you make a pledge (promise) to take one action to reduce our use of plastic? Write or draw what your pledge is below.



Rivers of the World is a Thames Festival project delivered in partnership with the British Council

