
SCHOOL
THE
LANDFILL MUTANT
VS. {INSERT YOUR SCHOOL HERE}
STUDY GUIDE
FOR TEACHERS
GREENkids Inc.

THE LANDFILL MUTANT VS. <INSERT YOUR SCHOOL HERE>

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Study Guide for Teachers

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ABOUT GREEN KIDS INC.

Established in 1991, Green Kids Inc. is a Winnipeg-based charity, and the only organization in Canada dedicated to Environmental Education through Theatre. Our mission is to educate kids, teachers and families about environmental issues and to inspire them to take positive action to protect our environment. We deliver our messaging through the use of live theatre, drama and science workshops, and educational resources. Theatre is our primary medium because presenting environmental issues through story allows audiences and performers to empathize with the characters and their situations. Now in our 30th year, we have toured our various programs to over 1,400 elementary and middle schools and public events across Canada, reaching over 1,500,000 students, teachers and families.

ABOUT THE PLAY

The Landfill Mutant vs. <Insert Your School Here> is designed for grade 5-7 students to perform for their schools and communities. It touches on environmental science and personal health at school and at home, while at the same time offering students and teachers the chance to explore these themes creatively, through imagination and…play! Mounting a production and at the same time teaching about science and our environment can seem like a big task, so we've created 4 support documents for teachers and students.

ABOUT THE PROGRAM

This program is designed as a project for a grade 5-7 classroom or drama club to undertake, with a teacher taking on the role of director, and students choosing to be performers, set, props, costume or sound designers, builders, stage managers, or assistant directors. As actors in the play, students are empathizing with the characters, gaining a greater understanding of how it might feel to be in their shoes. As production designers, students are engaging in researching single-use materials and their impact on our environment and will have the hands-on task of building a sustainable set, props and costumes that evoke questions about the amount of single-use items in their school. As production assistants, the problem solvers and researchers in the class will get to help others better understand the issues addressed in the play.

We have developed 4 support documents for the play to help teachers and students get the most out of the experience. For students, a Designer's Guide that breaks down each department and its function and responsibilities and a Research Manual that serves as a reference for terms and concepts. For teachers, a Director's Guide that breaks down how to tackle everything from planning your rehearsals to production meetings with the designers, and this Study Guide.

ABOUT THIS STUDY GUIDE

This guide includes information, lesson plans, resources and activities based on the themes and content of *The Landfill Mutant vs. <Insert Your School Here>*. We have also included information about the Government of Canada's Healthy Home initiative - focusing on their Ten Tips to Protect Your Family from Chemicals and Pollutants.

This guide is designed to provide teachers with brief, uncomplicated background knowledge on the topics and their impact on health and the environment. It has been formatted by topic, with activities for different age categories included under each heading. Feel free to modify these lessons to suit other grade levels as you see fit. The accompanying Research Manual contains definitions, resources and further information about the terms used in the guide, and in the play itself.

It is our hope that you will use this guide as a springboard for classroom discussion in order to help prepare students for the play, dissect its themes after they see it, or simply as an instrument to promote fun environmental education and action inside and outside of the classroom.

HEALTH CANADA'S ENVIRONMENTAL HEALTH INITIATIVE - HEALTHY HOME

Every day, we are exposed to chemicals and pollutants in the air, food, water and products we use. Health Canada's Healthy Home campaign helps to raise awareness and encourages Canadians to take action to protect their **health**[1].

The campaign includes the following **"Ten Tips to Protect your Family from Chemicals and Pollutants"**[2] which will be integrated into content and messaging throughout this manual.

Read the label

Lock up chemicals

Dispose of chemical products properly

Install smoke alarms and carbon monoxide alarms

Test for radon gas

Ventilate your home

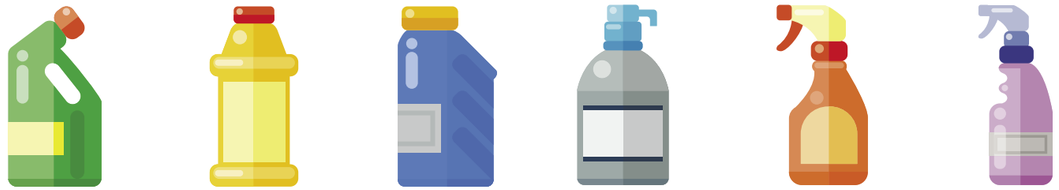
Prevent mould

Let tap water run until it's cold

Wash your hands often

Keep your home clean

[1] https://www.canada.ca/en/health-canada/campaigns/healthy-home.html
[2] https://www.canada.ca/en/health-canada/services/home-garden-safety/basics-protect-your-home-family.html



TOPIC 1: HOUSEHOLD CHEMICAL SAFETY

Chemicals are everywhere. Everything we see, touch, breathe in or ingest is a chemical. However, some of these chemicals are good for us and even help us to live, like water (H_2O) that we drink or oxygen (O_2) that we breathe. While other chemicals can harm us if we don't use them in the right way. Bleach is a good example (sodium hypochlorite or NaOCl). It is used to disinfect things but if we handle it in the wrong way or mix it with other chemicals, they can make us very sick, potentially poison us or severely irritate our skin.

Our homes can be filled with many different types of chemicals that can cause harm to us if we store or use them improperly. From household cleaners to pest control products to medications and alcohol. In fact, in North America, hundreds of children are sent to the emergency room (ER) each year due to ingesting chemicals which resulted in poisoning. Between 2012 and 2013, poison control centres had so many calls from kids swallowing laundry detergent pods that the manufacturers had to change the container to make them more difficult for kids to get into. Some other requirements for laundry detergent pods include opaque packaging, labelling and pictograms, bittering agent, and burst resistance. We should always try to eliminate as many hazardous things as we can in our home but sometimes that is hard, especially things like medications. At the very least, we should ensure medications and hazardous chemicals are always locked up and out of reach of children and pets.

All hazardous chemicals we buy in the store are labelled to tell consumers in Canada information regarding potential hazards of what they are purchasing. Helpful information on Chemical Safety on Consumer Products can be found on the Health Canada website. Before we touch any chemical, we (even adults) need to read the label and know what is inside the container. The hazard symbols or pictograms on the label can help us quickly identify the potential dangers with the chemical. Labels can also tell us how to safely handle a chemical and what to do if we accidentally are exposed (get it on our skin, in our eyes or ingest it). Labels also tell us how to store chemicals safely. Some chemicals can react (or explode) if they are stored at the wrong temperature or next to another chemical and accidentally mix together.

It is always a good idea to know the phone number to your local poison control centre in case someone at home or school gets hurt by a hazardous chemical.

PROVINCE / TERRITORY	PHONE NUMBER(S)	WEB
Alberta / Saskatchewan/ NWT	1-800-332-1414 (toll free in Alberta, Northwest Territories) 1-866-454-1212 (toll free in Saskatchewan) (403) 944-1414 (in Calgary, outside of Alberta, or VOIP users)	**Poison And Drug Information Services (PADIS)[3]**
British Columbia	1-800-567-8911 (toll free in BC) (604) 682-5050 (Greater Vancouver or outside of BC)	**BC Drug and Poison Information Centre (DPIC)[4]**
Manitoba	1-855-7POISON (1-855-776-4766)	**Manitoba Poison Centre[5]**
New Brunswick	911 (within NB)	**Sykes Telehealth[6]**
Newfoundland and Labrador	1-866-727-1110 (toll free) or (709) 722-1110	**Poison Information Centre - The Janeway Child Health[7]**
Nova Scotia / PEI	1-800-565-8161 (within NS and PEI only) (902) 470-8161 (Halifax or outside NS, PEI)	**IWK Regional Poison Centre[8]**
Nunavut	1-800-268-9017	**Ontario Poison Centre[9]**
Ontario	1-800-268-9017	**Ontario Poison Centre[9]**
Quebec	1-800-463-5060	**Centre antipoison du Québec[10]**
Yukon	811 (within Yukon) or shared with BC 1-604-682-5050	**BC Drug and Poison Information Centre (DPIC)[4]**

[3] https://www.albertahealthservices.ca/topics/Page11975.aspx4
[4] http://www.dpic.org/
[5] http://www.hsc.mb.ca/emergencyPoison.html
[6] http://capcc.ca/en/content/new-brunswick
[7] http://www.easternhealth.ca/AboutEH.aspx?d=3&id=789&p=724
[8] https://iwkpoisoncentre.ca/index.php
[9] https://www.ontariopoisoncentre.ca/
[10] https://www.ciusss-capitalenationale.gouv.qc.ca/centre-antipoison-du-quebec/capq-accueil

Excellent sources for more information on this topic include:

Health Canada's Consumer Product Chemical Safety[11]

Canadian Centre for Occupational Health and Safety[12]

The proper disposal of hazardous chemical waste from our homes is very important. Improper disposal can harm our environment and our health. Items such as household cleaners, paints and varnishes, pest control products, prescription and over-the-counter medications and alcohol should never be poured down sinks or drains or flushed down toilets. Many of these items cannot simply be thrown in regular garbage bins either. In fact, there are municipalities with by-laws which forbid these actions. So, how do we know where and how to properly dispose of this household hazardous waste? In addition to disposal directions that may appear on the label, there are guides across Canada for you to follow directing you to locations in your community for proper recycling and disposal of all types of household waste, including those that are considered hazardous chemicals.

Alberta[13]

British Columbia Recycling Council or Return-It[14]

Manitoba Waste Wise Program[15]

Recycle New Brunswick[16]

Rethink Waste Newfoundland[17]

Northwest Territories[18]

Divert NS (Nova Scotia)[19]

Nunavut[20]

Ontario Product Care Recycling[21]

Island Waste Management Corporation (Prince Edward Island)[22]

Recyc-Quebec[23]

Saskatchewan Waste Reduction Council[24]

Yukon[25]

[11] https://www.canada.ca/en/health-canada/services/home-safety/household-chemical-safety.html#a4
[12] www.ccohs.ca
[13] https://www.alberta.ca/hazardous-waste-households-and-municipalities-overview.aspx#toc-0
[14] https://rcbc.ca or https://www.return-it.ca/
[15] www.gov.mb.ca/sd/wastewise
[16] https://www.recyclenb.com/
[17] https://rethinkwastenl.ca/
[18] https://www.enr.gov.nt.ca/en/services/managing-hazardous-waste
[19] https://divertns.ca/
[20] https://www.gov.nu.ca/sites/default/files/Guideline%20-%20General%20Management%20of%20Hazardous%20Waste%20%28revised%20Oct%202010%29_0.pdf
[21] https://www.productcare.org/province/ontario/
[22] https://iwmc.pe.ca/
[23] https://www.recyc-quebec.gouv.qc.ca/
[24] www.saskwastereduction.ca
[25] https://yukon.ca/en/waste-and-recycling/hazardous-waste-disposal/dispose-hazardous-waste

In *The Landfill Mutant vs. <Insert Your School Here>*, the character Mo is using household chemicals improperly and carelessly, which leads to the creation of The Landfill Mutant. Mo is trying to create a self-sustaining battery and some of the components include household chemicals. Mo's friend, Sam, informs them that they are not using the chemicals for their intended purpose, nor are they using the proper protective gear or returning the chemicals to be safely stored. The result is that the chemicals help create a destructive mutant - a metaphor for the environmental destruction we unleash through our actions.

Later in the play, the character Alex reminds their friends (who are about to eat lunch) to wash their hands after science class - where they've handled harmful chemicals.

The character Dom talks about developing a photo in their home using chemicals. When asked if the chemicals are safe, the character replies that they use the chemicals according to the instructions on the containers, using the required protective gear.

LESSON PLAN

Talk about what a chemical is and explain the difference between benign chemicals and those that can be hazardous if we use or store them improperly.

Hazard symbols consist of three main parts: the picture, the frame, and the caution word. The picture tells you the type of danger. The frame tells you what part of the chemical is dangerous. A triangle shape frame tells you the container is dangerous, and the octagon shape frame tells you the contents of the container is dangerous. The signal word explains how much risk there is of the chemical harming us. The three signal word(s) from least to most harmful are: CAUTION, DANGER, EXTREME DANGER.

A more detailed reference for this information can be found **here**[26].

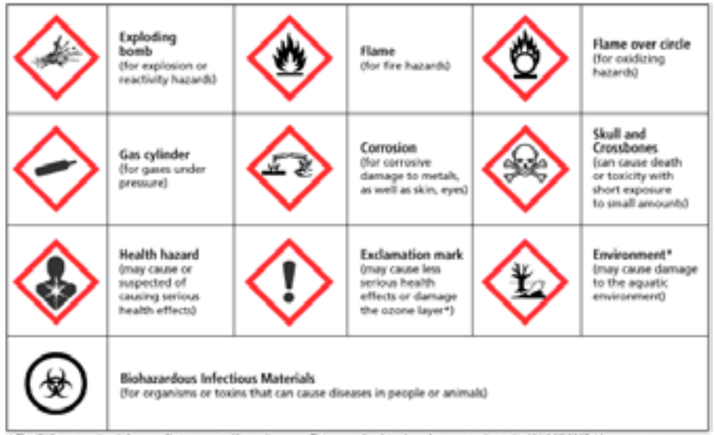
For younger kids it would be sufficient to talk about **Consumer Chemical Hazard Symbols** and for older students it may be of benefit to present a more detailed list of pictograms as found in **WHMIS 2015** as they may encounter these in the workplace one day. WHMIS 2015 is Canada's system for classifying and labelling hazardous chemicals in the workplace which aligns with a global system called GHS (or the Globally Harmonized System). Teaching information on all symbols can be found at **here**[27]

[26] https://www.canada.ca/en/health-canada/services/home-safety/household-chemical-safety.html#a4.
[27] https://www.ccohs.ca/teach_tools/chem_hazards/symbols.html#consumer.

CONSUMER PRODUCT SYMBOLS

Description	Hazard Symbol	Danger
EXPLOSIVE		The container can explode if heated or punctured. Flying pieces of metal or plastic from the container can cause serious injury, especially to your eyes.
CORROSIVE		The product can burn your skin or eyes. If swallowed, it can damage your throat and stomach.
FLAMMABLE		The product or its fumes will catch fire easily if it is near heat, flames, or sparks. Rags used with this product may begin to burn on their own.
POISON		If you swallow, lick, or in some cases, breathe in the chemical, you could become very sick or die.

WHMIS 2015 SYMBOLS



* The GHS system also defines an Environmental hazards group. This group (and its classes) was not adopted in WHMIS 2015. However, you may see the environmental classes listed on labels and Safety Data Sheets (SDSs). Including information about environmental hazards is allowed by WHMIS 2015.

The graphic above shows hazard pictograms in WHMIS 2015. The bold type depicts the name of the pictogram and the words in brackets describe the hazard itself.

ACTIVITY 1: NAME THAT PICTOGRAM! (GRADES K - 7)

Print out the following hazard symbols to make different pictogram cards (use 8" x 11" or any size you like). You can vary this exercise according to the age of your class.

1. You can use the hazard symbol cards to have students match it up with the category name (if younger ensure they can explain what it means and how the chemical can hurt them).

2. You can flash the cards and have students race to buzz in (raise hand, make buzzer sound, etc.) to answer with the correct hazard category.

As an alternative for older kids you can use the **Pictogram Quiz**[28] found on the website for the Canadian Centre for Occupational Health and Safety.

ACTIVITY 2: CHEMICAL IDENTIFICATION (GRADES 4 - 7)

As the teacher, bring in some empty and cleaned chemical containers from home or around the school (some with hazard symbols and some without including food items like vinegar). Have the students select a chemical and tell you if it is safe or if it can have potential to cause harm. They should also be able to explain how they know this. Ensure one of the items is an unmarked spray bottle (filled with water but do not tell them at first). Have the discussion around how when chemicals are not marked, we cannot tell if it is harmless water or a hazardous poison or skin irritant. Important time to highlight the importance of labelling and keeping things in their original container.

ACTIVITY 3: BAKING SODA VOLCANO (KINDERGARTEN TO GRADE 4)

Some chemicals just don't mix! In fact, combining the wrong chemicals together can lead to dangerous situations. Explosions even. You can use a baking soda and vinegar volcano as an example of this concept. You can keep things very simple and give each student a small clear cup with vinegar and a plate with some baking soda and let them add a little vinegar at a time and see the bubbly reaction. Explain that the vinegar (acetic acid) mixing with baking soda (a base) makes a gas called carbon dioxide. (Note: Mention carbon dioxide is the gas used to carbonate soda or "make it fizzy".)

If you are looking for a fancier version of the volcano experiment check out this **online source**[29].

Experiment alternative …. You can also try the **infamous Mentos in Diet Coke experiment**[30] for a similar explosive effect.

[28] https://www.ccohs.ca/teach_tools/chem_hazards/hazard_quiz.html
[29] https://www.sciencefun.org/kidszone/experiments/how-to-make-a-volcano/
[30] https://www.science-sparks.com/infamous-coca-cola-mento-trick/

DISCUSSION QUESTIONS

Have a class discussion on what chemicals you may find in different rooms in the home and how they may be dangerous.

- What are the chemicals in bathrooms?
  Possible answers: Prescription medicine, nail polish remover, mouthwash, shampoo, body wash, toilet bowl cleaner

- What are the chemicals in kitchens?
  Possible answers: Alcohol, household disinfectants and cleaners, glue

- What are the chemicals in laundry or mud rooms?
  Possible answers: bleach, laundry detergent, etc.

NEXT STEPS OR HOMEWORK

Send students home with the worksheet on the following page.

Note: Any work with chemicals at home should be done

CHEMICALS IN THE HOME

NAME:

under the supervision of an adult. Read the labels first to handle properly.

Look for chemicals around your home that can be dangerous (hazardous). How many did you find?

_____

Are they all clearly marked?

_____

Do you know the name of the chemical and is it written on the container?

_____

Were there any chemicals without a label?

_____

If yes, why is this dangerous?

_____

Pick one of the chemicals you've found. Can you identify what kind of chemical hazard it is?

_____

Do you see the hazard symbol?

_____

What can this chemical do to you?

_____

Are the chemicals at home stored properly?

_____

Talk to your parent/guardian about this.

Put the number for the number for the local poison control centre in a visible spot in your home and make sure everyone knows it.

GLOSSARY

Acute Toxicity – Some toxic substances can do a lot of damage pretty quickly. The term 'Acute Toxicity' refers to the negative effects of a chemical caused over a short period of time (usually less than 24 hours).

Chemical(s) – Absolutely everything is made of chemicals, including us. We often group chemicals together based on common characteristics. Vitamins, minerals, household cleaners, hazardous chemicals, greenhouse gasses, corrosives and pesticides are only a few of many, many different groups of chemicals. While some chemicals can be very dangerous, simply calling something a chemical doesn't necessarily mean it's bad for us or our environment.

Corrosives – A group of dangerous chemicals that attack and chemically destroy exposed body tissues like skin. If household cleaners have the Corrosive symbol, you must take great care to protect your skin while using it. Corrosives can also damage or destroy concrete, glass and metal.

Disinfect – Cleaning to destroy bacteria.

Explosives – A strong, sudden and very dangerous reaction when certain chemicals are mixed together.

Flammables – Things that burn easily.

Globally Harmonized System (GHS) of Classification and Labelling of Chemicals – A way of grouping and labelling hazardous chemicals, which is done all over the world.

Hazard / Hazardous – Anything that can cause danger or harm.

Hazard Symbol – A picture that tells you the type of danger and what part of the product is dangerous.

Irritants / Sensitizers – Causes inflammation or discomfort to the body.

Oxidisers – Materials that give off oxygen and help combustibles ignite (catch fire).

Pictogram – A graphic image (picture or drawing) used to show what type of hazard is present within a chemical.

Signal word – A description of the injury that may result from exposure to the product.

Toxin – A poisonous substance.

TOPIC 2: REDUCE/ ZERO WASTE

'Reduce' is often the most overlooked of the three R's (Reduce, Reuse, Recycle) but possibly the most important. If we reduce what we buy and consume, it addresses the issue of environmental degradation at the source - eliminating the need to reuse, recycle or dispose of waste.

The demand for cheaply manufactured goods and fast fashion has had a major impact on our environment - and although recycling is better than sending items to the landfill, a lot of energy is required to clean and process our recycled items (also only about 9% of plastic in the world gets recycled!). The best option is to simply create less waste in the first place by consuming less and making conscious choices about what we do consume.

Items have an environmental impact beyond just the waste that's created when we dispose of it. For example, the manufacturing of a single item of 'fast fashion' clothing can damage our planet in several ways by creating emissions (through manufacturing and transporting the item), polluting our soil and water systems (through manufacturing and micro plastics when washing) and contributing to landfill waste (once the item is discarded). The textile industry is the second largest polluter of freshwater systems in the world. Microplastics made up 31% of the plastic pollution in the ocean (IUCN, 2017). When people purchase second-hand clothing or natural textiles made from local manufacturers, the environmental impact is lessened.

Students can start to contextualize these issues by exploring different objects in their life and thinking about how these objects were made, where they come from (how far they had to travel), how long these objects will last before they are thrown out, and how long they will take to decompose once they become waste. For example, styrofoam and plastic bags take 500 years to decompose! Being informed and mindful about the true cost of what we buy can help influence consumer habits. This can also be applied to consumables like food or hygiene items - which are obviously necessary purchases, but are still produced, packaged and transported at a cost. These factors help determine the value of these consumables, and the impact of being wasteful.

Though students may not hold all the purchasing power in their households, they can influence decisions to a certain extent by requesting zero waste lunches, asking for locally made gifts, repurposing their toys or clothing, not wasting food, etc. Introducing consumer mindfulness now will help influence their purchasing decisions in the future.

In *The Landfill Mutant vs <Insert Your School Here>*, the characters address several issues around reducing consumption and waste:

The character of Mo is attempting to invent a self-sustaining battery - eliminating the need to purchase batteries, or even use power to recharge a battery. Mo is aware of the environmental degradation caused by producing and disposing of batteries. Improper disposal of batteries can result in the release of corrosive liquids and dissolved metals into soil and groundwater that are toxic to plants and animals.

The characters Lou and Alex discuss fast fashion and how it affects the environment. Alex buys lots of new clothing, and Lou encourages them to purchase less clothing, or at least second-hand clothing, to avoid polluting the environment with microplastics (which are often used in the manufacturing of cheap clothing).

The teachers and some students in the play demonstrate the volume of waste created by single-use items such as coffee cups, styrofoam containers and disposable take-out food packaging. Their encounters with The Landfill Mutant make them realize that they can easily adjust their habits by using reusable versions of these items or encourage their school to carry environmentally friendly alternatives.

At the end of the play, the students commit to reducing their consumption in order to destroy The Landfill Mutant. They commit to caring for their belongings and not updating them constantly (cell phones, backpacks, etc.) or purchasing used versions of these items instead of new.

LESSON PLAN

Canada is one of the worst waste-producing developed nations, with each Canadian producing around 673 kgs of waste per year, or nearly 2kgs per day (OECD, 2019). That's a lot of garbage! Hearing these numbers will illustrate to students that we all have a role to play in reducing our consumption and waste.

However, reducing our environmental impact isn't just about sending less garbage to the landfill. It's important that students understand the cost of manufacturing and transporting the items we see in a store, and how cheap or disposable items just increase the need to manufacture and transport more. As an example, the factory manufacturing and transport of clothing is responsible for 10% of all carbon emissions in the world. More than 85% of this clothing ends up in the landfill (UNEP, 2018).

Explain to students that living a completely zero waste life is impossible. Nobody is perfect! But just imagine the impact we could have if we all made some lifestyle changes to minimize our environmental impact.

"We don't need a handful of people doing zero waste perfectly. We need millions of people doing it imperfectly." - Anne Marie Bonneau

ACTIVITY 1: THE 30 DAY ZERO WASTE CHALLENGE (ALL AGES)

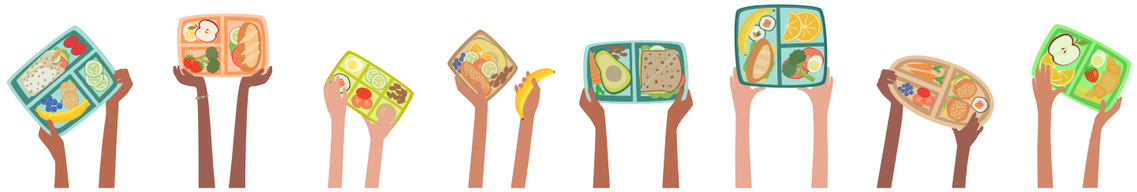
Supplies:

- print out of calendar for one month (with lots of space to write in each day)
- pens and markers

Directions:

Give students a print-out of the calendar for the coming month and have them create a 30- day zero waste challenge for themselves. They can write an activity for each day - or one for a whole week (ex. Buy Nothing Week). This helps to create environmentally conscious habits and promotes consumer mindfulness. Examples for daily activities include:

- Repair something in your house (darn a sock, fix a toy with the help of a parent, etc.)
- Buy nothing but necessities (food, hygiene items, etc.) for a whole week
- Have a clothing swap with a friend
- Make a gift for someone with recycled or waste materials
- Make a 'no flyers please' sign for your mailbox
- Make a detailed meal plan with your family to avoid food waste
- Need to buy a gift? Visit a store with local goods or purchase an experience (trip to the zoo, cooking class, etc.)
- Organize all your reusable containers so they are easy to grab and use (so you don't reach for single-use)
- Repurpose an item in your house (sew old clothing into a blanket, make a flowerpot out of a used container, etc.)



ACTIVITY 2: ZERO WASTE LUNCHES (ALL AGES)

Supplies:

- Compost bucket
- Garbage bag

Directions:

Choose a day and ask students to pack (or to help their parents pack) a zero-waste lunch for that day. On the day before, get students to place the waste from their lunch into a garbage bag - hold onto it as this will be used for comparison purposes. On zero-waste lunch day, arrange for a compost bucket to collect the food scraps - this will not count as waste because it can be decomposed.

You can make several suggestions on what can be included in their lunch:

- Reusable containers and cutlery
- Whole pieces of fruit or vegetables
- Reusable water bottles
- Cloth napkin

On zero-waste lunch day, have students place their food waste (apple cores, peels, etc.) in the compost bucket. After lunch, demonstrate how much waste was eliminated by showing them the garbage bag from the previous day. Explain that the food waste will be composted and does not count as waste.

ACTIVITY 3: MAKE A T-SHIRT TOTE BAG (GRADES 3 - 7)

Supplies:

- An old t-shirt
- Scissors

Directions:

- Cut the sleeves off the t-shirt
- Cut the neckline area to make it wide enough for the opening of a bag, but leave enough so that bag will have sturdy handles
- Cut a fringe in the bottom of the t-shirt (about ½ inch wide and 3 inches long)
- Turn the shirt inside out
- Tie the pieces of fringe together to close off the bottom of the bag
- You will see there are little holes between the ties - take the bottom strip from one pair and tie it to the adjacent top strip of the pair right beside
- Turn the bag right side out
- Explain to students that this activity not only re-purposed an old piece of clothing, but also encourages the use of fabric bags - as opposed to single-use plastic bags. Plastic is made with toxic chemicals that harm the environment - both when manufactured, and when discarded. The average plastic bag is only used for 12 minutes but takes 500 years to decompose.

A detailed video on creating a t-shirt tote bag can be found **here.**[31]

[31] https://www.youtube.com/watch?v=zgpaM3u2zng

NEXT STEPS OR HOMEWORK

Creating a list or chart with the class might be a great way to wrap up this unit.

What are some single-use items we use in our everyday life? What are alternatives to these items?

- Plastic bags - tote bags
- Cellophane - bees wax wraps or reusable containers
- Ziplock bags - reusable containers
- Juice boxes - reusable water bottles
- Coffee cups - travel mugs
- Paper towels and napkins - cloth towels and napkins

How can we dispose of waste in the least harmful way possible?

- Read the labels! Recyclable items will have labels that indicate they can be recycled. Harmful substances and chemicals will have labels that say how to dispose of them.
- Donate used items to charity. If they no longer have value to anyone, can you repurpose or repair them?
- Compost food waste
- Use compostable kitchen garbage bags if accepted
- Make sure recycled items are rinsed before putting in the bin

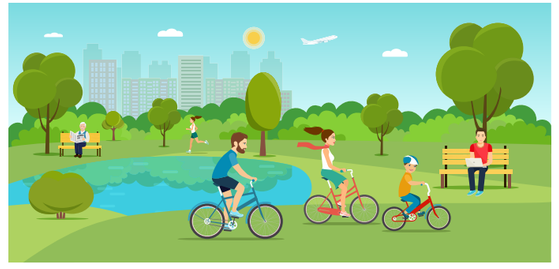
GLOSSARY

Fast Fashion - Inexpensive, and usually poorly made, clothing produced rapidly by mass-market retailers in response to the latest trends.

Microplastics - Extremely small pieces of plastic debris released to the environment in wastewater from washing synthetic (polyester) clothing, from the improper disposal and breakdown of consumer products and industrial waste containing plastic.

Zero-Waste - The conservation of all resources by means of responsible production, consumption, reuse, and recovery of products, packaging, and materials without burning and with no discharges to land, water, or air that threaten the environment or human health.

TOPIC 3: ACTIVE TRANSPORTATION/ REDUCING EMISSIONS



Over the past century, human activities have increased the release of greenhouse gases into the atmosphere, causing what is commonly known as 'climate change'. Greenhouse gases trap heat in the atmosphere, which causes the earth's temperature to rise and impacts human and animal health via extreme weather events, food supply disruptions, and increased exposure to UV rays and air pollutants.

Since 1970, global CO2 emissions have increased by about 90%, with emissions from fossil fuel combustion and industrial processes contributing about 78% of the total increase. In fact, 70% of global emissions can be traced back to just 100 companies (Climate Accountability Institute, 2017).

As the numbers show, the accountability for climate change lies mainly with the corporations and government - but individual consumers are not powerless. By appealing to government and corporations, reducing our consumption habits (and therefore the demand for goods and production), and doing our part to reduce emissions through active and public transportation - we can add our voice and actions to those who are fighting for climate justice around the world.

In The Landfill Mutant vs <Insert Your School Here> the teacher characters talk about using command start on their car, and driving across the street to get coffee or lunch. After being eaten by The Landfill Mutant, they commit to reducing their car use by walking to the cafe and not letting their car run by using command start.

The characters of Mo and Lou also discuss the implication and environmental effects of manufacturing various items - like batteries and clothing. Emissions from factory production, as well as the emissions produced when transporting consumer goods, produce greenhouse gases that contribute to climate change. By reducing the demand for these consumer goods and appealing to governments and corporations to improve manufacturing practises, students have a role to play in addressing these issues.

LESSON PLAN

Older students (Grade 4 - 7) can take a two-pronged approach to addressing issues of climate change and emissions. They have the capacity to change their own actions (reducing energy use, responsible consumerism, using active/public transportation, etc.), influence others in their circle (parents, friends, community) and to put pressure on governments and corporations to adapt their practices (through letter writing, protests, their vote, etc.).

Younger students can gain a basic understanding of energy consumption and how our actions are linked to climate change and environmental pollution. A changing climate is bad for the Earth, and pollution can make humans and animals sick. Encouraging active transportation through movement can help create emission-reducing habits and promote a healthy lifestyle for students and their families.

Of course, for students with disabilities who have particular accessibility requirements, all modes of active transportation may not be an option. It's important to explain that not everyone has access to 'green' transportation options - but this is also an important political issue. Under the 'Letter Writing' activity explained below, students can appeal to governing bodies (province, city, school, etc.) to improve accessibility and transportation options that provide environmentally conscious choices for all people.

ACTIVITY 1: GREEN DREAM BIKE (KINDERGARTEN - GRADE 4)

Supplies:

- Markers, pencil crayons, pencils, paints, etc.
- One piece of paper per student

Directions:

This activity encourages active transportation by having students design their dream bike. This bike can include fantasy elements; Can it fly? Is it mosquito powered? Does it pick up garbage on the street as you ride it? - as long as everything about it is 'green' and does not produce emissions - the sky's the limit! Encourage students to be creative and include elements that are interesting and important to them.

ACTIVITY 2: THE ACTIVE ALTERNATIVE (GRADES 4 - 7)

Supplies:

- Computer and Internet access

Directions:

Have students list a few regular transportation routes they normally take (from home to school, the grocery store, soccer practise, etc.). Each student can then look up these routes on Google maps directions (car option) - taking note of the suggested routes and travel times. Then have them switch the transportation method to various options (bus, bike, walk, etc.). They can take note of the travel times and suggested routes for these options. Have them identify a realistic alternative to car travel for one or more of their everyday trips. This gives students a context for active transportation - making these alternatives more tangible.

ACTIVITY 3: GREEN CITIES (GRADES 4 TO 7)

Supplies:

- Poster board sized piece of paper
- Pencil crayons, crayons or markers (as well as other desk/classroom supplies - rulers, pencils, etc.)

Directions:

Assign class into groups of four. Groups will be designing their own sustainable city. Discuss what can make a city 'green' - active transportation, inclusion of nature, less factory emissions, solar energy, recycling and compost programs, etc. Encourage students to design their green city in a climate that is similar to the city that they live in.

Students can include:

a. A name for their city
b. A diagram of their city on the poster board
c. What makes their city green?
d. How does it differ from the city they live in?
e. Where their food will come from?
f. What kinds of homes will people live in?
g. What makes their city unique?
h. Have groups share and present their green cities with the class.

ACTIVITY 4: LETTER-WRITING (GRADES 5 TO 7)

Directions:

Have students think about an environmental issue that's important to them - a change they would like to see in the world around them. Examples include:

- More bike lanes to make cycling safer and more appealing
- Increased access to clean drinking water
- Reduced emissions through better active and public transportation options
- Improved accessibility to green transportation options for people with disabilities or people who live outside the inner city.
- More parks and green spaces
- Reusable food packaging in school cafeteria
- More community gardens and food growing opportunities
- Cleaner water systems through less factory pollution

Help them identify who has decision-making power for their issue, and then have them write to their mayor, premier, school principal, city counsellor or relevant leader. Two template letters are provided on the following pages - one addressing active transportation options, and the other addressing reusable food packaging in school cafeterias.

LETTER TEMPLATE (ACTIVE TRANSPORTATION)

[Address of relevant leader]

[Date]

Dear [Name]

My name is **[Name]** and I am a student at **[name of school]** in **[grade level].** I am writing to you regarding an issue of great importance to me and others **[in the province, city, school, etc.]**.

[Explain what you're writing about, how it relates to you, and what you would like them to do. As an example:] *Every day I ride my bike to school in [name of your neighbourhood]. This helps to reduce street traffic, and the emissions produced in our city. I use active transportation whenever I can to reduce my impact on the environment. I am writing to you about the lack of bike lanes in my neighbourhood.*

[Explain why this issue is important. As an example:] *Having more bike lanes would increase safety for cyclists like myself and encourage more people in my neighbourhood to bike. It would also help reduce pollution - increasing air quality and reducing our city's environmental impact. Since 1970, global CO2 emissions have increased by about 90%, which is greatly impacting the Earth's temperature and causing extreme weather, wildfires, food disruption and more. We can all do our part to help reduce emissions, and I believe active transportation is a good start.*

[Thank you and sign off. As an example:] *Thank you for your time. I appreciate the opportunity to write to you with my concerns. Climate change is a pressing issue and I believe that encouraging active transportation will help our city do its part.*

Sincerely,

[Your name]

LETTER TEMPLATE (REUSABLE PACKAGING IN SCHOOL CAFETERIA)

[Address of relevant person in school administration]

[Date]

Dear **[Name]**

My name is **[Name]** and I am a **[grade level]** student at this school. I am writing to you regarding an issue of great importance to me and others at [**name of school]**.

[Explain what you're writing about, how it relates to you, and what you would like them to do. As an example:] *Whenever possible, my family and I try to use reusable packaging to store and transport our food. This cuts down on our need for single-use plastics, styrofoam and other disposable food storage items, which create a lot of waste that is harmful to our environment. I am writing to you about the lack of reusable food packaging in our cafeteria. Currently, single-use plastics and styrofoam containers are being used. I believe our school should look into more sustainable options that will reduce the waste we create every day.*

[Explain why this issue is important. As an example:] *Single-use plastics are having a major impact on our environment. In Canada, single-use plastics make up most of plastic litter that is found in freshwater environments. Considering that styrofoam and plastics can take 500 years to decompose, I believe we all need to do our part to reduce our use of these items. Reusable food packaging options in our cafeteria would be a good start.*

[Thank you and sign off. As an example:] *Thank you for your time. I appreciate the opportunity to write to you with my concerns. This is a pressing issue and I believe that implementing the use of reusable food packaging will help our school do its part.*

Sincerely,

[Your name]

NEXT STEPS OR HOMEWORK

There are some big ideas in this unit. Have a discussion with the entire class or get students to discuss in groups and report back.

What are some ways that climate change is affecting our lives right now?

- Is there extreme weather (flooding, cold snaps, quick melts) in your region?
- Are wildlife losing their natural habitats?
- What are smog and pollution levels like?
- Are natural and forested areas changing?
- Are farmers and other food producers encountering issues?
- Are people and governments being asked to donate money to disaster relief in other areas of the world?
- Do you know people who have had to flee their country and come to live in Canada because of things like famine, flooding, etc.?

What are some things we can do to help reduce emissions at home, in our community and in the world?

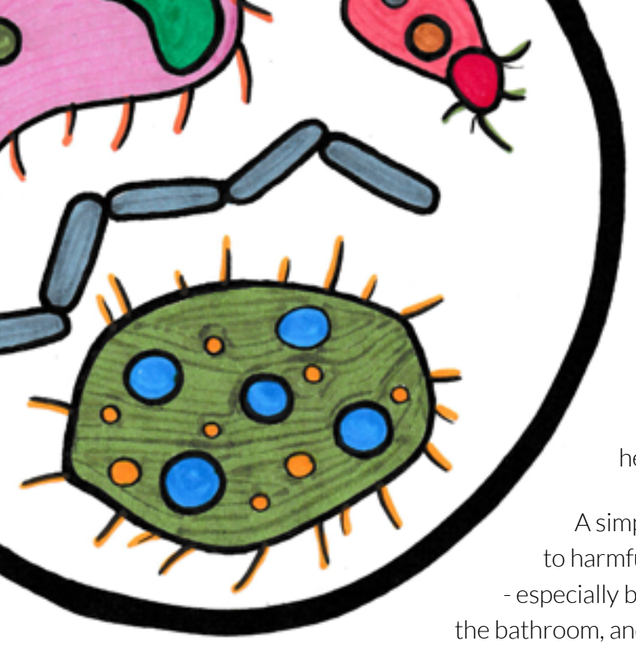
- Reduce the items we buy - especially cheaply produced clothing, plastics and single-use items.
- Buy local - if a piece of clothing, a toy or even food doesn't need to travel very far to get to you, emissions are drastically reduced
- Use active and public transportation when possible
- Write letters, attend protests and organize campaigns to appeal to governments and corporations to change laws and practises
- Conserve energy by turning off lights, reducing water usage, unplugging electronic items, etc.

GLOSSARY

Carbon Dioxide (CO_2) – A natural gas that can be released by human activities like burning fossil fuels (see definition of fossil fuels later in this document) but also naturally through plants and other life forms, including us when we exhale. Unfortunately, carbon dioxide is also a heat-trapping greenhouse gas that is contributing to climate change as levels in our atmosphere become too high.

Fossil Fuels (FF) – There are three main types of fossil fuels: coal, oil and natural gas. All were formed hundreds of millions of years ago by trees and plants that died, broke down, and were compacted and covered by additional materials over time. Since plants produce and store CO_2 during photosynthesis, this gas is released when fossil fuels (which are formed through organic material) are burned. This is the main concern regarding human-caused climate change.

Greenhouse Gases (GHG) – Simply put, these are gases that absorb and trap heat in the atmosphere. The main GHGs are carbon dioxide, methane, nitrous oxide and water vapour. This group of chemicals play an important role in climate change.



TOPIC 4: HOUSEHOLD GERMS

Knowing how germs spread, where they live and how to get rid of them can help foster a healthy lifestyle and give students the tools to prevent sickness and contamination. Germs are tiny living things that include microorganisms known as bacteria, viruses, fungi or protozoa. While some germs are considered good and can help us (i.e. probiotics or antibiotics), others can be harmful to our health (i.e.: cold and flu viruses).

A simple way to prevent infection and reduce exposure to harmful substances is to wash your hands frequently - especially before preparing or eating meals, after visiting the bathroom, and after handling household chemical products. To prevent tracking harmful substances into their homes, students can remove their shoes at the door, wash their hands when they arrive home and help with cleaning the household on a regular basis to remove dust and dirt from surfaces.

The COVID-19 pandemic increased public awareness about the basics of contamination, and proper hand washing practices. Providing context and hands-on learning opportunities around these topics will help students gain a deeper understanding of why these practices are necessary, and how they can help create a healthy home on a more sustained basis.

Another way to prevent disease is through vaccination. A vaccine works by training the immune system to recognize and combat pathogens, either viruses or bacteria. To do this, certain molecules from the pathogen must be introduced into the body to trigger an immune response.

In *The Landfill Mutant vs. <Insert Your School Here>*, the character of Alex addresses the spread of germs by reminding her friends to clean their hands and wash second-hand clothing. The characters of Lou and Alex discuss the importance of removing your shoes when you enter your home from the outside and keeping a clean household.

Later in the play, Alex reminds their friends (who are about to eat lunch) to wash their hands after science class - where they've handled harmful chemicals.

LESSON PLAN

Explain to students that germs are tiny, invisible organisms, or living things, that can help our body function (gut bacteria) or cause disease (cold viruses), depending on whether they are harmful or beneficial. Learning where harmful germs live and how they spread can help us stay healthy. The following activities help illustrate these topics and offer a visual proxy for what will likely be an abstract concept, especially for young children. Though it is important to make students aware of germs, it is also important to take a measured approach to avoid creating 'germ phobia'. It is not possible to avoid all harmful germs, but increased awareness can go a long way in mitigating spread.

ACTIVITY 1: THE GLITTER SNEEZE (KINDERGARTEN TO GRADE 4)

Supplies:

- Baby oil or hand cream
- Glitter or poppy seeds for an eco-friendly option
- Soap
- Water
- Cup or commonly used item

Directions:

- Have everyone participating in the experiment rub baby oil or hand cream on their hands.
- One person sprinkles glitter onto their hands. These are our germs. You've been sneezing and coughing and wiping your nose, and now the germs are all over your hands!
- Pick up the cup (or other items). What happens to the germs?
- Try washing your glittery hands in warm water without soap. Did the germs go away?
- Wash your hands again. Use soap this time. Wash your hands for 20 seconds. Did the germs go away?

ACTIVITY 2: MY PET GERM (KINDERGARTEN TO GRADE 4)

Supplies: (general craft supplies that may include)

- Construction paper
- Modeling Clay
- Q-Tips
- Googly eyes

Directions:

- Show students what a germ looks like under a microscope
- Have them create a few small germs of their own using craft materials
- Talk about potential high-touch areas in the classroom and home where germs might be found (in the bathroom, on the doorknobs, etc.)
- Have the students place some of their craft germs around the classroom in these areas, and then take some home to place in their bathroom, near their kitchen sink, etc. to remind them to wash their hands.

ACTIVITY 3: THE POTATO EXPERIMENT (GRADES 5 TO 7)

Supplies: (per group)

- 2 large potatoes
- 4 plastic bags
- A knife
- Labels
- Pen

Directions:

- Cut each potato in half.
- Take one half of one potato and rub it on everyone's hands in the group. Then place the potato in a plastic bag, seal it, and label it 'unwashed hands'.
- Have everyone wash their hands with soap and water.
- Take another half potato and rub it on everyone's hands in the group. Then place the potato in a bag, seal it, and label it 'washed hands'.
- Take the two remaining potato halves and rub them each on a high-touch surface like a table, doorknob etc. Place them in separate bags and label them according to the surface.
- Place all of the bags in a closet at room temperature for a week.
- After a week has passed, examine the potatoes. Do not take them out of the bag. What do they look like? Which ones have the most mould? What does that tell you about these surfaces?

NEXT STEPS OR HOMEWORK

Offer the class a quick verbal quiz.

How can we prevent the spread of harmful germs and substances?

- Washing hands frequently – especially before eating or preparing meals, after visiting the bathroom and after touching or handling harmful chemicals or substances.
- Sneezing or coughing into your elbow, instead of into your hand.
- Cleaning high-touch surfaces often.

How can germs or chemical substances harm us?

- Germs can contain viruses or bacteria that could make us sick or cause infection.
- If we ingest harmful chemicals, we could poison ourselves and become very sick.

GLOSSARY

Antibiotics - We might take these when we have an infection. Antibiotics are chemicals that treat bacterial infections by killing them or preventing their growth.

Bacteria - Bacteria are microscopic organisms (which means we cannot see them without a microscope). Bacteria are everywhere, both inside and outside of our bodies. Many bacteria are beneficial to our environment and play very important roles in our health. Others can make us very sick. These are called pathogens.

Germs - A microbe (small, living organism or bug) including bacteria, viruses, fungi and protozoa (single-cell organisms that live mainly in moist environments).

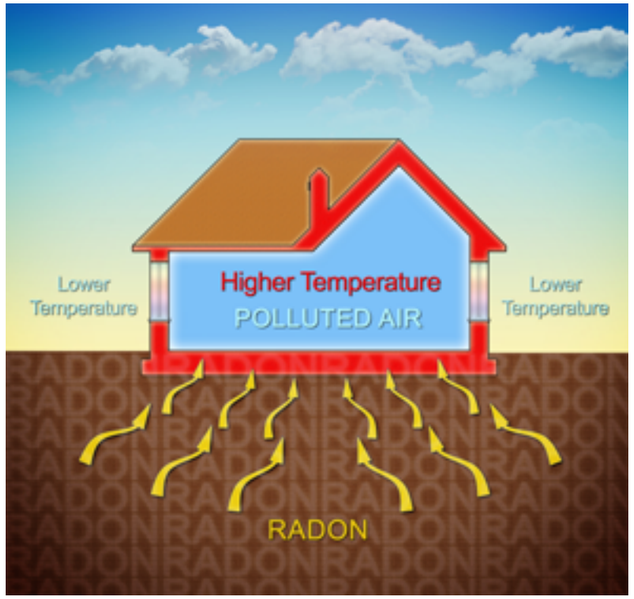
Probiotics - Live bacteria and yeasts that help keep our digestive system healthy.

Virus - A microscopic parasite, much smaller than bacteria, that can make humans sick. Many viruses use human bodies as their 'hosts' and cannot thrive and reproduce outside of a host body. A virus invades living cells and uses their chemical machinery to multiply and infect other cells, inside and outside of the host body.

TOPIC 5: RADON, CARBON MONOXIDE AND MOULD IN THE HOME (INDOOR TOXINS)

There are toxins that can enter our home without us even knowing it. Radon, for example, is a colourless and odourless gas that can't be detected by our senses but can be easily measured with a radon detector. In fact, the only way to know how much radon is in our home is if we test for it. Why do we care about how much radon gas is in our home? Exposure to high amounts of radon can lead to lung cancer. In fact, long term exposure to radon is the #1 cause of lung cancer in non-smokers, causing over 3,200 deaths per year in our country (Health Canada, 2016). It is good to note that smoking or exposure to second-hand smoke can have synergistic effects when mixed with radon gas and increase the chances of developing lung cancer.

Pathways for Radon to Enter the Home



Radon gas is caused by the breakdown (decay) of uranium in soil and rock. Uranium is found in soil and rock in the Earth's crust all over the world including Canada. In fact, Canada has some of the highest amounts of uranium in the world. Radon gas enters a home through cracks and openings in the foundation. All homes have some radon, the only way to know how much radon is in your home is to test for it. Health Canada recommends that all homes be tested by purchasing a do-it-yourself radon test kit or hiring a certified professional to come in and do it for you. If radon levels in the home are found to be high, it is not a reason to panic. Radon gas can be easily removed from the home by professional ventilation systems.

Carbon monoxide (CO) is another harmful gas that is colourless, tasteless and odourless and can be found in our homes. When we inhale carbon monoxide it prevents the oxygen we need to live from being transported in our body. At lower exposure levels carbon monoxide can cause us to feel tired, weak, short of breath, dizzy and confused, but at high levels of exposure it can cause death. Again, similar to radon, the only way to know if it is in our homes is to have a carbon monoxide detector installed. These detectors can be purchased and plugged in, similar to the smoke detectors that we all have. Carbon monoxide in the home is most often caused by smoking and by the burning of fuel/gasoline inside or outside our home. We can prevent exposure to carbon monoxide by:

- Preventing smoking indoors (environmental tobacco smoke);
- Maintaining and inspecting gas powered appliances and heaters;
- Not idling vehicles, lawn mowers, snow blowers or any similar equipment in the garage; and
- Closing the door between the home and the garage.

Mould is a toxin that does not enter a home from the outside but actually is created and grows in our home. Moisture (or excessive humidity) in our home is what causes it to grow. We most often see mould in damp areas of bathrooms and kitchens, but it can also be hidden above ceiling tiles and inside walls. There are many kinds of mould and some are more harmful to us than others. It can be difficult to identify what kind of mould you have growing so it is best to clean it up immediately, rather than trying to identify it. How mould affects our health depends on what kind it is, how long it has been growing for and how sensitive we are to the mould. The most common symptoms of mould exposure are: irritation to our eyes or throat, coughing, phlegm, wheezing, shortness of breath and making asthma symptoms worse. To prevent mould, we need to stop any water leaks in our home, run ventilation (fan) when taking a shower or cooking, and use a dehumidifier if we live in a humid climate. If we see mould growing in our home, we can remove it by scrubbing it with unscented soap and water. If it doesn't come off because it is stuck in the surface it's growing on, the material must be cut out and removed (replaced). Always remember to wear safety equipment when removing mould such as gloves, safety glasses and an N95 mask. If there is too much mould, someone else may need to come to your home to remove it (call a professional).

In The Landfill Mutant vs. <Insert Your School Here>, the characters Dom, Cody and Corey encounter mould when they visit The Old Andrews House - a dilapidated house that is going to be demolished. The mould and air quality causes Cody to have a coughing fit - so they open a window to allow for more ventilation. The mutant, which feeds off toxicity, eats the mould and grows larger.

LESSON PLAN

Review the above information about three potential toxins in our homes. Ask students if they had ever heard of radon, mould or carbon monoxide or simply review discussion questions to see what they remembered. Remind students that CO and radon are colourless and odourless, and that exposure may not even result in any known symptoms (i.e.: negative health effects from Radon gas come from long term exposure). How much or how badly a toxin affects our health depends on our exposure. Our exposure is determined by how much of the toxin there is (severity) and how much time we spend or how often we are around/near the toxin (known as the frequency).

Exposure = severity x frequency
(for the older students)

Sometimes these toxins have even been used to help human health. e.g.: radiation has given us x-rays, cancer treatments e.g.: mould has given us antibiotics like penicillin

Discussion Questions:
What are three toxins that can be in our homes and make us sick?
What can we do to learn if these things are in our homes?
How do we get rid of these toxins?

ACTIVITY 1: HOME TOXIN AWARENESS POSTER (KINDERGARTEN TO GRADE 7)

Have students design a home toxin awareness poster. Each student can select one of the three home toxins: radon, carbon monoxide (CO), or mould. They can split their poster paper into four sections. Section 1 should explain what the toxin is, section 2 should explain how it can make us sick (why it is considered toxic), section 3 should explain how and where to find it in our home, and section 4 should explain how we can prevent exposure (or make sure it is not a hazard in our homes so we don't get sick). Each section should have their own words and a picture(s) to go with it.

TOXIC NAME	
What is it?	Why is it toxic?
Where in our home could we find it?	How can we prevent exposure to it?

ACTIVITY 2: BE A TOXIN DETECTIVE

Have the students look around their classroom or maybe other areas of the school on a search for potential causes of radon gas, mould or carbon monoxide. Everyone should work individually or in small groups of two or three and then come back to discuss as a class. If the kids are younger, it may be fun to draw a large magnifying glass on a paper and then write the words or draw pictures of their clues inside the magnifying glass.

NEXT STEPS OR HOMEWORK

Provide copies of the next page to students and ask them to conduct interviews with up to 3 adults or households.

RADON SURVEY

NAME:

Interview an adult you know in three different households.

	ADULT 1		ADULT 2		ADULT 3	
Do you know where Radon gas comes from?	Yes	No	Yes	No	Yes	No
Do you think Radon gas exposure is bad for our health?	Yes	No	Yes	No	Yes	No
Do you think Radon gas can be found in your home?	Yes	No	Yes	No	Yes	No
Do you think you can smell or see radon in your home?	Yes	No	Yes	No	Yes	No
Do you know how to test the radon level in your home?	Yes	No	Yes	No	Yes	No
Can radon be easily removed from your home?	Yes	No	Yes	No	Yes	No

Provide the people you survey with the correct answers. See below.

RADON EXPOSURE FACTS

- Radon gas comes from the decay of uranium which is found everywhere in the Earth's crust, in the rocks and soil in the ground. In fact, Canada has some of the highest amounts of uranium in the world.
- Exposure to high levels of radon can lead to lung cancer, in fact long term exposure to radon gas is the number one cause of lung cancer in non-smokers.
- Every home in Canada has some level of radon; the question is how much, and you have to do a test to find out. From: **Take Action on Radon**[32].
- Radon gas can enter our home wherever the house is in contact with the ground, typically through cracks and openings in the foundation. Lower air pressure in the home than in the ground it sits on causes the radon gas to be drawn inside our homes.
- Radon gas is colourless and odourless so we cannot see or smell it to detect it.
- The levels of radon in our home can be tested using a do-it-yourself test kit that is easy to purchase. You can also have a certified professional do the test for you.
- A long-term (3-month) radon test is the most accurate way to find out if you have a dangerous level. From: Take Action on Radon
- If the radon level in your home is high, it can be fixed. Techniques to lower radon levels are effective and can save lives. A radon mitigation system can be installed in less than a day and in most homes will reduce the radon level by more than 80% for about the same cost as other common home repairs such as replacing the furnace or air conditioner.
- The most common radon reduction method is called sub-soil depressurization. It is a simple and very effective system when a pipe is installed through the foundation and connected to an outside wall or up through to the roof line. A small fan is attached which draws the radon from below the house to the outside before it can enter your home.

[32] https://www.canada.ca/en/health-canada/services/health-risks-safety/radiation/radon/take-action-on-radon.html

GLOSSARY

Colourless – An item that cannot be seen and has no colour.

Odourless – An item that has no smell and cannot be detected by scent.

Toxin – A poisonous substance.

Uranium – A heavy metal that is found naturally in soil and rock. When it breaks down, radon gas is released.

RESOURCES

Health Canada information on radon: **https://Canada.ca/radon**

Take Action on Radon website: **https://takeactiononradon.ca**

Children Changing the World

www.greenkids.com

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