

Virtual Festival
Follow Up Activity



Down the Drain or Not?

Theme: Water Technology

Curriculum:

- Understanding Life Systems, Grade 2 (Growth and Changes in Animals)
- People and Environments, Grade 3 (Living and Working in Ontario)
- Understanding Life Systems, Grade 4 (Habitats and Communities)
- Understanding Earth and Space Systems, Grade 5 (Conservation of Energy and Resources)

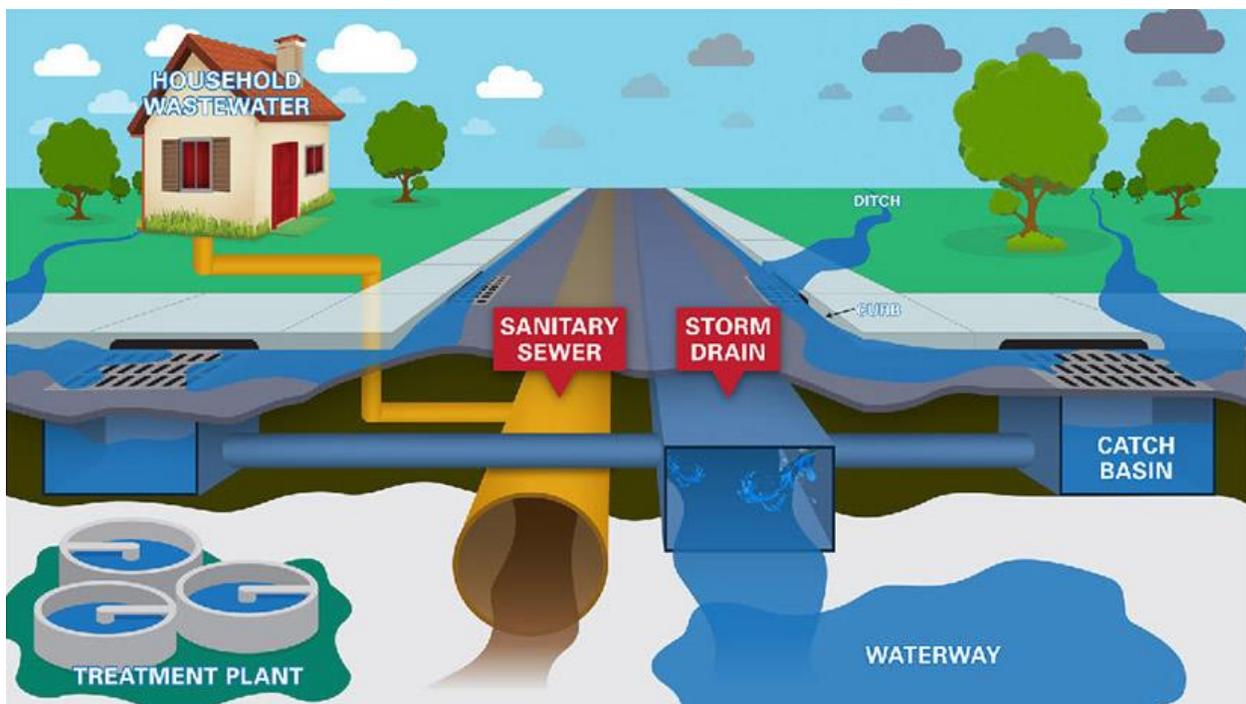
Activity Overview:

This activity teaches students that the water and other substances/items that go into roadside storm drains (grates) do NOT go to a sewage treatment plant before entering our natural waterways. It also informs students that many household chemicals are classified as hazardous waste and must be disposed of properly at a hazardous waste depot.

Key Messages:

Water that enters storm drains (**stormwater**) is not treated at pollution control (sewage treatment) plants.

- Anything that goes down a storm drain will go directly into a nearby river or creek.
- It is important that nothing should go into the storm drain except rain water and snow melt.
- Sanitary Wastewater (the 3 P's: **Poo, Pee and toilet Paper**) goes to the sewage treatment plant for treatment before release to the river or creek.



- It is important that only the three P's be put down the drain or flushed down the toilet. Fats and greases and non-flushable wipes cause problems for the sanitary wastewater system and should be disposed of properly.

Household Hazardous Wastes (HHW) and leftover medications should never be put down any storm or wastewater sewer. If HHW have to be used, dispose of them properly at HHW drop-off depots. If you have leftover medications, return them to the pharmacy.

Materials:

- 6 spaces on a blackboard or virtual setting (ie. Google JamBoard) marked "Sanitary Wastewater", "Stormwater", "Household Hazardous Waste", "Recycling", "Organics" and "Garbage"
- Student availability to picture taking and uploading (optional)
- Magazines for picture scavenging (optional)
- Key to hazardous waste symbols
- Waste Diversion Key

Definitions:

Sanitary Wastewater - water that is flushed down the toilet, goes down the shower drain, bathroom sink and kitchen sink. It also includes wash water from the laundry machine. This water is treated at the Pollution Control Plant.

Sanitary Sewers - take wastewater to the Pollution Control Plants (also called Sewage Treatment Plants) where it's treated and discharged to the nearest creek or river. (St. Thomas has 1 Pollution Control Plant; London has 6 Sewage Plants - largest is Greenway Pollution Control Centre)

Stormwater - is the water runoff that comes from the roads and houses after a rainfall, when snow melts and includes the water used outside the home (such as washing your car).

Storm drains – take the rain or snowmelt runoff and flows directly to the nearest creek, river or storm pond. This water does not receive any treatment.

Household hazardous wastes - are the materials that we may use in our homes such as cleaning solutions or in the garage such as automobile oil, that are harmful to the environment and to our Pollution Control Plants. These materials need to be handled carefully and taken for safe disposal at hazardous waste depots.

Stormwater ponds – water runoff that collects in stormwater ponds and wetlands is released slowly back into the natural watercourses avoiding erosion and downstream flooding.

What will I Be Doing? (Procedure):

Students will learn about what happens to water that runs off our streets, sidewalks, parking lots and house roofs and goes into the sewers.

You will explain the process of sorting residential wastes and what the warning symbols on packaging mean.

Discussion Before the Activity:

ASK: Does anyone know what a storm drain is?

EXPLAIN: storm drains are found on the side of the road along the curb. They collect rain and snowmelt from the roadway and other areas to stop them from flooding.

ASK: Has anybody ever looked down a storm drain? What's down there?

EXPLAIN: There should be a bit of water down there waiting to make its way back to the natural environment the next time it rains. Unfortunately, many times there is a collection of litter found down there.



EXPLAIN: Unlike wastewater collected by sanitary sewers, the water that goes into storm drains is NOT treated at the sewage treatment plant. What does this mean? It goes right into the natural waterways, like lakes and rivers. If it's dirty, it can kill plants, birds, fish and other animals. Eventually it will come back to us as the water we drink or wash with.

ASK: What does *hazardous* means?

EXPLAIN: It means dangerous, kind of like poison.

ASK: Do they know what *hazardous wastes* are?

EXPLAIN: Hazardous wastes are left over or unused hazardous materials that need to be disposed of. Review some examples of hazardous wastes from the Waste Division Key below.

ASK: How do we properly dispose of hazardous wastes?

EXPLAIN: The pollution control plant is not designed to treat hazardous wastes, many cannot be recycled at this time, and the landfill cannot properly handle these wastes. They must be collected and taken to a Household Hazardous Waste Depot for proper disposal.

ASK: How can we identify hazardous materials when it comes time to dispose of them?

EXPLAIN: WHMIS is an international system that requires the makers of hazardous materials to put a symbol on the package that tells us that it is hazardous and in what ways it is a hazard. Medications should also be considered hazardous, and any leftovers should be returned to the pharmacy. Review the WHMIS labels attached below with your students.

Activity:

Students are challenged to take a photo, find a picture online or cut out a magazine picture of some common household materials to determine which are safe to put in the sanitary sewer (toilet), storm drain and which are garbage, recyclable, organic or hazardous wastes.

Depending on the nature of the activity (virtual or classroom):

Virtual	Classroom
Set up a Google Jamboard with 6 slides with the following titles: "Sanitary Wastewater/Toilet", "Stormwater", "Household Hazardous Waste", "Recycling", "Organics" and "Garbage"	Set up the blackboard/smartboard with 6 sections with the following titles: "Sanitary Wastewater/Toilet", "Stormwater", "Household Hazardous Waste", "Recycling", "Organics" and "Garbage"
Ask students to upload photos, or type the name of household materials into the appropriate jamboard slide.	Ask students to scavenge magazines for pictures of household materials and cut them out or they can provide the names of items and place them into the appropriate area of the blackboard/smartboard
Review and discuss student postings.	Review and discuss student postings.

ASK: Is this Stormwater, sanitary sewer, garbage, organic, recyclable or hazardous waste?

EXPLAIN: Of course this will vary with each item. It will become clear when you get to the end of the activity that NOTHING should be put down into the storm drains, only the 3 P's (Poo, Pee, Toilet Paper) should in the toilet and everything else needs to be put in the garbage, recycling, organics or taken to a hazardous waste depot.

CONGRATULATE the students on completing the task. Point out any mistakes they had made and put the item into the correct area. Refer to the Sorting Box Key below for answers.

Reflections and Extensions

ASK: What happens if we put things in the sewers that don't belong there?

EXPLAIN: They end up in our waterways; they could poison plants, birds, fish and other animals. Eventually, they will poison us, too!

ASK: What's the message we should tell our friends and family?

EXPLAIN: The storm drain is not a garbage can! Do NOT throw ANY objects into the storm drain. Put garbage and other materials where they belong - in a garbage can, a recycling box, organics bin, or at a hazardous waste drop-off depot. Remember to tell your family members that prescription drugs (medications) are household hazardous waste, not to be flushed down the toilet or put down the drain.

The wastewater drain in your house (sink, toilet) is part of a complicated treatment process that ensures that what exits the Pollution Control Plant into our watercourses is clean and does not harm the environment. Household waste goes into the drains and toilets of your house. This should NOT include kitchen fats, oil and grease "TOILETS ARE NOT GARBAGE CANS"

Hazardous Waste Symbols
(Workplace Hazardous Materials Information System 2015)

***Note** – the WHMIS categories were updated in 2015 and came into effect in December 2018; therefore some of the symbols on students examples may still have symbols that reflect WHMIS 1988.

<p>Skull and crossbones — materials that can be toxic or cause death in small quantities when swallowed, absorbed through the skin or inhaled into the lungs. Example: cleaning chemicals.</p> 	<p>Health Hazard – materials that can cause or suspected of causing serious health effects.</p> 
<p>Corrosion — materials that can react with metal and living tissue, such as skin or eyes.</p> 	<p>Environment – may be harmful to aquatic life or cause a long-lasting effect to the aquatic environment.</p> 
<p>Flame over circle — materials that can cause other materials to burn, cause fires or explosions.</p> 	<p>Biohazardous Infectious – biological toxins such as viruses, moulds, bacteria which may cause serious disease or death to humans and animals.</p> 
<p>Gas cylinder – for gases under pressure which may explode if heated, punctured or dropped.</p> 	<p>Exploding bomb — materials which may explode if come in contact with fire, friction or heat.</p> 
<p>Exclamation mark – products that are poisonous which may cause immediate or severe harm.</p> 	<p>Flame — materials such as gases, aerosols or liquids that can readily ignite if exposed to heat, sparks, friction or flames.</p> 

Another Symbol you may find on consumer products:



Do not flush down the drain

Fats, oils grease	Dental floss
Baby wipes, "flushable wipes"	Toothbrushes
Children's toys	Paper towels
Cotton balls, swabs or pads	Anything else that is not pee, poo or toilet paper – remember toilets are not garbage cans!

Waste Diversion Key:

	Stormwater Drain	Sanitary Sewer Drain (Toilet)
Items Acceptable For Disposal	Rain	Pee
	Snow melt	Poo
		Toilet Paper

ORGANIC/GREEN BIN	
Leaves	Coffee Grounds & Filters
Yard Waste	Tea Bags
Brush (no longer than 40cm(15in.) and have a diameter no larger than 5cm (2in.)	Egg Shells
Flowers (fresh or dried)	Meat (including bones)
Fruits & Vegetables	Soiled Pizza Boxes
Grains (pasta, bread, cereal)	Paper drink trays
Dairy Products (cheese, yogurt)	Used tissues and paper towel
Pet Waste & litter	

RECYCLING	
BLUE BOX	GREY BOX
Newspapers	Metal Food & Beverage Cans
Flyers	Glass Jars and Bottles
Boxboard (cracker, cereal, boxes)	Rigid Plastic Containers (#1-7)
Fine paper	Aluminum Pie Plates and Foil
Envelopes	Empty Paint cans (lids removed)
Magazines	Empty Aerosol cans
Telephone Books	Milk Cartons, Juice Boxes, Ice Cream tubs
Cardboard (flattened and bundled no larger than 30" x 30" x 8")	Paper drink cups (lids removed)
	Cardboard cans (ex. coffee cans, chip cans)
	Blister packaging

HAZARDOUS WASTE		
Used around the house	Used outside the home	Used in the garage
Arts and craft supplies (glue or paint)	Driveway sealant	Antifreeze
Drain cleaner	Weed killer	Brake or transmission fluid
Oven cleaner	Pool chemicals	Car battery
Batteries	Plant/ flower fertilizer	Gasoline or diesel fuel
Unbroken fluorescent bulbs	Propane tanks	Motor oil
Paint	Pesticide spray	Oil filter
Wood stain	Mouse/ rat poison	Paint stripper
Aerosols (air fresher)	Ant/ insect killer	Paint thinner
Bug spray	Lighter fluid/ barbeque starter	Spray paint
Laundry bleach	Moth balls	Stains and varnishes
Rubbing alcohol	Fungicide	Degreaser
Medication		Windshield washer fluid
Nail polish/ remover		Car wash soap
Metal polish		Car wax

GARBAGE / LANDFILL

The last resort should be sending items to the landfill. Anything not able to be diverted using the tables above should be directed to the garbage can.