



Wastewater

Teacher Guide

NORTHUMBRIAN
WATER *living water*



Wastewater

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Wastewater

Welcome To The Ripple Effect: Wastewater

Did you know that each one of us sends around 180 litres of wastewater a day into the wastewater network?

Once we flush the loo or wash things down the sink we rarely stop and think about the amazing complex system under our feet that swiftly removes sewage and dirty water from our homes.

This resource, **The Ripple Effect: Wastewater**, supports young people to develop a better understanding of the wastewater network and the consequences of misusing it.

The climate emergency, an increasing population and higher levels of wet wipe use are putting unsustainable pressure on the wastewater network. We use and dispose of 11 billion wet wipes every year. This results in the formation of fatbergs, damage to homes, the environment and wildlife.

We're asking young people to get more informed about what does and doesn't belong in the sewers and for them to take positive action to change their behaviour in order to be part of The Ripple Effect.

When we all make small changes, we make big waves in protecting our wastewater network.



Wastewater

Key Stage 3 Curriculum Links

Science

Working Scientifically

Experimental skills and investigations

- Make and record observations and measurements using a range of methods for different investigations and evaluate the reliability of methods and suggest possible improvements.

Biology

Interactions and Interdependencies

Relationships in an ecosystem

- How organisms affect, and are affected by, their environment, including the accumulation of toxic materials.

Chemistry

Earth and Atmosphere

- Earth as a source of limited resources and the efficacy of recycling.
- The production of carbon dioxide by human activity and the impact on climate.

Additional science links

Geography

Human and Physical Geography

- Physical geography relating to geological timescales and plate tectonics; rocks, weathering and soils; weather and climate, including the change in climate from the Ice Age to the present; and glaciation, hydrology and coasts.
- Human geography relating to population and urbanisation; international development; economic activity in the primary, secondary, tertiary and quaternary sectors; and the use of natural resources.

Citizenship

- The roles played by public institutions and voluntary groups in society, and the ways in which citizens work together to improve their communities, including opportunities to participate in school-based activities.



Wastewater

We Are All Part Of The Ripple Effect: Wastewater Film

Overview

An introduction to the importance of the wastewater network in our daily lives. First the students will watch “We are all part of The Ripple Effect” and will be challenged with finding answers to a range of issues brought up within the film. Then the students will work in small groups to tackle key questions related to public perceptions of what is and isn’t flushable.

Learning outcomes

I can:

- Identify only toilet paper, pee and poo go down the toilet.
- Identify what you should and shouldn’t flush down the toilet and sink (details).
- Explain and demonstrate ways to reduce pollution and sewer flooding.

Resources required

- We are all part of The Ripple Effect film.
- We are all part of The Ripple Effect key questions.

Format

- Film.

Timing

- 25 minutes.

Home learning ideas

At home, students can watch the film and consider some of the key questions. They can open up a family discussion in relation to the discussion questions. Does everyone in the family think similarly? Can everyone be part of The Ripple Effect?

Before running the activity

- Watch the film ahead of your students in order to ensure you are familiar with the content.
- Decide how you would like to run the activities - as a whole class, or by placing students in smaller discussion groups.
- If students have access to their own devices you may want to encourage them to watch the film and answer the key questions individually before coming back together as a class to tackle the discussion questions.

Wastewater

Activity 1: Watching The Film

- Ask students to watch the 'We are all part of The Ripple Effect' film (this can be individually or all together as a large group).
- As the students are watching the film they should make notes to try and recall the main statistics and key pieces of information.
- Now ask the students to work in small groups to tackle the key questions.

1) Where does wastewater come from?

A: Heavy rain downpours

B: Baths, sinks, washing machines and toilets

C: Recycling centres

2) How much water (on average) does each one of us send into the wastewater network everyday?

A: 18 litres

B: 180 litres

C: 1,800 litres

3) What were Victorian sewers built to deal with?

(all three are required)

Pee, poo and toilet paper

4) What types of unflushables regularly make their way into our sewers? Take any from the list:

Kitchen roll, dental floss, period products, nappies, cotton buds, cigarettes, contact lenses

5) What is the problem with unflushables? Take either:

They haven't been designed to break down within the wastewater network or they cause blockages

6) What causes fatbergs?

Fatbergs are caused when unflushable items come into contact with fats, oils and grease that have been poured down the drain

7) How many sewer blockages are there a year?

A: 300

B: 3,000

C: 300,000

8) What percentage of fatbergs are made up of wet wipes?

90%

9) How many wet wipes are disposed of each year?

11 billion

10) What is a Porcupine tool used for?

To monitor where wet wipes are making their way into the wastewater network

11) What does FOG stand for?

Fats, Oils and Grease

Wastewater

Activity 2: Discussion Questions

- Once students have correctly answered the key questions ask them to continue in the same small groups to consider the discussion questions below.
- Students should spend approximately 2-3 minutes on each question.

We are all part of The Ripple Effect discussion questions:

How many pieces of information about the wastewater network can you recall? *Students should be encouraged to recall as many specifics as possible - they can use their answers to the key questions to help them.*

What have you found most surprising about the wastewater network information? *Encourage students to consider the change in use of the wastewater network over the years. Can they think about the future and whether the wastewater network is up to the challenge of increased use of wet wipes?*

What are your thoughts on why so many wipes are being flushed down the toilet rather than being disposed of in the bin? *Is this a problem with packaging? (Remind the students that in the 'We are all part of The Ripple Effect' film, we learned that even when wet wipes state that they can be flushed, it isn't always true. Does the problem lie with education? Do the students' families know what wet wipes should not be flushed down the toilet?)*

How serious do you think the consequences could be of sending unflushables into the wastewater network? *How do the students think they would cope if they had a sewer flood at home?*

How do you think you can be part of The Ripple Effect? *Which small changes could you make or encourage others to make?*

If students are struggling to think of ideas ask them to rewatch the end of the film to help them.

Adapt

Some students may benefit from working in a small group to watch the film with an adult. The film can be paused regularly to check for understanding and to go into more detail where required.

Extend

Can students consider how climate change could further impact the wastewater network?

Wastewater

Fatberg Autopsy

Overview

During this activity students will learn more about the impact of flushing “unflushables” and they will carry out a digital “autopsy” of a fatberg.

Learning outcomes

I can:

- Identify not to put wipes down the toilet and why, and identify where these should go.
- Identify not to put fats, oils or grease down the sink and why, and identify disposal tips.
- Identify not to put any plastics (including hygiene products) down the toilet and why, and identify disposal tips and reusable alternatives.
- Identify not to flush random objects or rubbish and why (causing blockages).
- Identify blockages in sewers can lead to the wastewater network flooding (build up/fatbergs).
- Understand that removing fatbergs is a time consuming and expensive process.

Resources required

- Fatberg Autopsy interactive.
- Access to screens.

Format

- Group discussion.
- Online Fatberg Autopsy game.

Timing

- 30-40 minutes.

Home learning ideas

Use the Fatberg Autopsy game and see how quickly you can dismantle the fatberg then create an action plan for the items in your own home. How can you ensure they are disposed of properly?

Before running the activity

Choose how you would like to give the students access to the Fatberg Autopsy online interactive:

- Ideally, one screen would be shared between two students.
- An alternative route for learning is to run a range of wastewater linked activities in the classroom at one time. Some students could use screens for the Fatberg Autopsy while the others are tasked with going through some of the other wastewater activities.

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Fatberg Autopsy

- Begin by reviewing prior learning about the wastewater network.
- Do the students understand that in the same way clean water is transported into their houses, there is also a system that removes grey water (relatively clean water from baths, washing machines and dishwashers) and wastewater from our toilets?
- Do the students know what happens if a sewer pipe gets blocked?
 - When a sewer is blocked, wastewater is unable to flow away. This means that sewage could flow back up the pipes and up through the toilet or sink causing damage to properties and belongings. At times, blocked sewers can cause wastewater to flood out into the environment and as result harm local wildlife.
- Do the students know what the consequences can be of misusing our wastewater network?
 - You could receive a fine from your water company to cover the cost of unblocking your pipes.
 - You get prosecuted under the Water Industry Act 1991, which is the law that makes it illegal to put anything into the sewer that can impede the flow of the waste that should be in there.
 - Q: What is the name given to the rock-like masses that form in the sewers?
A: Fatbergs
- Open a discussion about fatbergs, how much do the students know about them? You may want to tell the students that part of a fatberg has been on display at The Museum of London! It is now part of the permanent collection. They value this fatberg fragment as it tells a story about how modern London is changing - larger populations, changing diets and an increased amount of pressure on the wastewater network.
- It's not just London that has been the victim of fatbergs, large fatberg masses have also been found in Birmingham and Liverpool. Fatbergs can cause a huge amount of disruption while the blockage is removed.
- Introduce the task - the students are going to learn a little more about fatbergs, the type of objects that are often found in fatbergs and how those objects should have been correctly disposed of.
- Challenge students to use the Fatberg Autopsy interactive - it is self explanatory with instructions popping up on the screen. While the interactive focuses on three famous fatbergs, remind students that that this is happening in the wastewater network underneath their homes and not something that is a problem for other people far away or within big cities only.
- Their task is to pick a fatberg and try to correctly dispose of all of the objects caught up within it.

Wastewater

Fatberg Autopsy

- Although there is a timer on the fatberg activity this is not a race!
- Encourage the students to think carefully about the items they are removing from the fatberg.
- Tips are given with each item to help support correct disposal.

For your convenience here are the items listed with the correct disposal method:

Nappies

Nappies are made of a combination of plastics, absorbent pads and held together by glue. They should always be disposed of in the bin.

Period products

Make sure to wrap any used products up in toilet paper so that it's secure and avoids any leakage before throwing away in the bin.

Wet wipes

Wet wipes make up 90% of the material in fatbergs – make sure they go in the bin, not down the loo. Whether baby wipes, cosmetic wipes or cleaning wipes, these are neither recyclable or flushable even though some labels say they are. Make sure they go in the bin, not down the loo.

Egg shells

Egg shells can be composted as they come from a natural source meaning they are highly biodegradable. Put them in the food recycling bin.

Coffee grains

Like tea bags, coffee grains make a great source of compost and can therefore be disposed of in the food bin.

False teeth

False teeth are regularly found in sewers – maybe they fell into the loo by accident but they still need to be disposed of in the right way. Ask your dentist if they recycle dentures or they can be sent to Japan to undergo a special recycle process.

Dental floss

It may be convenient to flush dental floss but it's not biodegradable. Dental floss needs to go in your regular bin. As well as clogging pipes, floss can act as a net catching and holding additional debris. It can take 50-80 years to decompose and therefore needs to be disposed of in the normal bin.

Ice lolly sticks

If wooden, ice lolly sticks can go in the recycling bin, not flushed or sent down the sink.

Cooking oil

Once cooled, oil should be scraped into a sealable container and disposed of in the normal bin. It should never be poured down the sink.

Wastewater

Fatberg Autopsy

Medicine

This one is really important. Out of date medicine should be returned to the supplier, usually a pharmacy or doctor to be disposed of safely. Never flush medicine down the loo or dispose of it down the sink.

Cotton buds

It may be tempting to flush a cotton bud away – they are pretty small and can't cause much trouble can they? Wrong. They are not biodegradable and are have synthetic bits which won't break down. They need to go into the bin.

Razor blades

You may not realise this but some razors can be sent back to the manufacturers for recycling. Otherwise, remember to wrap the sharp end in tape or paper and dispose of it in the normal bin.

- The second part of the game tasks students with briefly dismantling the fatberg, using a couple of tools to do so.
- As students chip away they will be served a few short facts emphasising the tricky process of removing a fatberg. These are as follows:

Fact 1

Fatberg disposal is a time consuming and expensive process.

Fact 2

Specialist equipment like water jets and chisels have to be used to slowly chip away at the fatberg.

Fact 3

It's likely that extreme levels of disruption will occur to the wastewater network while a fatberg is in place – this can cause flooding to local homes and damage to the environment.



Wastewater

Fatberg Autopsy

- Once the students have had the opportunity to clear the fatberg, bring the class back together to discuss their findings.
- Were there any items they were surprised to find in the fatberg?
- Were the students surprised with any of the correct disposal methods? Clarify any questions the students have.
- Did the students realise how much time and effort it takes to remove a fatberg?
- Remind students that although this activity focuses on blockages and fatbergs, blockages can cause high-impact consequences for our environment and wildlife.
- Now it's time to put all that new knowledge to use!

Adapt

- Use the interactive with a small group and invite them up to the board to take turns to select, identify and correctly dispose of items.

Extend

- Students could develop a research project to monitor the impact of an unflushables awareness campaign in your school.
- How could they capture the baseline statistics e.g. how many people flush wet wipes down the toilet? And then how can they measure the impact of their awareness campaign? Can they set themselves a target i.e. decrease the amount of people flushing wipes by 20%?

Wastewater

Tiny Habits

Overview

A habit generator to support young people to make informed decisions about small changes they can make to protect the wastewater network.

Learning outcomes

- Identify not to put wipes down the toilet and why, and identify where these should go.
- Identify not to put fats, oils or grease down the sink and why, and identify disposal tips.
- Identify not to put any plastics (including hygiene products) down the toilet and why, and identify disposal tips and reusable alternatives.
- Identify not to flush random objects or rubbish and why (causing blockages).
- Identify blockages in sewers can lead to the wastewater network flooding (build up/fatbergs).

Resources required

- Tiny Habits tool.

Format

- Online interactive habit tool.

Timing

- Tiny Habits tool 5 minutes.
- Discussion 20 minutes.

Home learning ideas

Use the Tiny Habits tool to learn more about the positive changes you can make at home to support the wastewater network. Decide which habits you would like to change and make a plan to check in and see how well you are doing with your new habits.

Before running the activity

- The Tiny Habits tool has been created to share key information about everyday behaviours that can positively and negatively impact the wastewater network.
- The interactive tool will prompt students to answer a range of yes/no questions about daily activities that might occur in the home:
 - Do you use a bathroom?
 - Would you like to know some facts about fatbergs?
 - Do you do washing up in the sink?
 - Do you have take-aways at home?
 - Does anyone at home use wet wipes to remove makeup?
 - Do you drink milk?

Wastewater Tiny Habits

- Does anyone at home shave or remove hair?
 - Does anyone at home have periods?
 - Do you have anyone under the age of three at home?
 - Does anyone in your house use dental floss?
 - Do you enjoy home cooking?
 - Does anyone at home use cotton ear buds for make up or cleaning ears?
 - Do you eat meat?
- The tool will then create a range of personalised wastewater facts to show how a particular everyday activity or behaviour can negatively impact our wastewater network.

Example answer 1:

“Did you know you can recycle your cooking oil? Wait until it has cooled and you can use a strainer to remove any food debris and then store it in a sealable container. It’s then ready to be used another time. Remember oil should never be poured down the sink. Your habit could be using a “gunk pot”. A gunk pot is a tiny container you can use to collect and hold oil and fat until it has cooled. You can also make your own out of newspaper.”

Example answer 2:

“Period products are not designed to break down in our wastewater network, especially as they often contain plastics - tampons might look as if they will break down but they are designed to stay intact. Tampons and sanitary towels should always go in the bin. This change in habit could make a massive difference to our network. For bigger, more sustainable change you could explore sustainable alternatives to traditional tampons and towels.”

- Students will then have the chance to consider the facts and decide if they are able to change some of their everyday behaviours to improve the wastewater network.
- Using the tool students will be able to select a range of habits they think they can personally change. The tool will then serve them an outline of their chosen habits and encourage them to include their name, timeframe and number of people they could persuade in order to download a personalised poster.

Wastewater

Tiny Habits

Using the Tiny Habits tool with students

- There are a range of ways to use the Tiny Habits tool:
 - It can be set for homework, students can complete and set their new habits at home and then return to school prepared to have a class discussion about the habits they feel are most important.
 - It can be used as a plenary if students have access to their own internet connected device.
 - The Tiny Habits tool can be an initial activity for a longer lesson. Further details are provided below.
 - If you are using the Tiny Habits tool for a longer lesson you will need to ensure that all students are able to access the interactive tool. Ideally the device would be shared by a maximum of two students.
 - Introduce a class discussion about our wastewater network and ask students to work in small groups to write a list of all of the activities that go on at home that could damage the wastewater network by causing blockages.
 - You can encourage students to think about a range of everyday items e.g. wet wipes, kitchen roll, earbuds, fats, oils and grease, period products etc.
 - Bring up the Tiny Habits tool on the interactive whiteboard and go through how the students should use it.
- Once students have been presented with their longlist of habits they should choose one or two they think they might be able to adopt on a longer term basis.
 - Ask the students to work in small discussion groups to share:
 - Their responses to the facts presented by the Tiny Habits tool - did any everyday behaviours surprise them?
 - Their own habit results. They should see if there are any similarities/differences.
 - How confident do they feel about changing their behaviour?
 - Can they create some ideas of strategies to help them keep to their new habits?
 - Methods for recording the daily habits they are changing - is there a way for the class to anticipate the impact of these changes? E.g. How many mini fatbergs have they prevented from entering the wastewater network?
 - Encourage students to print out and display their poster at home to remind them what everyday behaviours they need to change.

Wastewater Tiny Habits

Adapt

- Students can work in small groups with the Tiny Habits tool to create illustrations or models of homes that indicate a range of everyday activities that can positively/negatively impact the wastewater network i.e. an illustration of a bathroom with pictures of a range of unflushables.
- Working with an adult, students can use the Tiny Habits tool to select positive changes they think they could make to their everyday activities to protect the wastewater network.

Extend

- Can the students think of how many additional people they may be able to positively influence to change their behaviour i.e. siblings, parents, carers?
- What plans do they need to put in place in order to do this?
 - Remember some of the key facts shared by the Tiny Habits tool.
 - Share stories about what happens when sewer pipes get blocked.
 - » Fines and prosecutions.
 - » Wastewater flooding in streets and private homes causing damage to properties and personal belongings.
 - » Damage to environment and wildlife.



Wastewater

Experiment 1

Seeing Through The Fog

Overview

Students will either observe or carry out an experiment that shows how fatbergs are created in our wastewater network.

Learning outcomes

- Understand how the wastewater network process works.
- Describe the mechanical process of what happens when you flush/ how water is treated and why it is important to do so.
- Describe and explain what happens when there is a blockage (waste engineer process).
- Understand the consequence of unflushables in overwhelming storm overflows.

Resources required

A jug, a small amount of water (you will show how difficult it is to mix fats with water), 3 tbsp of oil, a large knob of melted butter (approximately 250 ml of melted butter), a u bend/P-trap (easily obtained from DIY shops or online) a range of unflushables (wet wipes, kitchen roll, tampons, dental floss). The u bend experiment needs to take place over a sink or a tuff tray.

Format

- Film with experiment activity.

Timing

- 30 minutes.

Home learning ideas

Watch the experiment film - how did you feel about the results? You can use our resource list above to create your own experiment too. Alternatively, have a think about who else who benefit from viewing the film and send it through for them to conduct the experiment.

Before running the activity

- Watch the experiment film.
- Decide how you would like to run the activity (this activity can work very well as a starter activity for a lesson on the wastewater network). Will you use the experiment film and ask the students to follow along or will you conduct the experiment live in front of the students? If you are following along with the film you will need to plan out where you will pause the film in order for the students to make predictions and observations.

Wastewater

Experiment 1

Running the experiment - with the students creating their own fatbergs

- Tell your students that they are going to be observing what happens when fat mixes with water and then make predictions about what happens when fats mix with unflushables.
- Check for understanding of fatbergs, what are they and how are they formed?
 - Fatbergs are large masses that form in the wastewater network. They are made up of congealed FOG (Fats, Oils and Grease) and flushed non-biodegradable products (unflushables).
- Show students the water and oil (separate for the time being) can they predict what will happen if they are poured into the same container?
- Mix the water and oil together - the students will see that they do not mix, they separate. This is because water has a higher density than oil therefore the oil sits on the top of the water. You can see how FOG doesn't work well in the wastewater network.
- Now it's time to experiment with some fat. Melt your butter and tell the students that the melted butter represents the grease on a plate after a meal at home.
- Ask students what will happen to the melted butter if it is poured into the water (this is to simulate what happens when we rinse gravy and other sauces into the wastewater network).
- What are the predictions about what will happen when the melted butter is mixed with cold water?
- Pour a small amount of the melted butter into cold water. Show how once in the water, the butter starts to solidify.
- Now it's time to take the experiment a little further. You will need your piping, fat, water and unflushables.
- Ask the students to predict what happens if FOGs (Fats, Oils and Grease) are poured down the sink (you may want to remind students about the pipe system that takes wastewater down to the sewers).
- Take your u bend and pour the remaining melted butter down it.
- Ask the students for their observations - they should see that the fat doesn't freely flow through the pipe.
- Now pour some cold water down the pipe - it should flow relatively freely. Some butter may also move through the pipe at the same time.
- Invite students to send some unflushables down the pipe - what happens when these items are sent down the sink? Invite students to come and add items to the mixture in the pipe.

Wastewater

Experiment 1

- Once the students have had the chance to experiment with a range of items ask if they are able to predict problems with this sort of use of the wastewater network:
 - Blockages both locally and further down the system.
 - The threat of causing a flood up through the kitchen or the bathroom.
 - Damage to the local environment and wildlife through wastewater flooding.
- Now ask the students if they know of any ways to reduce FOG in the wastewater network:
 - Remove FOG from plates with kitchen roll and dispose of the kitchen roll in the bin.
 - When cooking with FOG you can let it cool and then pour it into a gunk pot rather than rinsing the FOG down the drain (this is a reusable container that can be used to collect cooled FOG). Once the gunk pot is full, it can be emptied into a non recyclable container and thrown into the normal bin.
 - Ensure that plates are wiped down with a kitchen roll.
- Invite the students to reflect on the learning from the experiments, can they discuss behaviours they can change in order to support the wastewater network? Are there any other people they can positively influence at home?

Adapt

Some students may prefer to get straight into the experiment over watching the film. Work with a small group and ask the students to make predictions about what the experiment may be about and what they think will happen when the FOG and unflushables mix together. Ensure the students have the opportunity to make links to the wastewater network at home.

Extend

Ask students about how they could make the results of this test available to a wider range of the school community. Can they make a list of ways to make this test go viral so more people understand the implication of flushing unflushables and FOGs?



Wastewater

Experiment 2

Out Of Sight Out Of Mind? Can You Break Down The Unflushables?

Overview

An experiment looking at how long everyday items (that are often incorrectly flushed down the loo) take to decompose and decay.

Learning outcomes

- Understand how the wastewater network process works.
- Describe the mechanical process of what happens when you flush/ how water is treated and why it is important to do so.
- Describe and explain what happens when there is a blockage (waste engineer process).
- Understand the consequence of unflushables in overwhelming storm overflows.

Resources required

1. Out of sight out of mind film.
2. Some kitchen roll, toilet paper, wet wipe, (or you can choose your own unflushables).
3. Three containers - these could be large glass jars with lids, plastic boxes with lids or large zip lock bags will work too.
4. You'll also need a marker pen and masking tape for labelling your containers.
5. Water - you'll be filling each of your containers up so they are $\frac{3}{4}$ full.

Format

- Follow along with the film to conduct an experiment.

Timing

- 20 minutes plus additional observation time.

Home learning ideas

Watch the experiment film - how did you feel about the results? You can use our resource list above to create your own experiment too. Alternatively, have a think about who else could benefit from viewing the film and send it through for them to conduct the experiment.



Wastewater Experiment 2

Before running the activity

- Watch the experiment film.
- Decide how you would like to run the activity (this activity can work very well as a starter activity for a lesson on the wastewater network). Will your students work individually or in small groups? Will you use the experiment film and ask the students to follow along? If you are following along with the film you will need to plan out where you will pause the film in order for the students to conduct their own experiment. The activity can also be set as a homework task and you can follow up with some in-class discussion.
- Ensure you have the correct amount of resources for your students.
- Consider how long you would like to run the activity for, we recommend running it for at least a week so the students can grasp how “indestructible” some unflushables are.

Running the experiment

- Tell your students that in this experiment they are going to test a number of seemingly similar items that are regularly flushed down the loo.
- They are going to be observing the items closely in order to compare their rate of decay once they disappear out of sight if they were flushed down into the wastewater network (the students are using zip lock bags instead of a sewer).

- Outline the experiment and the steps that the students need to go through:
 - First the students need to use the masking tape to label each of the zip lock bags with the name of the item they are going to place in it e.g. kitchen roll, toilet paper, wet wipe.
 - Next the students should add the correct material to each of the zip lock bags.
 - Once all of the items are in place ask the students to make some predictions using a table like the one on the next page.



Wastewater Experiment 2

Item	After a shake		After 2 hours		After 24 hours		After a week	
	Prediction	Results	Prediction	Results	Prediction	Results	Prediction	Results
Kitchen roll								
Toilet paper								
Wet wipe								

- Ask the students to share their predictions with each other. Which material do they think will be the worst offender?
- Decide on how long you would like the activity to run and encourage the students to check and record their observations in relation to each material.
- Once the final observations are recorded, ask the students if they are surprised? Are they going to change their flushing behaviour as a result? Is there anyone else they can positively influence to change their flushing behaviour?

Adapt

Some students may prefer to get straight into the experiment over watching the film. Work with a small group and ask the students to make predictions about what the experiment may be about and what they think will happen when the FOG and unflushables mix together. Ensure the students have the opportunity to make links to the wastewater network at home.

Extend

Ask students about how they could make the results of this test available to a wider range of the school community. Can they make a list of ways to make this test go viral so more people understand the implication of flushing unflushables?

Wastewater

Wastewater Campaign Challenge

Overview

During this activity, students will combine all of their previous learning to create an awareness campaign that can then be used to measure the impact on a local wastewater issue.

Learning outcomes

- Identify the sources of wastewater problems in their school, community or home.
- Investigate and suggest methods to reduce the wastewater problems in their school and community.
- Develop a persuasive message to raise awareness about wastewater issues among peers and school staff.
- Utilise various media forms, such as posters, presentations, and videos, to convey their message effectively.
- Collaborate to create engaging and effective content that resonates with different audiences.
- Design and implement a plan to measure the impact of the wastewater awareness campaign.
- Collect and analyze data to determine changes in students' behaviors and attitudes toward wastewater management.
- Reflect on the campaign's successes and challenges and propose improvements for future initiatives.

Resources required

- Wastewater awareness campaign ppt.

Format

- Group discussion.
- Working in teams.

Timing

- Initial discussion 10 mins.
- Awareness campaign development 1-2 days.
Recommend monitoring of behaviour up to 1 month from launch.

Wastewater

Wastewater Campaign Challenge

Before running the activity

- Decide how you want to divide the class into teams.
- Review the accompanying powerpoint.

Activity 1: Introducing the challenge

- Run through the ppt with your students.
- Explain the challenge and what is required of them.
- Use the examples of previous campaigns developed by Northumbrian Water to help inspire your students.
- Encourage them to think about the format of their awareness campaign i.e. poster versus video.

Activity 2: Designing the campaign and research project

- Before sending your students off to start developing their research project and awareness campaign encourage them to think about what specific wastewater problem they want reduce in their school, home or local community.
- How could they capture the baseline statistics e.g. how many people flush wet wipes down the toilet? And then how can they measure the impact of their awareness campaign? Can they set themselves a target i.e. decrease the amount of people flushing wipes by 20%?
- Establish each groups wastewater problem and then set an agreed deadline for when they need to report back on their results.

Contact Us

We would love to see your students' work and their creative endeavors. If you'd like to share your students' projects with us, please send their designs to binthewipe@nwl.co.uk via email.