

River Champions Act for Eden

Teachers' notes to accompany film and learning resources



Key facts from the film:

The talking glass of water tells us that freshwater is precious and important.

97% of the world's water is salt water, found in seas and oceans. This is not suitable for drinking.

Only **3%** of the world's water is freshwater, and of this, only about **0.5%** is readily available for drinking.



Additional facts:

- Most is 'locked up' in glaciers, polar icecaps, or is under the surface as groundwater.
- 70% of freshwater used across the world is used for agriculture. So, most of the world's freshwater supplies don't even make it to our homes!

Less than **1%** of the water that is treated (made safe for drinking) is consumed by people, most of it goes down toilets, drains, washing machines, dishwashers and in our gardens!

It is estimated that due to increased demand and climate change, two thirds (66%) of the world's population face water scarcity by 2025.

There are three key things we can do to Act for Eden's Rivers:

Use water wisely

Reduce pollution

Protect Nature

Where our water comes from

Our water comes from rivers, reservoirs and aquifers. Most comes from reservoirs, which are artificial lakes, made by building a large wall called a dam across a valley, to collect the water that drains off the surrounding hills.

Haweswater reservoir supplies **400 million litres** of water every day to people in the north-west of England (some as far away as Manchester!)

The water is pumped down huge underground pipes (some are so big you can drive a car through them), before it is treated to make it safe to drink.

Water treatment process rap "Flocculation, clarification, filtration, chlorination. To help hydration across the nation!"

Basically, the water is cleaned and cleaned, and cleaned again. Before being pumped to our homes, schools, factories and farms.

Where our dirty water goes

Wastewater (the dirty water we flush and wash down the drain), travels through pipes into an underground drain called a sewer.

Sometimes people wash and flush the wrong things down the drain and this causes blockages in the sewers. Wet wipes and all the other things we shouldn't flush away can also stick to fats and oils that get washed down the sink, turning into stinking fatbergs.

These can cause complete blockages which can mean sewage ends up coming back up the drains and into our homes.

You can use the **Sewer monster portrait** activity sheet with your class to help them think about the things that shouldn't be flushed or washed down the drain.

Hint: Take a closer look at the monsters in the film (pause it at that bit) for some ideas. Make a list of them and some other items that the pupils can think of to add to their monster.

Wastewater treatment

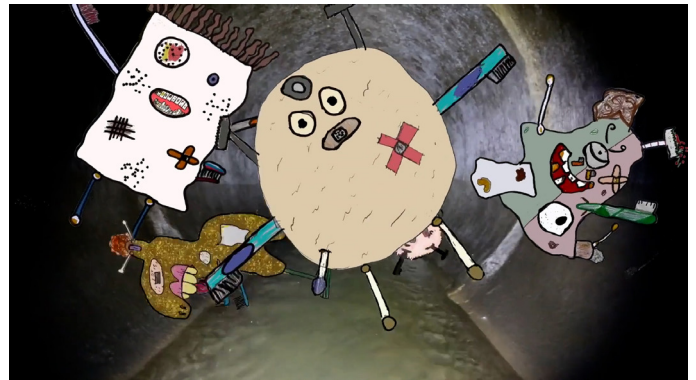
The wastewater from our homes, farms and factories contains all sorts of nasty bacteria and baddies. This is why it is really important to clean the dirty wastewater before it goes back into our rivers. Rivers creatures need clean water to survive!

Most wastewater is treated at a **Wastewater Treatment Works**, where many processes take place to get the water clean. Here the solids and the liquids are separated out. The solids are taken away and treated and used as fertilizers. The liquid is trickled over beds of gravel / stones which are full of millions of micro-organisms that feed on our poo! Eventually the liquid is considered clean enough to be put back into the rivers.

Combined Sewer / Storm Overflows (CSOs)

Some sewage pipes also take rainwater from roof gutters from buildings, and some street drains on roads. Sometimes, when it rains, so much water goes down all these drains that the sewage systems just can't cope. When this happens, untreated sewage may be flushed straight into the rivers, just like a big toilet!

This is a really big problem for our rivers... it's not just the pollution from untreated sewage, but also if people have flushed things like **wet wipes** down the loo.



The Environment Agency explains more about what [CSOs are and when they should be used](#), however, over the last year there has been a lot of media attention on the timing and frequency of discharges from CSOs, with diluted or untreated sewage being flushed at other times, leading to increased pollution of rivers and seas.

Your class can see how often the CSOs in your area are discharging sewage directly into your river on [The Sewage Map](#) from the The Rivers Trust (an umbrella organisation for organisations such as ourselves).

River challenges

Theme 1: Use water wisely

1. Turn off the tap when you're brushing your teeth

If you turn the tap off every time you brush your teeth for a year, you would save **8,760 litres** of water in a year!! If 250 people do this, you'd save enough water to fill an Olympic size swimming pool.

Additional Fact: Running a tap, wastes approximately **6 L** of water EVERY minute!

2. Use the short flush button

If you have a short flush button, always use the short flush button (for a wee) as this will only use around **5 L** of water per flush. Older toilets can use a whopping **13 L** of water per flush!

Additional Fact: The long flush button typically uses around **9 L**.

3. Water wisely

Instead of using the garden tap and hosepipe, collect rainwater and water from the home and use that instead.

When you run a hot tap, collect the water that comes out cold before it runs hot (instead of letting it go down the drain) and use that to wash the car and water plants.

Can you think of any other ideas?

Additional fact: You could save up to **3 L** each time you run a hot tap or a shower!

4. Take shorter showers

Knock a few minutes of your showers to help save water. Simple!

A few extra facts:

Average shower uses: **9 L** per minute

Power shower: **13 L** per minute.

Mixer shower: **8 L** per minute.

Electric shower: **5 L** per minute.

By shaving **JUST 1 minute** of your time in the shower you can save money on your heating and water bill.

The [Energy Saving Trust](#) reported that if everyone in a four-person metered household with a power shower did this for one shower a day, it could save £60 on energy bills and a further £60 on water bills every year (N.B. this figure was calculated before the recent hike in energy bills.. it's probably more than double that by now!)

16% of a household's energy bill is from heating water for activities such as baths, showers, washing up and water-using electrical appliances.

Theme 2: Reduce pollution

5. Only ever flush the 3 Ps. Pee, Poo and Paper.

Only ever, ever, ever, ever, flush pee, poo and paper down the toilet. Don't cause blockages and prevent un-flushable items from being washed into rivers and seas.

If you haven't already, carry out the **To flush, or not to flush** experiment with your class.

6. Don't drop litter.

Litter is really dangerous to wildlife. Animals can cut themselves and get tangled up.

Plastics are really dangerous in the environment, as they break up into tiny pieces called microplastics.

Microplastics are found all over the world and inside the bodies of fish, mammals and even humans! Scientists think it takes 500 years for a plastic bottle to degrade.

Do your bit and keep our parks, green spaces, and rivers clean and safe for everyone. And if you can't keep hold of it, always use a bin!

7. Ditch the Disposables

It's time to ditch the plastic (single-use) bottles and use reusable ones instead.

It is estimated that we get through **13 billion plastic bottles** every year in the UK.

(source: www.parliament.uk)

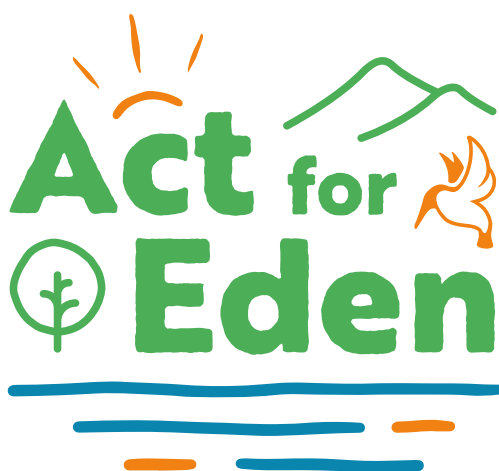
That's so many bottles that, if you laid them end to end you would reach the moon and back four times! It's also way cheaper to drink the water that comes out of our taps.

The Final REALLY, REALLY BIG river challenge..

Think, just think. Every time you use water, think, and ask yourself:

"What can I do differently to use water wisely, to protect nature and help to protect nature?"

Challenge your class to think creatively about what they could do. Need inspiration? Take a look at our [Act for Eden website](#) for some more ideas.



Where our dirty water goes:

- 9** Q. The water we flush down the toilet and wash down the drain is called wastewater. Where does it go?
A. It goes into an underground drain called a **sewer**.
- 10** Q. Is wastewater safe for humans and wildlife to swim in?
A. No! It is really important to **clean** the wastewater, as it contains all sorts of nasty baddies and bacteria.
- 11** Q. Where does the wastewater go to be cleaned?
A. Most wastewater is cleaned in a **Wastewater Treatment Works**.
- 12** Q. How do you clean wastewater?
A. The solids and liquids are separated out. The solids are taken away and may be used as **fertilisers** on fields. The liquids are treated until they are clean enough to go back into our **rivers** and **seas**.

What happens when it goes wrong:

- 13** Q. ~~Q. How do we clean wastewater?~~
A. ~~A. We clean wastewater by separating the solids from the liquids.~~
stick to **oils** and **fats** that also get washed down the drain and clump together, creating stinking **fatbergs** that cause **blockages** in the sewer.
- 14** Q. Why does dirty wastewater end up in our rivers and seas?
A. Some sewage pipes also take **rainwater** from roof gutters and some **street drains** on roads. Sometimes, when it rains, so much water goes down these pipes that the sewage pipes can't cope, and the dirty **wastewater** goes straight into our **rivers** and **seas**.

The seven river challenges:

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|----------|----------------------------|----------|------------------------------------|
| 1 | Taps off for teeth | 5 | Only ever flush pee, poo and paper |
| 2 | Use the short flush button | 6 | Don't drop litter |
| 3 | Water wisely | 7 | Ditch the disposables |
| 4 | Take shorter showers | | |

~~For more information on how to help protect our rivers, visit our~~
website, <https://www.actforeden.org.uk>

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