

Down the Drains!

Imagine that rain is falling outside. Where does all that rainwater go? What about all the water you use in your home - the water that flushes down the toilet, out of the washing machine or swirls down the plughole when you take a shower? Where does that water go? **It all goes down the drains!**

There are drains all around us:

- **NATURAL DRAINS** like streams and rivers. Most of the water that falls as rain seeps into the ground and flows into these water courses or channels.
- **MAN-MADE DRAINS** made up of miles and miles of pipeline called sewer pipes. These carry the water to sewage treatment centres where it is cleaned. Most of the water that goes down your plugholes passes into these pipes.

Without drains, our hospitals and homes, shops and schools, car parks and pavements would all be regularly flooded. Drains are very important!

1. How many different drains can you find in your home?

Let's investigate, but don't forget: **Water Detectives use their eyes; they look but don't poke!**

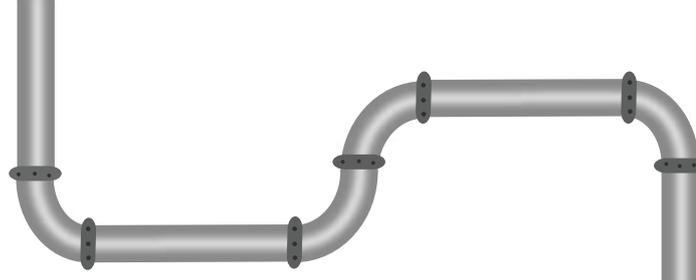
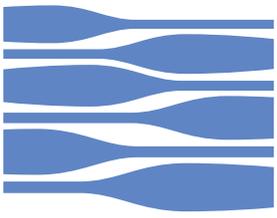
Inside your home:

- Where do you use most water in the house? These are the rooms to investigate first.
- **Count the number of pipes you can see** in each room where you use water.
- Where do you think these pipes lead? Where does the water go from the washing machine, the sink and the toilet?
- Can you see a hole beneath the taps in your bathtub or basin? That's in case you forget to turn off the taps! Where do you think the overflow water goes?
- **Make a note of your ideas**; they will help you find some of the drains outside.
- If you live in a new house or flat you might find that many of the pipes are hidden in boxing.
- If so, check your ideas when you can visit a friend or relation who lives in an older building.

Outside your home:

- **Have a look at the roof of your home.** Where does the rainwater go that falls on the roof? Do you collect any of this water for growing plants?
- **Now look at the walls** of your home and the ground close to those walls. Are there pipes running down the walls? Are there pipes coming out of the walls? **How many pipes can you see?**
- Where do these pipes lead to? Where does all this water go?

How many pipes did you find outside your home? Were you surprised? **Now multiply that number by the number of buildings along your street** and you will realise that managing waste water is a huge job!



Going for a walk:

The next time you walk along a pavement **keep your eyes open for metal covers** on the ground and at the edge of the road. What do you think they are for? Where does the rainwater that falls on these hard surfaces disappear to?

All our waste water needs to be cleaned before we can use it again. Waste water from all the buildings in London and the Thames Valley is taken away and cleaned by an organisation called **Thames Water**. They look after 43,500 miles of sewer pipe!

Luckily, a new type of drainage, called **sustainable drainage**, is being used now in new buildings. Sustainable drainage does not need pipes. Do you have 'sustainable drainage' in your home?

2. What goes down the drains?

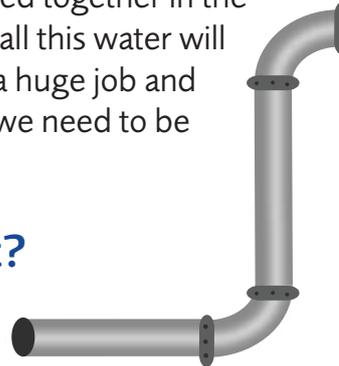
Room	Activity	Product (Fill this in)
Bathroom	Clean your teeth Wash your hands Wash your hair Shower	
Kitchen	Wash the dishes Wash clothes Cleaning surfaces	
Garden	Caring for plants	

Does anything other than body waste and toilet paper get flushed down your **toilet**? Wipes and other non-flushable items are a great problem. They get mixed up in the oils and fats that travel into the drains and create enormous **fatbergs** that are almost indestructible!

Some of the **chemicals** we use break down quickly and become harmless, but others may take a long time and some may not break down at all! Even worse, when these chemicals get mixed together in the sewers they sometimes form new and more harmful chemicals. At the **sewage works** all this water will be cleaned so that we can drink it and use it again in our homes and buildings. This is a huge job and uses a lot of energy. This creates greenhouse gases and is not good for our planet, so we need to be very careful what we send down the drains!

3. How can we be green water users and help save our planet?

Make a list of all the things you could do. Don't worry if you don't think of many things at first. Keep your list somewhere safe and add to it every time you have a new idea.



Remember, you can really make a difference!