



Activity Theme: Wastewater

Grade 2-5

Activity Type: Demonstration 

Sewer Detectives

Activity Overview: Students will learn about the importance of where things go when poured down the sink or flushed down the toilets in their home. They will learn which products can enter our sanitary sewer system and which ones need to be disposed of elsewhere. Students will get an opportunity to view items on a sewer camera such as fats, wipes, toys, food scraps that can cause blockages in the sanitary sewer and learn where they can be properly disposed of.

Objectives:

Students will learn:

- What items are acceptable to be poured or flushed down a household drain
- What FOGs are – Fats, Oils and Grease and how it can clog pipes in your home
- Learn how to properly dispose of products that cannot go into the sewer system
- Learn about the function of sanitary pipes and storm drains

Materials

- Sewer pipe display with camera (already set up)
- Picture of sewer system under homes
- Items inside pipe:
 - Grease clump (play dough)
 - Toys
 - Wipes
 - Floss
 - Diapers
 - Aluminum can
 - Food (plastic)
 - Hair (fake)
 - Empty medicine bottle
 - Paint can
- Disposable wipes in a mason jar
- Toilet paper in a mason jar

Set-up: Everything will be set up when you arrive.

What will I be doing? (Procedure)

Remember that ***doing*** an experiment and ***discovering the answer*** is more powerful than watching and listening to someone, so try to involve as many children as possible.

Part 1: Introduction

Say: “Welcome to Sewer Detectives. This activity will teach us about the pipes in our home and the importance of learning what we can and cannot pour down the drain. We will get to see an actual blocked pipe and learn how to prevent blockages from happening in our sanitary pipes.”

Part 2: Warm-up Questions

Ask: “Can anyone tell me what a sanitary pipe is?”

ANSWER: These are the pipes that carry the water we use inside our homes into the sanitary sewer system, which goes to our water resource recovery facility to get cleaned before going back into Lake Ontario. *Show the students the large picture of the sewer system under our homes. Students may be more familiar with the term wastewater treatment plant, but Peel’s facilities are called Water Resource Recovery Facilities.*

Ask: “What are the three things that can get flushed down the toilet?”

ANSWER: The 3 Ps – Pee, Poo, and Toilet Paper (sometimes you will get puke).

Ask: “What are some things that we normally pour down the sink/drain?”

ANSWER: Water from washing dishes, water from the dishwasher, washing hands, brushing teeth and shower water.

Ask: “Why do we need to be careful of what goes into our pipes?”

ANSWER: Pouring the wrong things down the sink or toilet can cause pipes to get blocked up, which can lead to household flooding and untreated sewage being released into the environment.

Ask: “Do we think fats, oils, and grease, or FOGs, from our cooking should be poured down the drain?”

ANSWER: No. Why not? *(Give the students a chance to answer).*

Tell the students: “When we pour FOGs down the drain, they harden in the pipes and create a blockage. FOGs can also harm the environment!”

Part 3: Activity

Say: “Today, you will all become Sewer Detectives! We will be looking through a camera into the large pipe here to see what we find.

Say: “Before we take a look, let’s learn more about these pipes and why we have cameras to look inside them.”

A Peel staff member will be the one handling the camera at the pipe display. They will give a brief description of what they do and why we shouldn’t pour anything down the drain that doesn’t belong. Once they have explained, continue:

Say: “Great! Now let’s become Sewer Detectives! When you see an item in the camera, raise your hand, and tell us if you think the item should be in the sanitary pipes or if it belongs in the garbage, recycling, green cart, or a Community Recycling Centre.”

Students may not know what a Community Recycling Centre is if they have not been to one. Explain that these are places in Peel where they can bring household hazardous waste (paint, cleaning supplies, old medicine, and more), items to donate, and other large garbage and recycling items.

As items are shown in the camera, help students decide where the item belongs. Refer to the answer key below.

Answer Key:

Garbage: Broken toys, disposable wipes, dental floss, diapers

Recycling: Shampoo bottle, detergent bottle, aluminum can

Green cart: Grease clump (play-dough), food scraps, hair

Community Recycling Centre: Medicine, paint

Part 4: Wrap-up

Say: “Thanks detectives! Now we know that none of these items should be flushed down the toilet or put down the sink. Can anyone remind me of the only things that should be flushed down the toilet?”

Answer: The 3 Ps (pee, poo, toilet paper)

Show students the mason jars with the toilet paper and disposable wipe.

Say: “Take a look at these jars, one of them has a disposable wipe and the other toilet paper. We added these items in water a month or two ago, what do you notice?”

ANSWER: The disposable wipe didn’t break down, but the toilet paper has. Over time, if we keep using disposable wipes, it can clog up and cause backups in our pipes at homes. Remember the 3 Ps!

Ask: “How can we properly dispose of FOGs at our houses?”

ANSWER: FOGs are organic waste and should be placed in your green bin. Before washing pots, pans, and dirty dishes, wait for FOGs to harden, wipe with a paper towel or scrape it into the green bin. If FOGs are in liquid form, leave it to cool down and then empty into the green bin.

Say: “Thank you for joining us at Sewer Detectives! Remember to think before you flush!”

Vocabulary:

Community Recycling Centres: Disposal centres for household hazardous waste, garbage, recyclable, and reusable items.

Sanitary Sewage System – an underground system of pipes for transporting sewage from our homes to a water resource recovery facility (some people may know it as a wastewater treatment plant).

Storm Drain – found on streets for rainwater runoff, and to prevent streets from flooding

Water Resource Recovery Facility – A treatment plant where solids, chemicals, and other material are removed from our water before it can be put back into Lake Ontario.