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Households and the Environment Survey

Elementary level teacher's kit



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- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- ^P preliminary
- ^r revised
- X suppressed to meet the confidentiality requirements of the *Statistics Act*
- ^E use with caution
- F too unreliable to be published
- * significantly different from reference category ($p < 0.05$)

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Statistics Canada Households and the Environment Survey Lesson Pack

Theme 1: Water Use and Conservation



Overview:

Information from Statistics Canada's 2011 *Households and the Environment Survey* revealed that the conservation of water is a significant issue for Canadians.

In this theme, students will think about the way they use water on a daily basis and the impact of those habits on the environment. They will investigate the source of water they use in their community and consider different ways in which it is used. They will think critically about using bottled water, and explore methods of conserving water as a useful resource both inside and outside.

Suggested Grade Level:

- Grades 1-3

Topics:

- Mathematics
- Social Studies
- Science and Technology

Cross-curricular Connections:

- Language Arts
- Arts

Materials:

Lesson 1: Where Does your Water Come From?

- Simplified Survey Data: Water Supply by Province
- Print or digital map of region
- Water Source Map

Lesson 2: Drinking Water

- Simplified Survey Data: Bottled Water
- Handout: Comparison Worksheet
- Clean, plastic reusable cups
- Tap water and bottled water

Lesson 3: Flushed Away

- Simplified Survey Data: Low-volume Toilets
- Handout: Flushed Away Survey
- Handout: Flushed Away Investigation
- Large clear plastic bins or buckets
- 1 litre pitcher

Lesson 4: Conserving Water Outside

- Simplified Survey Data: Lawn Ownership
- Simplified Survey Data: Rain Barrels and Cisterns
- Chart paper or graph paper
- Markers, pencils or crayons

Theme: Water Use and Conservation

- Rubric: Water Use and Conservation

Assignments:

- Create a bar graph of water supply data.
- Create a line plot of bottled water use over time.
- Complete a Venn diagram of advantages and disadvantages of bottled or tap water.
- Complete an investigation of water quantity, in litres.
- Create a map of green spaces in the community.

Statistics Canada Households and the Environment Survey Lesson Pack

Theme 1: Water Use and Conservation

Theme Rubric

Level 1	Level 2	Level 3	Level 4
Collects, organizes and displays data with little attention to detail.	Collects, organizes and displays data with some attention to detail.	Collects, organizes and displays data with consistent attention to detail.	Collects, organizes and displays data with exceptional attention to detail.
Extracts information with support.	Extracts information and draws some conclusions with support.	Independently extracts information and draws general conclusions.	Independently extracts detailed information and draws in-depth conclusions.
Identifies general connections between natural and built environment, and how people live.	Identifies general connections between natural and built environments, and how people live, with some evidence.	Describes connections between natural and built environments, and how people live, with evidence.	Describes connections between natural and built environment, and how people live, with strong evidence.
Extracts general or isolated information from maps.	Extracts information and draws general conclusions from maps.	Extracts information and draws thoughtful conclusions from maps.	Extracts detailed information and draws sophisticated conclusions from maps.
Identifies ways in which people use water to meet basic needs.	Describes ways in which people use water to meet basic needs and demonstrates some reflection on the impact of these practices.	Describes ways in which people use water to meet basic needs and demonstrates careful reflection on the impact of these practices.	Describes ways in which people use water to meet basic needs and demonstrates insightful reflection on the impact of these practices.

Theme 1 - Lesson 1:

Where Does Your Water Come From?

Estimated Completion Time: 1+ hours

Learning Objectives:

Mathematics:

- Collect and organize discrete primary data.
- Display data in a graph with appropriate titles and labels.

Social Studies:

- Extract information from a map about location and physical characteristics of a region.
- Describe connections between features of the natural environment of a region and the type of land use in that region.
- Gather and organize information on the interrelationship between people and the natural and built features of their community.
- Describe similarities and differences between their community and a community in a different region.

Science and Technology:

- Identify examples of water in the natural and built environment and describe ways that water is obtained.

Assignments:

- Create a bar graph of water supply data.

Activity:

Begin by brainstorming with the class. Ask them to think about how the water they use to drink and wash gets to the tap in their homes. Where does it come from?

Some possible answers may include:

- Pipes
- Underground tunnels
- Oceans
- Lakes
- Rivers
- Ponds
- Rain

Ask students to identify the most likely source of the water in their community. If possible, show them a map of their province and identify bodies of water. Help students to identify their own community and talk about bodies of water in and around their region. Discuss general characteristics about the community, such as its size, local industries that might involve water, and the types of buildings that would use water in the community.

Guiding Questions:

- How many people live in your community?
- Would you describe your community as “rural” or “urban”?
- How do we use water each day?
- Is your community located on a body of water? If so, which one?
- Does your community get its water from that body of water? If not, where does the water come from?

Hint: Some schools will have a mix of students from rural and urban areas. If this is the case, survey students to determine the type of community in which they live.

Use *Simplified Survey Data: Water Supply by Province* or the data from the Statistics Canada’s 2011 *Households and the Environment Survey* to create a bar graph that represents how water is provided to households in their home-province (municipal or well).

Complete a survey in the class, asking students where the water in their house comes from, and create a bar graph to compare with the Water Supply by Province table (below).

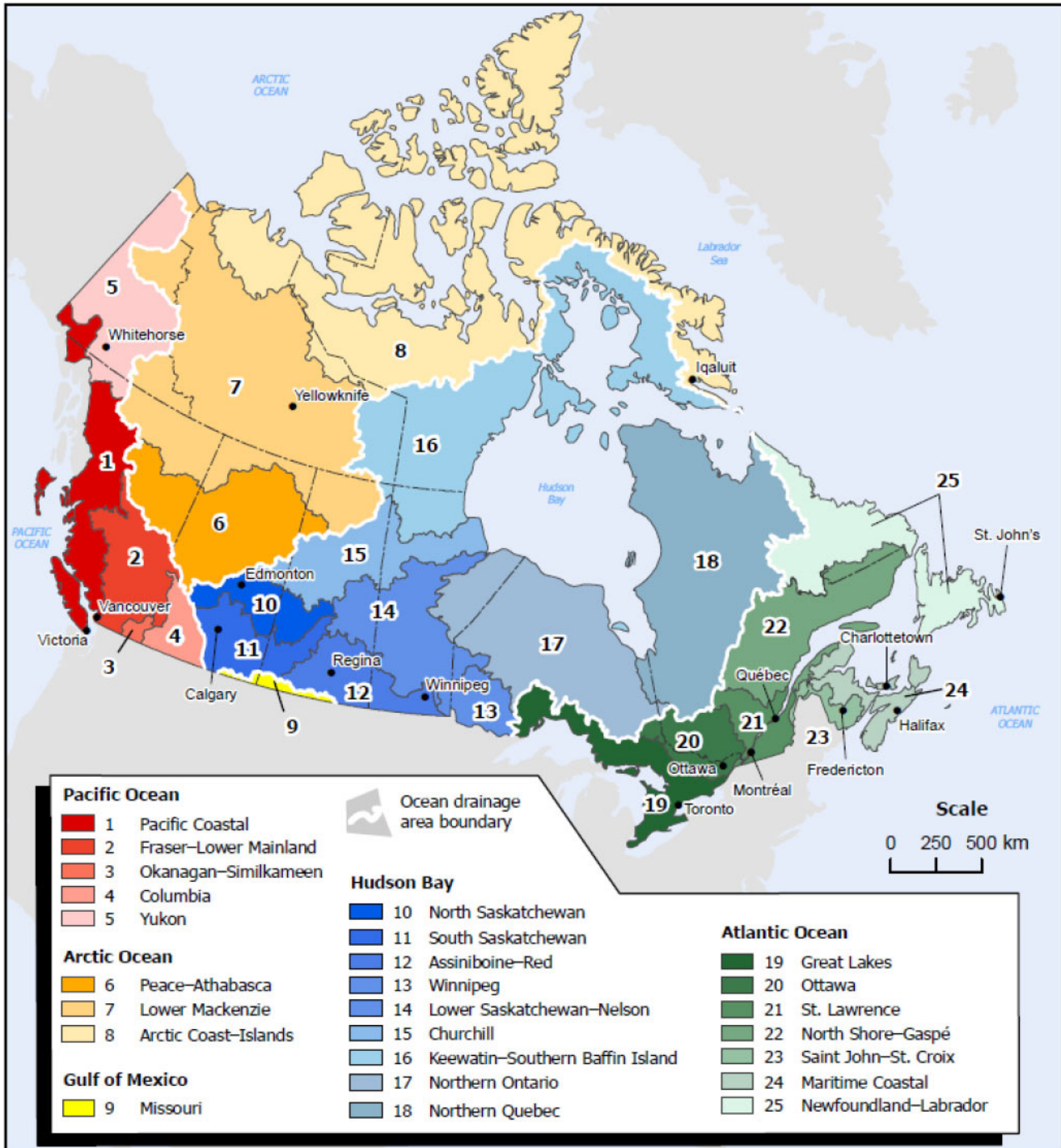
Hint: Students may need to ask parents or guardians about the source of their water.

Rural and urban communities will have different requirements for water use. Discuss and investigate why some communities may get their water from a different source than other communities in the same province.

- Have the students identify a use for water that is common in a rural community that might not be as common in an urban community, such as watering crops on a farm.
- Have the students identify a use for water that is common in an urban community that might not be as common in a rural community, such as providing a water source for fire hydrants.

Hint: Environment Canada has created a map that shows the source of water supply for different areas. This can help students understand from which body of water their drinking water comes.

Theme 1 - Lesson 1: Where Does Your Water Come From? Water Source Map



Sources: Pearse, P.H., F. Bertrand et J.W. MacLaren, 1985, *Currents of change: Final Report of the Inquiry on Federal Water Policy*, Environment Canada, Ottawa. Statistics Canada, Environment Accounts and Statistics Division, 2009, special tabulation.

Theme 1 - Lesson 1: Where Does Your Water Come From? Simplified Survey Data: Water Supply by Province

Where do people in Canada get their water? Does it come from a well or from a municipal supply?

This table shows how many households in Canada and in each province get the water for their homes from a municipal supply or from a well.

Each data point has been adjusted to show the information as if the total population was a group of ten households.

Area	Municipal Water Supply	Well Water
Canada	9/10 Households	1/10 Households
Newfoundland and Labrador	9/10 Households	1/10 Households
Prince Edward Island	5/10 Households	5/10 Households
Nova Scotia	6/10 Households	4/10 Households
New Brunswick	6/10 Households	4/10 Households
Quebec	9/10 Households	1/10 Households
Ontario	9/10 Households	1/10 Households
Manitoba	9/10 Households	1/10 Households
Saskatchewan	9/10 Households	1/10 Households
Alberta	9/10 Households	1/10 Households
British Columbia	9/10 Households	1/10 Households

Theme 1 - Lesson 2:

Drinking Water

Estimated Completion Time: 2+ hours

Learning Objectives:

Mathematics:

- Gather data to answer a question, using a simple survey with a limited number of responses.
- Display data in a line plot with appropriate titles and labels.
- Pose and answer questions about simple line plots and tally charts.

Science and Technology:

- Assess personal and family uses of water as “more efficient” or “less efficient”.

Language Arts:

- Sort ideas and information with support and direction using a graphic organizer.

Assignment:

- Create a line plot of bottled water use over time.
- Complete a Venn diagram of advantages and disadvantages of bottled or tap water.

Activity:

Begin this lesson by conducting a survey to determine the number of students who usually drink bottled water at home. Track the response to the survey on the board and have the class calculate how many students usually drink bottled water at home and how many usually drink tap water.

Next, conduct a blind taste-test with the class. This can be done at a centre or as a class. Without letting students see, fill two clean, reusable plastic cups for each person to try. Label the cups with tap water “1” and the cups with bottled water “2.” Have students taste the water from each cup and decide which, if either, tastes better. Provide students with a method of response, such as a slip of paper with check boxes, or an opaque container in which they can drop a bead or counting chip to indicate their response. Response options should include:

- The water in Cup 1 tastes better.
- The water in Cup 2 tastes better
- The water in Cups 1 and 2 tastes the same

Count and tally the results and then reveal to the class which type of water was in which cup. Discuss the results with the students as a class. Are they surprised?

Next, using the *Simplified Survey Data: Bottled Water* or the data from the Statistics Canada's *Households and the Environment Survey* to review information from 2006, 2007, 2009, and 2011, have students use this information and create a line-plot that visually represents the trend in bottled water consumption for their home province over several years. Have students identify which year people in their province drank the most and the least bottled water.

After completing their line plots, have students consider reasons why bottled water might be more or less popular at different times. Encourage students to ask questions and contemplate the advantages and disadvantages of using bottled water by completing a Venn diagram.

Guiding Questions:

- Is bottled water becoming more or less popular over time? Why do you think this is?
- What do you think the graph will show for this year?
- What factors could make someone decide to drink more or less bottled water?
- Do you think bottled water is a nice-to-have or a need-to-have item?
- Is there a situation when bottled water is a need-to-have?

Finally, have students write a journal entry or create an illustration to show when they think it is a good time to use bottled water or tap water. These can be posted around the classroom or shared with the school community.

Theme 1 - Lesson 2: Drinking Water Simplified Survey Data: Bottled Water

Who drinks bottled water and who drinks tap water? Which is more popular?

This table shows how many households in Canada and in each province drink tap water and bottled water over a period of four years.

Each data point has been adjusted to show the information as if the total population was a group of ten households. If you see a T, it means one household from a group of ten households drank primarily tap water. If you see a B, it means one household from a group of ten households drank primarily bottled water.

Canada								
	T		T		T		T	
	T		T		T		T	
	T		T		T		T	
	T	B	T	B	T		T	
	T	B	T	B	T	B	T	B
	T	B	T	B	T	B	T	B
	2006		2007		2009		2011	

Newfoundland and Labrador								
			T		T		T	
	T		T		T		T	
	T		T		T		T	
	T	B	T	B	T	B	T	B
	T	B	T	B	T	B	T	B
	T	B	T	B	T	B	T	B
	2006		2007		2009		2011	

Prince Edward Island								
	T		T		T		T	
	T		T		T		T	
	T		T		T		T	
	T		T		T		T	
	T	B	T	B	T	B	T	
	T	B	T	B	T	B	T	B
	2006		2007		2009		2011	

Nova Scotia							
	T		T		T		T
	T		T		T		T
	T		T		T		T
	T	B	T	B	T		T
	T	B	T	B	T	B	T
	T	B	T	B	T	B	T
	2006		2007		2009		2011

New Brunswick							
			T				T
	T		T		T		T
	T		T		T		T
	T	B	T	B	T	B	T
	T	B	T	B	T	B	T
	T	B	T	B	T	B	T
	2006		2007		2009		2011

Quebec							
			T				T
	T		T		T		T
	T		T		T		T
	T	B	T	B	T	B	T
	T	B	T	B	T	B	T
	T	B	T	B	T	B	T
	2006		2007		2009		2011

Ontario							
			T		T		T
	T		T		T		T
	T	B	T	B	T		T
	T	B	T	B	T	B	T
	T	B	T	B	T	B	T
	2006		2007		2009		2011

Manitoba							T	
	T		T		T		T	
	T		T		T		T	
	T		T	B	T		T	
	T	B	T	B	T	B	T	B
	T	B	T	B	T	B	T	B
	T	B	T	B	T	B	T	B
	2006	2007	2009	2011				

Saskatchewan							T	
	T		T		T		T	
	T		T		T		T	
	T		T		T		T	
	T		T	B	T	B	T	
	T	B	T	B	T	B	T	B
	T	B	T	B	T	B	T	B
	2006	2007	2009	2011				

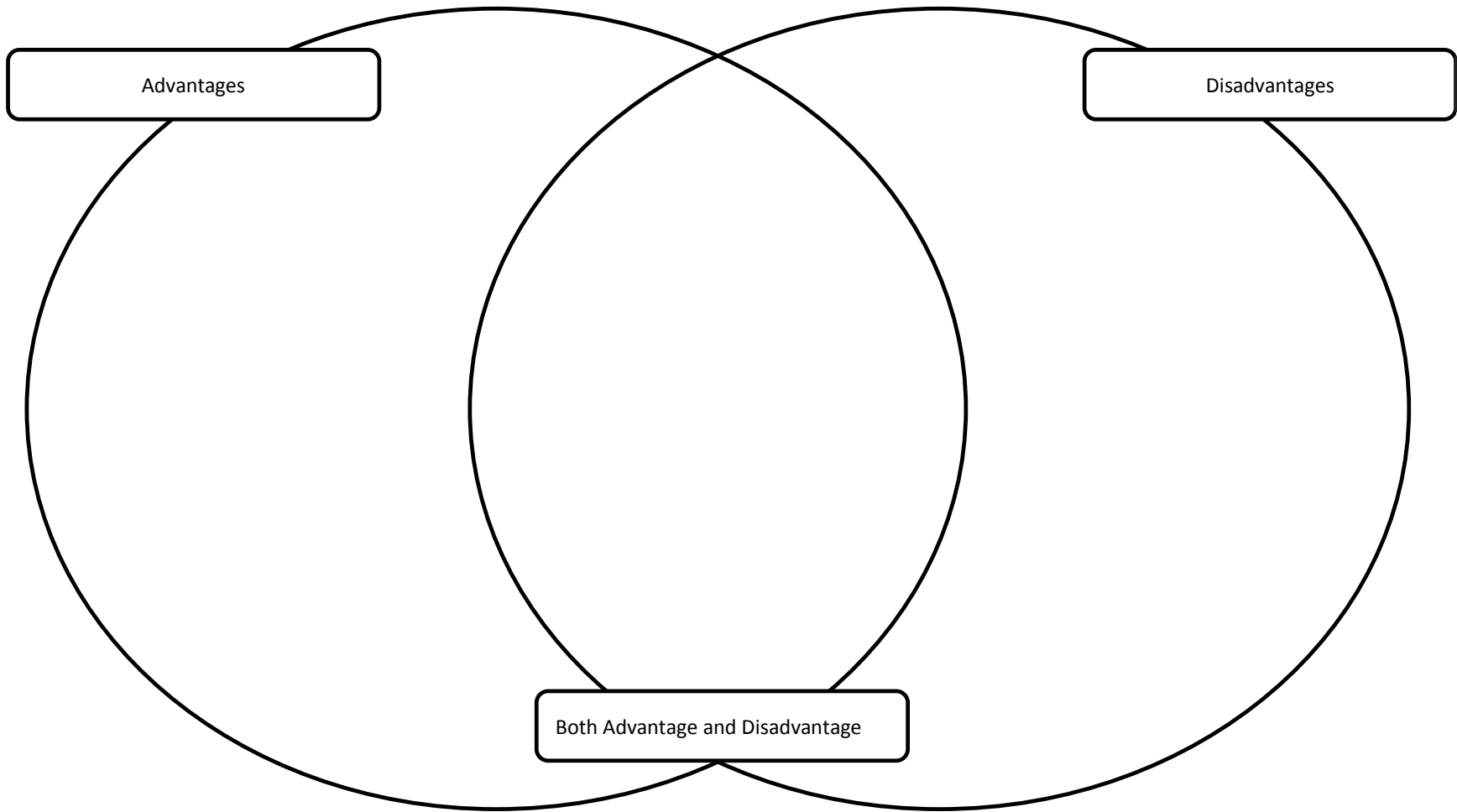
Alberta							T	
	T		T		T		T	
	T		T		T		T	
	T		T		T		T	
	T	B	T	B	T		T	
	T	B	T	B	T	B	T	B
	T	B	T	B	T	B	T	B
	2006	2007	2009	2011				

British Columbia							T	
	T		T		T		T	
	T		T		T		T	
	T		T		T		T	
	T		T		T		T	
	T	B	T	B	T	B	T	
	T	B	T	B	T	B	T	B
	2006	2007	2009	2011				

Handout: Comparison Worksheet

Name: _____ Date: _____

This diagram shows the advantages and disadvantages of _____ water.



Theme 1 - Lesson 3:

Flushed Away

Estimated Completion Time: 2+ hours

Learning Objectives:

Mathematics:

- Gather data to answer a question, using a simple survey with a limited number of responses.
- Estimate, measure and record the capacity of containers using the standard unit of litre or parts of a litre.

Social Studies:

- Demonstrate an understanding of the importance of sustainability in people's interrelationship with their natural environment.

Science and Technology:

- Assess the ways in which liquids in the home are used and disposed of in terms of the effect on the health of the environment.
- Assess personal and family uses of water as responsible/efficient or wasteful.

Assignments:

- Complete investigation of water quantity in litres.

Activity:

Before teaching this lesson, send students home with *Handout: Flushed Away Survey*. The handout has three copies of the same survey that can be reproduced and cut along the dotted line. Students may need to ask for parent or guardian assistance in completing their survey.

Prompt students to guess how much water is used each time the toilet is flushed and record their ideas on the board, encourage students to provide estimates of comparable volumes of liquid using everyday objects (e.g., 20 juice boxes, one garbage pail).

Have the class discuss the difference between low-volume and standard-volume toilets and identify how they think this difference might impact the amount of water they use every day. Use the Simplified Survey Data: Low-volume Toilets or the data from the Statistics Canada's 2011 *Households and the Environment Survey* to talk about how many households now use a low-volume toilet.

Survey the students to determine the prevalence of low-volume toilets in their homes (using the surveys they have completed at home). Have students visually represent the data using a pictograph or simple bar graph and compare the results to their home-province and the national average. Have students make a bar graph to represent this information.

Guiding Questions:

- Is the number of households in our class with low-volume toilets in our class greater than or less than the number of households with low-volume toilets in other provinces?
- What is the difference between low-volume and standard toilets?
- How do you think this difference might affect the environment?

Next, help students perform an investigation to better understand how much water is used each day by the different types of toilets. If possible, perform the experiment outside where things can get a little soggy. This activity can also be completed at a centre.

Place two large, clear plastic bins where they are visible to all. Label one bin “Standard-volume” and one bin “Low-volume.” Have students predict how much water is used and mark the predicted levels on the outside of the bin using masking tape. Use a 1 litre pitcher to fill the containers, one at a time and encourage students to count with you.

Have students complete the Handout: Flushed Away Investigation Worksheet. Encourage students to consider how much water would be “flushed” by each person in one day or by the class as a whole in one day and brainstorm how the savings in water could be used.

Note: The numbers have been left off the measure of water to allow educators to adjust the measurement scale to their students’ needs.


Encourage students to brainstorm other ways to conserve water in their daily lives.












Theme 1 - Lesson 3: Flushed Away

Simplified Survey Data: Low-volume Toilets

How many people have low-volume toilets in their homes?

This table shows how many households in Canada and in each province own a low-volume toilet in 2011.

Each icon represents one household out of ten, therefore, if you see this:  , it means one household from a group of ten households has a low-volume toilet.

Area	Has a Low-volume Toilet
Canada	
Newfoundland and Labrador	
Prince Edward Island	
Nova Scotia	
New Brunswick	
Quebec	
Ontario	
Manitoba	
Saskatchewan	
Alberta	
British Columbia	

Theme 1 - Lesson 3: Flushed Away

Handout: Flushed Away Survey

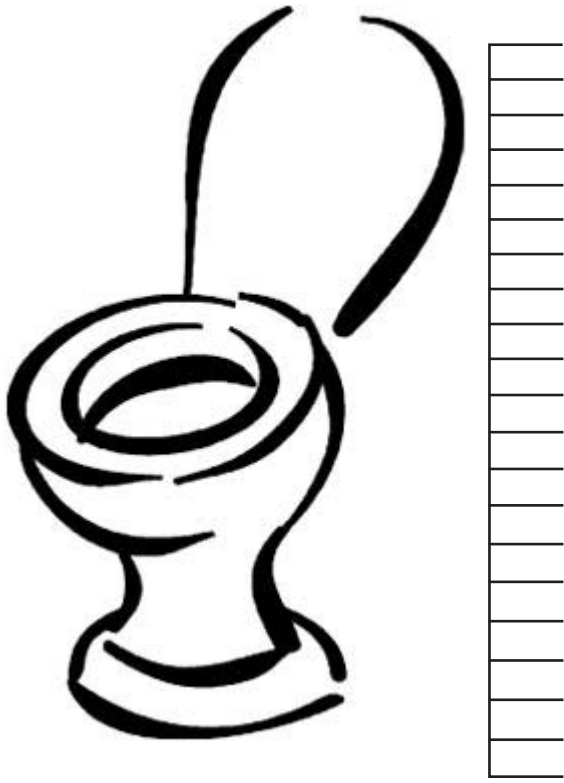
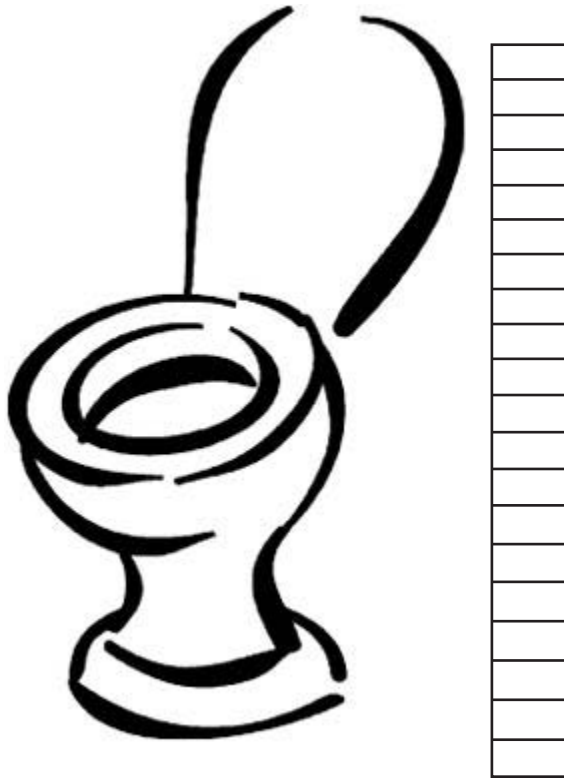
Survey Questions:	Use pictures, numbers or words to answer the survey questions:
How many toilets do you have in your home?	
How many toilets in your home are “low-volume” toilets?	
How many toilets in your home are “standard-volume” toilets?	

Survey Questions:	Use pictures, numbers or words to answer the survey questions:
How many toilets do you have in your home?	
How many toilets in your home are “low-volume” toilets?	
How many toilets in your home are “standard-volume” toilets?	

Survey Questions:	Use pictures, numbers or words to answer the survey questions:
How many toilets do you have in your home?	
How many toilets in your home are “low-volume” toilets?	
How many toilets in your home are “standard-volume” toilets?	

Theme 1 - Lesson 3: Flushed Away
Handout: Flushed Away Investigation Worksheet

1. Colour the picture to show how many litres of water the toilets use each time they flush.

Standard-volume Toilet	Low-volume Toilet
	

2. How much water can you save by using a low-volume toilet? _____

<p>What can you do with the water you save?</p> <p>Draw a picture.</p>	
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Theme 1 - Lesson 4:

Conserving Water Outside

Estimated Completion Time: 2+ hours

Learning Objectives:

Mathematics:

- Demonstrate an understanding of data displayed in a graph.

Social Studies:

- Construct simple maps that show some different land uses within a region.
- Use appropriate elements of a map including standard units of measurement and a legend.
- Describe connections between features of the natural environment of a region and the type of land use in that region.

Science and Technology:

- Apply knowledge of the water cycle.

Assignment:

- Create a map of green spaces in the community.

Activity:

Have students brainstorm some common outdoor uses for water, such as watering a lawn or garden. Briefly review the stages of the water cycle, including evaporation, transpiration, condensation, precipitation and collection.

Guiding Questions:

- How do we use water outside?
- Why do we need to think carefully about the water we use outside?
- Are there times of the year when there is too much or not enough water outside?

Focus students' attention on the green space in their community (parks, grassy areas, gardens, etc.) and talk about who is responsible for caring for these green spaces. Ask students to think about the area immediately around their homes and complete a survey to determine how many students have a lawn and how many students have a public green space where they like to play.

Use the Simplified Survey Data: Lawn Ownership or the data from Statistics Canada's 2011 *Households and the Environment Survey* to find how many households in Canada and in their home-province have a lawn. Compare this with the statistics in their own class and talk about why the rates of lawn ownership in their classroom may be different from the rest of their province (e.g., We live in a

city but most people in our province live in small towns. We live in a place where the ground is very rocky. We have tall trees around our house instead of a lawn.)

Use large chart paper, graph paper, or digital design tools to have students create a map of different kinds of green space around their homes or schools. Have them conduct an investigation or interviews as a class to determine how that green space is watered and add appropriate icons to their map to show how it is watered, such as a picture of a hose, sprinkler, rain barrel, or cistern. Talk about why it is important to pay attention to how much water we use outside. Ask students to think about the water cycle and different times of the year or natural events that would make this important to do.

Help the class to select a nearby green space, such as a school garden or grassy area. Ask them to imagine and draw a picture of an invention that would help them collect precipitation to water it. Have students share their ideas and then show them a picture of a rain barrel or cistern. As a class, talk about how it works to collect and use water. Compare it with the students' invention ideas and talk about how it is similar or different.

Use the *Simplified Survey Data: Rain Barrels and Cisterns* or the data from Statistics Canada's 2011 *Households and the Environment Survey* to find how many households in their home-province have a rain barrel or cistern at home. Complete the same survey in the class to determine how many students have a rain barrel or cistern to collect water. Talk about reasons why some homes may or may not have one (e.g., We live in an apartment building. We don't have a garden to water. We use the hose.)

If possible, have students set up a rain barrel or cistern at the school, track water levels at different times of the year, and work with students to determine a beneficial use for the water collected.

Theme 1 - Lesson 4: Conserving Water Outside Simplified Survey Data: Lawn Ownership

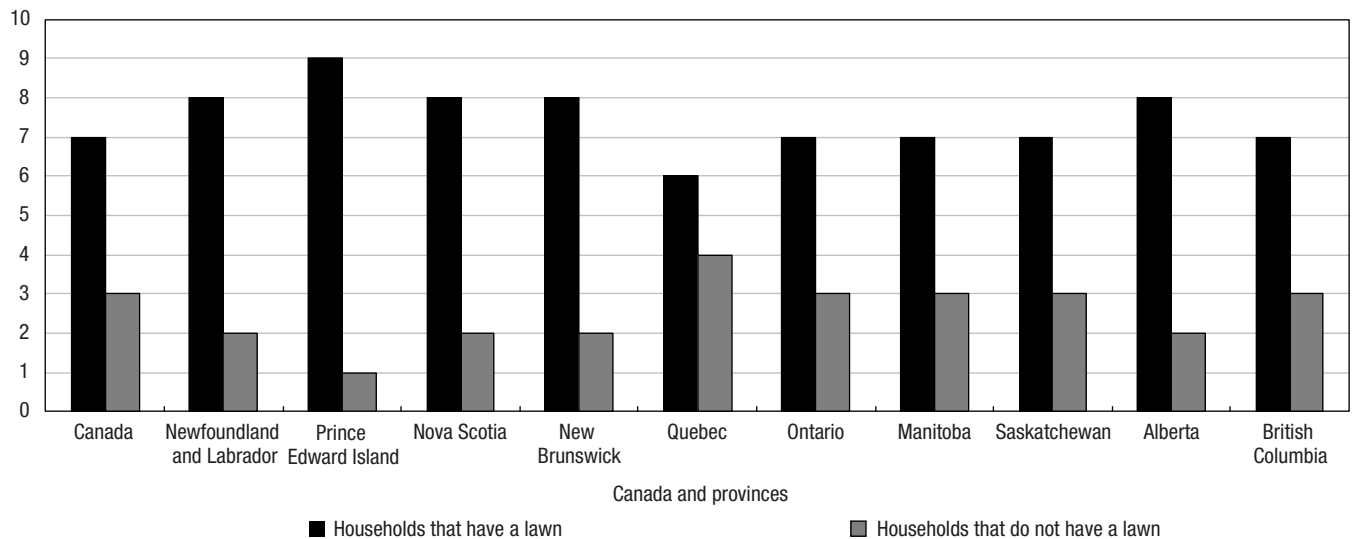
How many people have a lawn where they live?

This graph shows how many households in each province own a lawn, and how many do not in 2011.

Each unit on the graph represents one household of a group of ten households.

Chart 1
How many households have a lawn?

number of households in a group of ten who have a lawn



Source: Statistics Canada. Households and the environment survey, 2011.

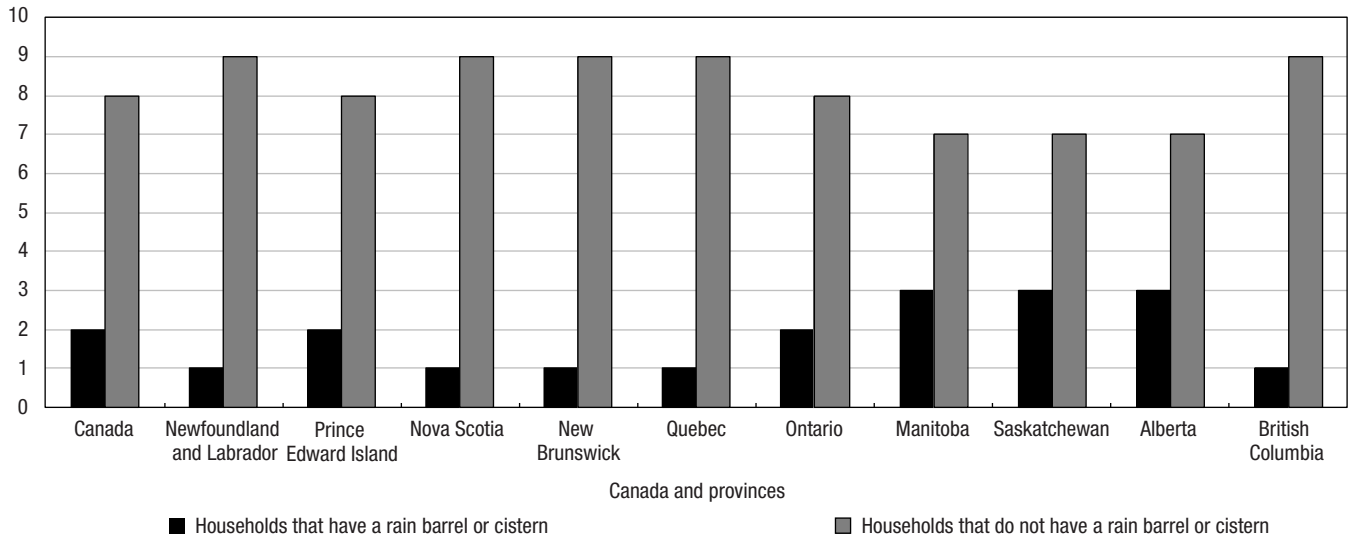
Theme 1 - Lesson 4: Conserving Water Outside Simplified Survey Data: Rain Barrels and Cisterns

How many people use a rain barrel or cistern to collect water?

This graph shows how many households that were not in apartments in each province that used a rain barrel or cistern in 2011. Each unit on the graph represents one household of a group of ten households.

Chart 2
How many households have a rain barrel or cistern?

number of households in a group of ten who have a rain barrel or cistern



Source: Statistics Canada. Households and the environment survey, 2011.

Statistics Canada Households and the Environment Survey Lesson Pack

Theme 2: Out of Sight, Out of Mind: Household Waste



Overview:

Information from Statistics Canada's 2011 *Households and the Environment Survey* revealed that household waste is a significant issue for Canadians.

In this theme, students will explore the impact that different kinds of household waste have on the environment and investigate solutions for reduction and disposal. They will explore and assess ways of disposing of unwanted electronic devices and discuss what to do with old batteries. They will investigate solutions to manage wastewater and think critically about solutions to reduce plastic bag waste.

Suggested Grade Level:

- Grades 1-3

Topics:

- Mathematics
- Social Studies
- Science and Technology
- Language Arts

Cross-curricular Connections:

- Arts
- Health and Safety

Materials:

Lesson 1: Unwanted Cell Phones

- Simplified Survey Data: Unwanted Cell Phones
- Handout: Cell Phone Survey
- An old cell phone (optional)

Lesson 2: Battery Powered

- Simplified Survey Data: Battery Disposal
- Handout: My Favourite Toys

Lesson 3: Wastewater

- Simplified Survey Data: Municipal Sewer System
- Video or online resources about municipal wastewater treatment after use

Lesson 4: Reusable Bags

- Simplified Survey Data: Reusable Bag Usage
- Variety of bags, both disposable and reusable

Theme: Solutions for Household Waste

- Rubric: Out of Sight, Out of Mind Theme Rubric

Assignments:

- Create a pictograph of cell phone disposal practice.
- Practice and perform a newscast about cell phone disposal.
- Create an educational poster about healthy habits and choices.
- Create a bar graph of wastewater disposal methods.
- Draw an illustrated diagram of waste water treatment.
- Write and produce an informational pamphlet about reusable bags.

Statistics Canada Households and the Environment Survey Lesson Pack

Theme 2: Out of Sight, Out of Mind: Household Waste

Theme Rubric

Level 1	Level 2	Level 3	Level 4
Extracts information from data presented in a graphic organizer with support.	Extracts information from data presented in a graphic organizer and draws some conclusions with support.	Independently extracts information from data presented in a graphic organizer and draws general conclusions.	Independently extracts detailed information from data presented in a graphic organizer and draws insightful conclusions.
Describes general attributes of objects.	Describes general attributes of objects and sorts them by physical characteristics.	Describes several attributes of objects and sorts them into physical characteristics and usage.	Describes specific attributes of objects and sorts them into novel categories.
Identifies some services in the community.	Identifies and describes several services in the community.	Identifies and describes services in the community and makes general connections to daily life of people who use them.	Identifies and describes services in the community and makes insightful connections to daily life of people who use them.
Describes personal and family practices.	Describes and assesses personal and family practices.	Describes and assesses personal and family practices with some supporting evidence.	Describes and assesses personal and family practices in detail with strong supporting evidence.
Demonstrates superficial knowledge of technology used for household waste disposal.	Demonstrates knowledge of technology used for household waste disposal.	Demonstrates general knowledge of technology used for household waste disposal and assesses impact with some supporting evidence.	Demonstrates detailed knowledge of technology used for household waste disposal and assesses impact with strong supporting evidence.

Theme 2 - Lesson 1:

Unwanted Cellphones

Estimated Completion Time: 2+ hours

Learning Objectives:

Mathematics:

- Demonstrate an understanding of data displayed in a graph.
- Gather data to answer a question, using a simple survey with a limited number of responses.
- Display data in a pictograph with appropriate titles and labels.

Social Studies:

- Formulate and pose questions to investigate the relationship between the natural environment and the ways in which people live.
- Gather and organize information about the way people live and choices they make regarding technology.
- Interpret and analyse information relevant to an investigation.

Language Arts:

- Use speaking and listening to interact with others for the purposes of gathering data.
- Use writing or speaking to present a central idea with supporting details from discussion or investigation.

Assignments:

- Create a pictograph of cell phone disposal practice.
- Practice and perform a newscast about cell phone disposal.

Activity:

Begin this lesson by discussing cell phone use in the families of the students in the class, talking about who has cell phones in their family and how they are used (e.g., for work, to speak or text with friends, to play games).

Using an old (or new) cell phone as an example, have students make observations and talk about the material used to make cell phones (metal, plastic, glass, special chemicals, batteries). Ask students what they think should happen with a cell phone when someone doesn't want it any more. How will these choices affect their community and the environment?

Next, distribute *Simplified Survey Data: Unwanted Cell Phones*. Have students review the different ways in which people disposed of their cellphones.

Guiding Questions:

- How do most people dispose of an unwanted cell phone?
- Is this a good thing to do? Why or why not?
- What kind of information do people need to know when they have an old cell phone they don't want or can't use?
- What do you think people should do with cell phones they don't want or can't use anymore?

Review the *Handout: Cell Phone Disposal Survey* for complete, clear, concise questions about cell phone use and disposal that they would like to ask their parents, guardians, or other adults they know. Have students practice asking and responding to the questions to prepare them to speak with others in their own community.

Have students use their class-generated questions to complete a survey of 10 parents, guardians, or other adults in the school community. After the students have conducted their survey, have students visually represent their findings by creating a pictograph of their results. Where possible, have them compare their findings with the data in the *Simplified Survey Data: Unwanted Cell Phones*. Use their findings and the survey data to talk about different ways cell phones can be reused or disposed of, providing opportunities for students to talk about the impact of each choice on their community and the environment.

Use the Guiding Questions below to help students interpret the results of their survey and consider what they feel is the best way to dispose of an old cell phone. Have them present their ideas by a role-playing the part of a journalist on a local news program. Have the students act as journalists to select and present interesting results of the survey they conducted in their own community. Students should also share their suggestions for cellular phone disposal in their broadcast.


Guiding Question:



































- How did most people you surveyed dispose of their unwanted cell phone?
- Is this a good thing to do? Why or why not?
- What kind of information do people need to know when they have an old cell phone they don't want or can't use?
- What do you think people should do with cell phones they don't want or can't use anymore?
- How did your survey compare to the one we looked at earlier? Were the people you interviewed more or less likely to dispose of their cell phones in a responsible way?

Theme 2 - Lesson 1: Unwanted Cell Phones

Simplified Survey Data: Unwanted Cell Phones

How many people have an old or unwanted cell phone in their home? How do those people get rid of them?

This table shows how many households in Canada and in each province had an unwanted cell phone in their home, and how they chose to dispose of them. Each icon represents one household out of ten, therefore if you see this , it means one household from a group of ten households had an unwanted cell phone.

Area	Have an unwanted cell phone in their home	Of those with unwanted cell phones, some households...			
		Put their unwanted cell phone in the garbage	Took their unwanted cell phone to a depot or drop-off centre	Donated or gave away their unwanted cell phones	Still have their unwanted cell phones
Canada					
Newfoundland and Labrador					
Prince Edward Island					
Nova Scotia					
New Brunswick					
Quebec					
Ontario					
Manitoba					
Saskatchewan					
Alberta					
British Columbia					

Theme 2 - Lesson 1: Unwanted Cell Phones

Handout: Cell Phone Disposal Survey

Name:	
Survey Questions:	Survey Answers:
1. Do you have a cell phone?	<input type="checkbox"/> YES <input type="checkbox"/> NO
2. How long have you had your cell phone?	<input type="checkbox"/> 0 Months - 6 Months <input type="checkbox"/> 6 Months – 1 Year <input type="checkbox"/> More than 1 Year <input type="checkbox"/> More than 2 Years
3. What did you do with your old cell phone?	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <input type="checkbox"/> I put it in the garbage. </div> <div style="text-align: center;"> <input type="checkbox"/> I took it to a Drop-Off Center. </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <input type="checkbox"/> I donated it or gave it away. </div> <div style="text-align: center;"> <input type="checkbox"/> I repaired it or sold it. </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <input type="checkbox"/> I still have it in my home. </div> <div style="text-align: center;"> <input type="checkbox"/> This is my first cell phone. </div> </div>

Theme 2 - Lesson 2:

Battery Powered

Estimated Completion Time: 2+ hours

Learning Objectives:

Mathematics:

- Read primary data presented in a tally chart.
- Distinguish between numbers that represent data values and numbers that represent the frequency of event.
- Pose and answer questions about class-generated data.

Social Studies:

- Describe and assess personal and family uses of energy.

Language Arts:

- Produce an informational text for an intended audience, using appropriate conventions and techniques.
- Use familiar words and phrases to communicate relevant details.

Assignments:

- Create an educational poster about healthy habits and choices.

Activity:

Begin this lesson by having students consider some of the electronic devices they use every day. Present students with the *Handout: My Favorite Toys* and ask them to complete it individually. Survey the class to determine how many students have 0, 1, 2, or 3 favourite toys that use batteries. Track the results on the board with a tally of how many students said the following:

- All three of my favourite toys use batteries.
- Two of my favourite toys use batteries.
- One of my favourite toys uses batteries.
- None of my favourite toys use batteries.

Guiding Questions:

- How many students have favourite toys that do not use batteries?
- How many students have one or more favourite toys that use batteries?

- Do you think your parents would have had favourite toys that used batteries?
- What about your grandparents?

Hint: If time allows, split students into small groups and have each group ask the same survey question of a different demographic in the school, such as students in different grades or classrooms.

Next, focusing on Question #2 on *Handout: My Favorite Toys*. Use a tally chart to total the number of batteries the class would need to use if everyone wanted to play with their three favourite toys in one day. Ask the students what they should do with all of those batteries when they stop working.

Use the *Simplified Survey Data: Battery Disposal* or the data from the Statistics Canada's 2011 *Households and the Environment Survey* to talk about some of the ways people in their home-province dispose of their old batteries.

For each disposal option, have students talk about the positive or negative impacts of each choice (e.g., It's free. It puts bad chemicals in the ground. It doesn't get rid of them at all.) Talk about some of the safety precautions required when keeping old batteries at home, such as keeping them somewhere younger siblings can't find them and swallow them, or not touching the dangerous chemicals that are released if an old battery bursts.

Have students complete a survey of students or adults in their school community, asking how they dispose of their old batteries and compare the results to the choices other people make in the home-province. Have students brainstorm a list of "Healthy Battery Habits and Choices," such as choosing toys without batteries, keeping old batteries in a safe location, asking for adult help when a leaky battery is found, using rechargeable batteries, or disposing of them properly.


Have students create an educational poster (using paper or digital presentation tools) explaining and illustrating one of the habits or choices that can be posted in the school community or on the school's website.















































Theme 2 - Lesson 2: Battery Powered

Simplified Survey Data: Battery Disposal

How many people have old or unwanted batteries in their home? How do those people get rid of them?

This table shows how many households in Canada and in each province had unwanted batteries in their home, and how they chose to dispose of them.

Each battery icon represents one household out of ten, therefore if you see this: , it means one household from a group of ten households had unwanted batteries.

Area	Have unwanted batteries in their home	Of those with unwanted batteries, some households...			
		Put their unwanted batteries in the garbage	Took their unwanted batteries to a depot or drop-off centre	Returned their unwanted batteries to the supplier	Still have their unwanted batteries
Canada					
Newfoundland and Labrador					
Prince Edward Island					
Nova Scotia					
New Brunswick					
Quebec					
Ontario					
Manitoba					
Saskatchewan					
Alberta					
British Columbia					

Theme 2 - Lesson 2: Battery Powered

Handout: My Favorite Toys Worksheet

1. Draw a picture of your three favourite toys.

Favourite Toy #1:	Favourite Toy #2:	Favourite Toy #3:
<p data-bbox="154 919 358 989">Number of Batteries Used:</p> <input data-bbox="451 926 565 1037" type="text"/>	<p data-bbox="597 919 802 989">Number of Batteries Used:</p> <input data-bbox="894 926 1008 1037" type="text"/>	<p data-bbox="1040 919 1245 989">Number of Batteries Used:</p> <input data-bbox="1338 926 1451 1037" type="text"/>

2. If you wanted to play with all three of your toys, how many batteries would you need?

3. What happens to these batteries when they are taken out of your toys?

4. Is this a safe thing to do?

Theme 2 - Lesson 3:

Wastewater

Estimated Completion Time: 1+ hours

Learning Objectives:

Mathematics:

- Display data in a bar graph with appropriate titles and labels.

Social Studies:

- Gather and organize information on the interrelationship between people and the natural and built features of their community.
- Identify ways that needs are met in communities.

Science and Technology:

- Investigate ways in which air, water, and soil interact.

Assignments:

- Create a bar graph of wastewater disposal methods.
- Draw an illustrated diagram of waste water treatment.

Activity:

Begin this lesson by having the students work in pairs or small groups to brainstorm a list of different actions they take every day that create wastewater, such as taking a shower or bath, brushing their teeth or flushing the toilet. Next have them draw a picture or write a journal entry about what they think happens to the water when it goes down the drain.

Talk about the region where students live. Is it an urban or rural region? What types of services are provided to people that live in urban and rural communities. If possible, refer to student experience with Theme 1: Water Use and Conservation, Lesson 1: Where Does your Water Come from.

Use the *Simplified Survey Data: Municipal Sewer Systems* or the data from the Statistics Canada's 2011 *Households and the Environment Survey* to show students that most household wastewater is directed to either a sewer system or a septic system and ask students what they know about each kind of system. Have students create a bar graph using the table provided.

Provide text, video or online resources to investigate what happens to the water they use in their homes and at school. Discuss the difference between the two systems and some of the reasons why different regions use different systems.

A sewer system uses long stretches of pipes underground to cycle wastewater by separating it, treating it at large facilities that use both technological and natural filtration processes to clean it and return it back into the water supply.

A septic system is self-contained and uses time and natural processes and the interaction of water with elements in the ground to treat waste water in many rural areas where homes are spaced too widely apart or the terrain does not allow for sewer systems.

Have students ask their parents if their home is connected to a sewer system or a septic system. Compare the class's findings the next day by setting up two jars at the front of the class, one labeled "Sewer" and one labeled "Septic." Have students, one-by-one, place a token in the jar that corresponds to the wastewater system they use at home. After all students have placed their token, count the markers in each jar. Have the students create a bar graph to visually represent this information and compare this to provincial data.

Hint: Depending on the area, some classes may find that every student uses the same wastewater disposal system. If this is the case, discuss with the class why that might be.

Finally, have students choose a specific activity that uses water and use the *Handout: Wastewater Disposal worksheet* to draw a step-by-step, labelled diagram representing what happens with the water they use. Most students' diagrams should follow a progression similar to:

- Water at its source, like a lake, river, or ocean
- Water entering the house through a tap or other fixture
- Water being used by the student
- Water going down the drain
- Water being treated or cleaned
- Water re-entering its source

Theme 2 - Lesson 3: Wastewater

Simplified Survey Data: Municipal Sewer Systems

How many households are connected to a sewer system? How many use a different method to dispose of their wastewater?

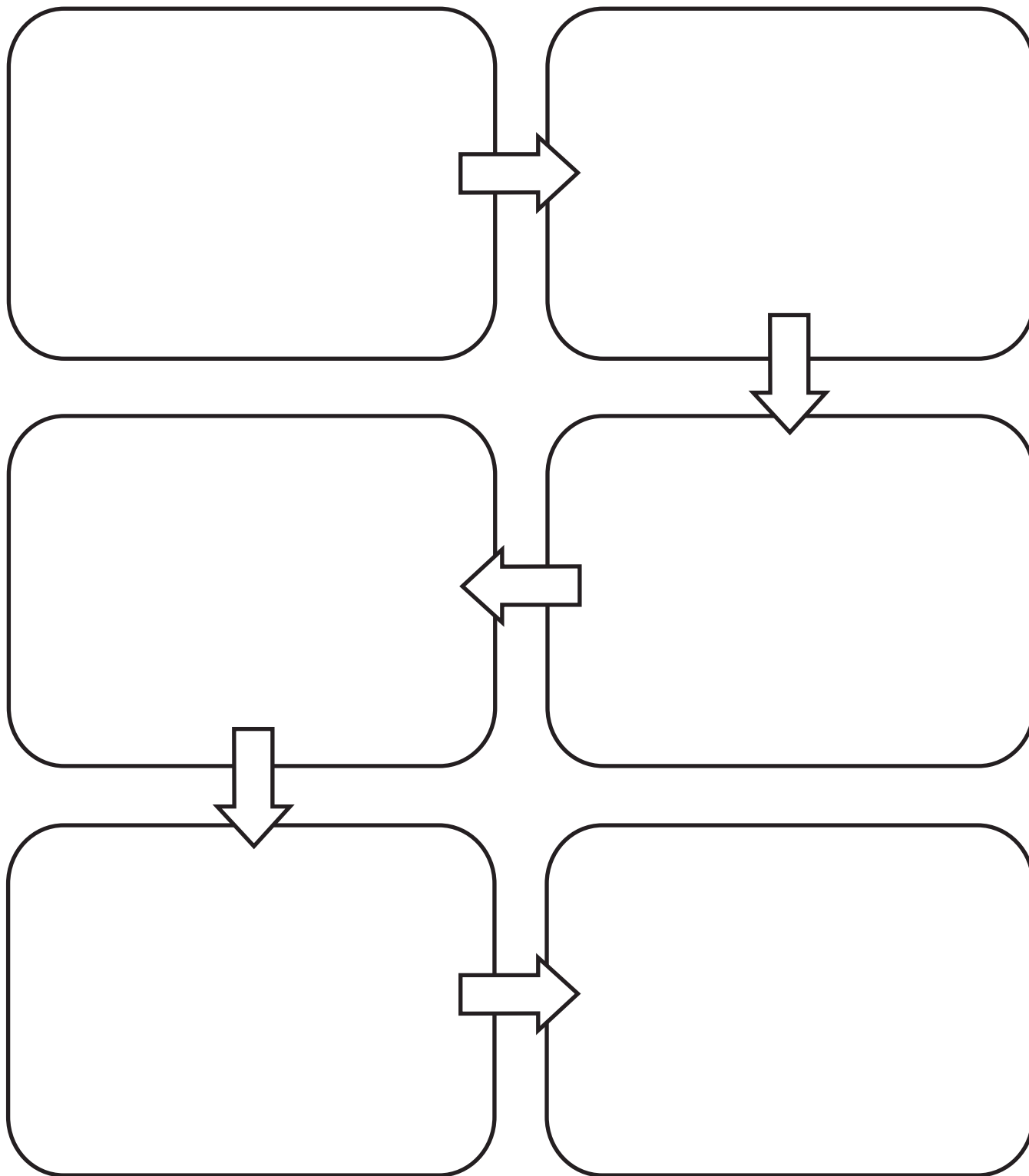
This table shows how many households in Canada and in each province use a municipal sewer system to dispose of waste water and how many households use a septic or other system.

Each data point has been adjusted to show the information as if the total population was a group of ten households.

Area	Municipal Sewer System	Septic System
Canada	8/10 Households	2/10 Households
Newfoundland and Labrador	8/10 Households	2/10 Households
Prince Edward Island	5/10 Households	5/10 Households
Nova Scotia	6/10 Households	4/10 Households
New Brunswick	6/10 Households	4/10 Households
Quebec	8/10 Households	2/10 Households
Ontario	8/10 Households	2/10 Households
Manitoba	9/10 Households	1/10 Households
Saskatchewan	9/10 Households	1/10 Households
Alberta	9/10 Households	1/10 Households
British Columbia	8/10 Households	2/10 Households

Theme 2 - Lesson 3: Wastewater
Handout: Wastewater Disposal Worksheet

What happens to the water you use at home?



Theme 2 - Lesson 4:

Reusable Bags

Estimated Completion Time: 1+ hours

Learning Objectives:

Mathematics:

- Demonstrate an understanding of data displayed in a graph.
- Organize objects into categories using two or more attributes.

Language Arts:

- Use age-appropriate vocabulary to describe objects and materials.
- Produce an informational text for an intended audience, using appropriate conventions and techniques.

Assignments:

- Write and produce an informational pamphlet about reusable bags.

Activity:

Begin this lesson by having students work in pairs or small groups to brainstorm a list of different bags that they use day to day, such as plastic bags for groceries, paper bags for lunches, reusable shopping bags, backpacks or book bags, lunch or snack bags.

Provide each group with a varied collection of bags and challenge them to work together to sort them into two categories in two minutes. Each group may sort the bags by slightly different criteria, such as size, material, weight, purpose, colour, or age of the item. When two minutes have passed, have each group share the categories they chose for their bags and talk about the criteria they used to create those categories. Repeat this challenge two more times so that the students have sorted and described their bags in three different ways.

If students have not already done so, ask them to sort their bags into two new categories: disposable and reusable. Discuss the meaning of these two words with students and have them make observations about the bags they have on the Handout: Reusable Bags Worksheet.

Ask students why it might be a good idea to use reusable shopping bags, considering the durability of the material they are made of and the environmental impact of plastic bags.

Use the *Simplified Survey Data: Reusable Bags* or the data from the Statistics Canada's 2011 *Households and the Environment Survey* to investigate the use of reusable bags in different provinces. Prompt students to use the graph to determine:

- In which province are reusable bags used most often for grocery shopping?
- In which province are reusable bags used least often for grocery shopping?
- Does your home-province use reusable grocery bags more or less often than your neighbouring provinces?

Ask students why they think some people may choose not to use reusable bags for their grocery shopping? Some reasons include:

- You have to buy them.
- People forget them to bring them to the store.
- Reusable bags are inconvenient to carry.
- Plastic bags can be used for garbage or cleaning up after a dog.

Encourage students to think of solutions for each of these challenges, such as sewing bags out of old t-shirts so they don't need to be purchased, or keeping them in the trunk of the car.

Have students create an informational pamphlet including images and text using paper or digital desktop publishing tools, sharing some of their knowledge about reusable bag use in their province, and providing helpful suggestions to increase the use of reusable bags in their community.

Theme 2 - Lesson 4: Reusable Bags
Handout: Reusable Bags Worksheet

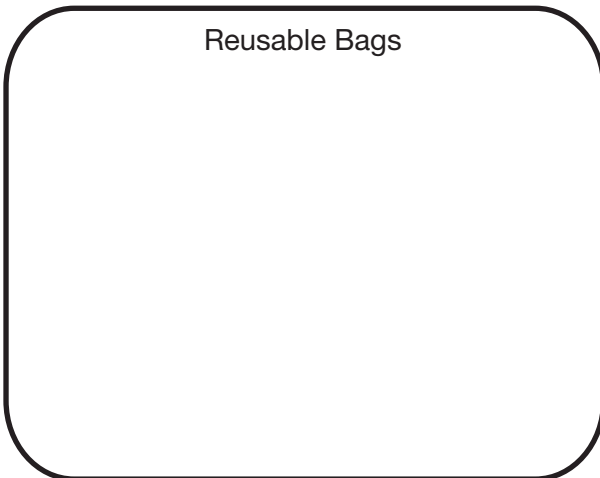
1. What does the word “disposable” mean?

2. Draw a picture of something that is “disposable.”

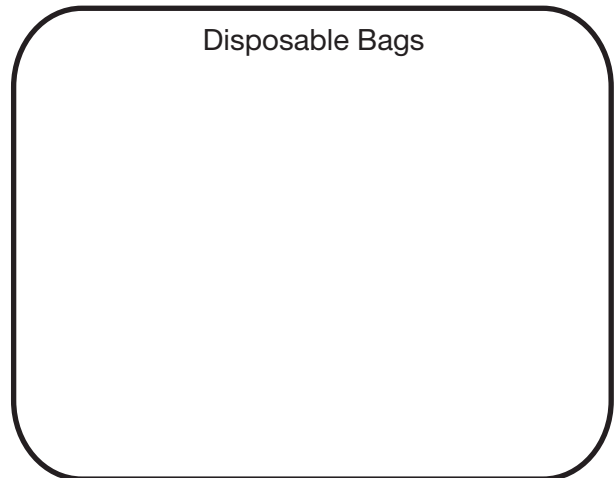


3. Write words to describe bags that are “reusable” and “disposable” in boxes below.

Reusable Bags



Disposable Bags









4. Why might a person decide to use a reusable shopping bag for their groceries?
What makes this a popular choice?






Theme 2 - Lesson 4: Reusable Bags Simplified Survey Data: Reusable Bags




Have you ever used reusable bags to carry your groceries?






This graph shows how many households in Canada and in each province used reusable bags to carry their groceries.






Each icon represents one household out of ten, therefore if you see this: , it means one household from a group of ten households used reusable bags. Additionally, if you see this: , it means that five households from a group of ten households used reusable bags.

Canada					
	Always	Often	Sometimes	Rarely	Never

Newfoundland and Labrador					
	Always	Often	Sometimes	Rarely	Never

Prince Edward Island					
	Always	Often	Sometimes	Rarely	Never

Nova Scotia					
	Always	Often	Sometimes	Rarely	Never

New Brunswick					
	Always	Often	Sometimes	Rarely	Never

Quebec					
	Always	Often	Sometimes	Rarely	Never

Ontario					
	Always	Often	Sometimes	Rarely	Never

Manitoba					
	Always	Often	Sometimes	Rarely	Never

Saskatchewan					
	Always	Often	Sometimes	Rarely	Never

Alberta					
	Always	Often	Sometimes	Rarely	Never

British Columbia					
	Always	Often	Sometimes	Rarely	Never

Statistics Canada Households and the Environment Survey Lesson Pack

Theme 3: Making Responsible Choices



Overview:

Information from Statistics Canada's 2011 *Households and the Environment Survey* revealed that household and purchasing decisions can be a significant factor in a home's environmental impact.

In this theme, students will explore the impact of household and purchasing decisions by investigating the use of programmable thermostats and “green” cleaning products. They will think critically about the production and consumption of locally produced foods. They will also investigate the energy efficiency in their home and classroom.

Suggested Grade Level:

- Grades 1-3

Topics:

- Mathematics
- Social Studies
- Science and Technology

Cross-curricular Connections:

- Language Arts
- Arts

Materials:

Lesson 1: Temperature Control

- Simplified Survey Data: Programmable Thermostat
- Handout: Temperature Comparison
- Handout: Standard and Programmable Thermostats Images

Lesson 2: Green Cleaning Products

- Simplified Survey Data: Green Cleaning Product Use
- Handout: Green Cleaning Product Survey
- Handout: Green Cleaning Test

Lesson 3: Locally Produced Food

- Simplified Survey Data: Locally Produced Foods

Lesson 4: Energy Audits

- Simplified Survey Data: Modifications from Energy Audits

Theme: Making Responsible Choices

- Rubric: Making Responsible Choices

Assignments:

- Complete a temperature comparison worksheet.
- Complete a journal entry about setting a programmable thermostat.
- Create a bar graph comparing class results with provincial findings.
- Conduct an investigation of homemade green cleaning products.
- Create a healthy meal plan using locally produced food.
- Create an energy audit map of the classroom.

Statistics Canada Households and the Environment Survey Lesson Pack

Theme 3: Making Responsible Choices

Theme Rubric

Level 1	Level 2	Level 3	Level 4
Answers questions about data represented in a graphic organizer.	Poses and answers questions about data represented in a graphic organizer with support.	Independently poses and answers questions about data represented in a graphic organizer.	Independently poses and answers sophisticated questions about data represented in a graphic organizer.
Is beginning to make connections between personal and family choices and how they are affected by natural and built features of the environment.	Hesitantly makes connections between personal and family choices and how they are affected by natural and built features of the environment.	Comfortably makes connections between personal and family choices and how they are affected by natural and built features of the environment.	Confidently makes sophisticated connections between personal and family choices and how they are affected by natural and built features of the environment.
Identifies general ways that humans impact the environment.	Identifies some ways that humans impact the environment and forms opinions about this impact.	Identifies some ways that humans impact the environment and forms opinions about this impact with evidence.	Identifies some ways that humans impact the environment and forms opinions about this impact with strong evidence.
Identifies general ways products and technology impact the environment.	Identifies and describes positive or negative ways that products and technology impact the environment.	Identifies and describes positive and negative ways that products and technology impact the environment.	Identifies and describes positive and negative ways that products and technology impact the environment and suggests insightful solutions.

Theme 3 - Lesson 1:

Temperature Control

Estimated Completion Time: 1+ hours

Learning Objectives:

Mathematics:

- Pose and answer questions about simple line plots and tally charts.
- Pose and answer questions about class-generated data.

Science and Technology:

- Investigate and demonstrate an understanding of seasonal changes in different regions.
- Make observations about the local climate and how it affects the lives of people who live there.
- Describe how people prepare for and respond to daily and seasonal changes.
- Describe how different technologies are used to help people adapt to daily and seasonal changes.

Assignments:

- Complete a temperature comparison worksheet.
- Complete a journal entry about setting a programmable thermostat.

Activity:

Begin this lesson by having students use text, video, or online resources to investigate average temperatures and weather patterns at different times of the year in their home province or community. Use the *Handout: Temperature Comparison* and ask them to record their findings. Use a map of Canada to select a city in another province or territory where the weather may be very different from one's own and complete the same activity using information about what seasons look and feel like in that place.

Hint: An excellent online resource for investigating temperature is the Environment Canada Weather Archives, available here: <http://climate.weather.gc.ca/>

Discuss the way people dress at different times of the year and to adapt to different temperatures. Talk about how the temperature can be different inside than it is outside and brainstorm different technologies that are used to keep people warmer or cooler than the temperatures outside. Take a walk around the school to find and identify some of these technologies, such as insulated walls, fans, air conditioners, heaters and thermostats to control them. Talk about the cost of using different energies and encourage students to consider which technologies cost the most in terms of energy and money.

Ask students how they control the temperature in their homes. Explain that a thermostat is a control panel for a building's heating and cooling system. Some thermostats are programmable and some are not.

Show students examples of these using the *Handout: Standard and Programmable Thermostat Images*. A programmable thermostat has a computer inside of it that can control the temperature automatically at different points throughout the day.

Help students to develop questions for a survey that they will conduct in their own homes.

Questions may include:

- Can we control how hot or how cold our home is?
- Do we have a programmable thermostat?
- Do we turn the temperature down at night? Why?
- If we do not turn the temperature down at night, why not?

Tally the students' results on the blackboard. Use the *Simplified Survey Data: Programmable Thermostat* or the data from Statistics Canada's 2011 *Households and the Environment Survey* to compare students' findings with the data in the survey data table.

Talk about the results and discuss why families do or do not turn down the temperature at night.

Guiding Questions :

- What were some of the reasons your parents gave for why they do/do not turn down the temperature at night?
- Does the class have a greater or fewer number of programmable thermostats than the average in their home province?
- How does the use of programmable thermostats in their province compare with use in the province they investigated using the *Handout: Temperature Comparison*?
- Why would people in these provinces use or not use a programmable thermostat?
- Is it warmer or colder there? Are their seasons less variable? Is energy less expensive?
- What type of heating system is in your home? A furnace, baseboard heater, radiator, etc.
- Why do some people who have a programmable thermostat not program it?

Have students complete a journal entry about how they would set their thermostat at night in a particular season. They should include an illustration of a programmable thermostat and their desired temperature, and an explanation of why that temperature would be good for their family.



For example:




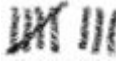

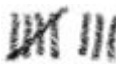













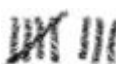

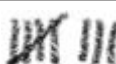
- I would set my thermostat to 25 degrees Celsius at night. My baby brother gets cold so we have to keep it warm.
- I would set my thermostat to 17 degrees Celsius at night. It saves electricity and I like it cool when I sleep. I sleep with fuzzy blankets.

Theme 3 - Lesson 1: Temperature Control Simplified Survey Data: Programmable Thermostat

How many households have a programmable thermostat? How many households lower the temperature in their house when they are asleep?

This table shows how many households that had a thermostat in Canada and in each province have a programmable thermostat in their home and how many of those households use their programmable thermostat to lower the temperature when they are sleeping.

Each icon represents one household out of ten, therefore if you see this: , it means one household from a group of ten households with thermostats had a programmable thermostat. Additionally, if you see this: , it means that five households from a group of ten households with thermostats had a programmable thermostat.

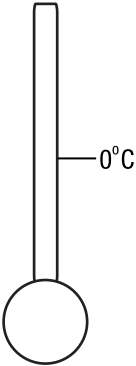
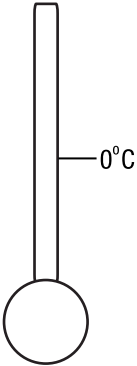
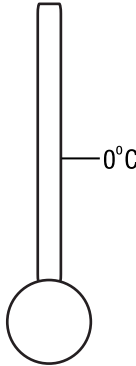
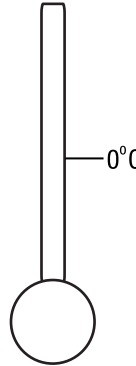
Area	Has a Programmable Thermostat	Uses Programmable Thermostat to Lower the Temperature when Sleeping
Canada		
Newfoundland and Labrador		
Prince Edward Island		
Nova Scotia		
New Brunswick		
Quebec		
Ontario		
Manitoba		
Saskatchewan		
Alberta		
British Columbia		

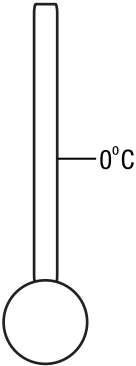
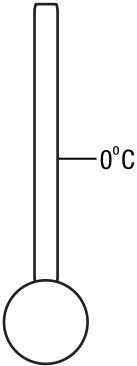
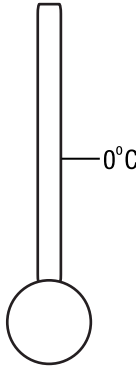
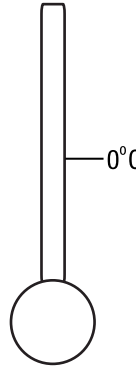
Theme 3 - Lesson 1: Temperature Control

Handout: Temperature Comparison

Complete the tables below:

1. Write the name of your province or territory.
2. Write the temperature in degrees Celsius in the circle.
3. Colour the thermometer to show how hot or cold the temperature is.

My City and Province or Territory:			
Summer:	Fall:	Winter:	Spring:
			

A City in Another Province or Territory:			
Summer:	Fall:	Winter:	Spring:
			

4. Draw a scene around each thermometer to show what the weather and temperature are like at that time of year in each province or territory.

Theme 3 - Lesson 1: Temperature Control
Handout: Standard and Programmable Thermostat Images



Figure 2 Standard thermostat



Figure 1 Programmable thermostat

Theme 3 - Lesson 2:

Greening Cleaning Products

Estimated Completion Time: 2+ hours

Learning Objectives:

Mathematics:

- Collect and organize discrete primary data.
- Display data in a tally chart.
- Pose and answer questions about class-generated data.

Science and Technology:

- Follow established procedures and safe practices while conducting a scientific investigation.
- Use appropriate science and technology vocabulary in oral and written communication.

Assignments:

- Create a bar graph comparing class results with provincial findings.
- Conduct an investigation of homemade green cleaning products.

Activity:

Begin this lesson by discussing what makes a product “green” and creating a definition together as a class that can be posted in the classroom. Example definition: Green products are products that are designed so that their use does not harm the environment.

Guiding Questions :

- What does the word “green” mean?
- Is it just a colour?
- When have you heard or seen this word used to describe something that isn’t to describe colour?
- What kinds of things are described as “green”?
- What are some important facts that should be true to call something “green”?

Ask students to ask their parents to help them look for examples of different “green” products in their homes or at the grocery store. Have students make a list, draw pictures, or take digital photos of examples they find. If possible, bring in several examples of “green” products or labels to show to the class and talk about how these products are used and what makes them “green.” Discuss some of the advantages and disadvantages of using green cleaning products at home. (e.g., Green products can be more expensive. Some of them might not work very well. Non-green products sometimes have dangerous chemicals that could go into our water.)

Have students complete a survey using the *Handout: Green Cleaning Product Survey* to determine how many students use green cleaning products in their home. The handout has three copies of the same survey that can be reproduced and cut along the dotted line. Students will need to ask for parent or guardian assistance to complete their survey. Tally the results on the blackboard and discuss them with the students as a class. Are they surprised? What kinds of green cleaning products are they using at home?

Distribute *Simplified Survey Data: Green Cleaning Product Use* in order to have students review data from Statistics Canada's 2011 *Households and the Environment Survey*. Compare the class's tally to the average in their home-province. Talk about why people in their province might use or not use green cleaning products and create a bar graph to compare the use of products among parents in their classroom, with households in their province.

Have students investigate, using suggestions from their parents, or other sources, the effectiveness of some safe, green cleaning products that they can find in their own kitchen, such as vinegar, lemon juice and sunlight, baking soda, and warm water. Test these suggested home solutions and have students document their findings on the *Handout: Green Cleaning Test*.

Guiding Questions :

- What do you think it means if a product is described as being “green”?
- What do you think makes people choose to use green cleaning products?
- What was the most effective homemade green cleaning solution?
- Do you think your parents would use this at home? Why or why not?

Theme 3 - Lesson 2: Greening Cleaning Products

Simplified Survey Data: Green Cleaning Product Use

Have you ever purchased an environmentally friendly or “green” cleaning product?

This table shows how many households in Canada and in each province have purchased a “green” cleaning product for their home.

Each data point has been adjusted to show the information as if the total population was a group of ten households.

Area	Has Purchased Green Cleaning Product
Canada	9/10 households
Newfoundland and Labrador	8/10 households
Prince Edward Island	8/10 households
Nova Scotia	9/10 households
New Brunswick	9/10 households
Quebec	9/10 households
Ontario	8/10 households
Manitoba	9/10 households
Saskatchewan	8/10 households
Alberta	8/10 households
British Columbia	9/10 households

Theme 3 - Lesson 2: Green Products

Handout: Green Cleaning Products Survey

Survey Questions:	Use pictures or words to answer the survey questions:
Do you use “green” cleaning products in your home?	
If yes, what kinds of green cleaning products do you use?	
If no, why not?	

Survey Questions:	Use pictures or words to answer the survey questions:
Do you use “green” cleaning products in your home?	
If yes, what kinds of green cleaning products do you use?	
If no, why not?	

Survey Questions:	Use pictures or words to answer the survey questions:
Do you use “green” cleaning products in your home?	
If yes, what kinds of green cleaning products do you use?	
If no, why not?	

Theme 3 - Lesson 2: Greening Cleaning Products Handout: Green Cleaning Test

Welcome to the Test Centre!

1. What are you trying to clean?

Describe it or draw a
labelled picture

2. What are going to use
to clean it?

Describe it or draw a
labelled picture

3. How are you going to test this?

Describe your test
or draw a labelled picture

Do you think this will work?

YES NO

4. What happened?

Describe the results of your
test or draw a picture.

Is this a good product to use?

YES NO

Theme 3 - Lesson 3:

Locally Produced Food

Estimated Completion Time: 3+ hours

Learning Objectives:

Mathematics:

- Pose and answer questions about data in a bar graph.

Social Studies:

- Extract information from a map about location and physical characteristics of a region.
- Gather and organize information on the interrelationship between people and the natural and built features of their community.
- Identify ways that needs are met in communities.
- Describe similarities and differences between their community and a community in a different region.

Science and Technology:

- Follow established procedures and safe practices while conducting a scientific investigation.
- Use appropriate science and technology vocabulary in oral and written communication.

Assignments:

- Create a healthy meal plan using locally produced food.

Activity:

Begin this lesson by asking students where they think their food comes from and recording their ideas on the board.

Show students a map of their region and work together to find areas where food might be produced. Have students look for farmland, bodies of water where edible resources are found, and food production centres. Work together as a class to decide what it means to say that something is made “locally.” How far away can something be produced and still be considered local? (e.g., in the neighbourhood, municipality, province, or country).

Guiding Questions :

- Is it easy to find foods that are produced locally where we live?
- What kinds of food can we find?
- Where can we purchase them?

- Where can we grow them?
- What might make it difficult to find locally produced food where we live?

Use the *Simplified Survey Data: Locally Produced Food* or the data from Statistics Canada's 2011 *Households and the Environment Survey* to investigate how many families in their home-province bought locally grown foods and compare this with the same question for other provinces.

Guiding Questions :

- Do households in our province buy locally produced foods more or less often than households in other provinces?
- Why might this be?
- What kind of resources does our province have that would make this so?
- What kind of resources do other provinces have that would affect their choice to buy locally or non-locally produced food?
- Is their weather different than ours?
- Do they have longer or shorter growing seasons for food?
- Do they have bodies of water nearby where they can get fresh seafood and other products?
- Are there large cities in this province? How would living in a city make it easy or difficult to find locally produced food?
- Are there ways to grow food in the city?

Have students conduct interviews with community members and use community resources to investigate food that is produced locally. Use this group research to create a list of crops and products that are produced locally. Have students identify where they could go to purchase these locally produced foods. If possible, visit a local producer, such as a farm or dairy to see where local food is produced.

Finally, have the students create a plan for a delicious healthy meal using foods that are produced locally. These can be written as recipes and compiled into a class cookbook or illustrated and labelled on “plates” cut out of reclaimed cardboard (e.g. cereal boxes) for display.

Theme 3 - Lesson 3: Locally Produced Food Simplified Survey Data: Locally Produced Food

Has someone in your household bought locally produced food?

This graph shows how many households in Canada and in each province purchase locally produced food.

Each data point has been adjusted to show the information as if the total population was a group of ten households. If you see an X, it means one household from a group of ten households has purchased locally produced foods.

Canada		X X X X	X X X		
	X X			X	X
	Always	Often	Sometimes	Rarely	Never

Newfoundland and Labrador			X X X X		
	X X	X X		X	X
	Always	Often	Sometimes	Rarely	Never

Prince Edward Island			X X X X		
	X X	X X			
	Always	Often	Sometimes	Rarely	Never

Nova Scotia		X X X X	X X X		
	X X			X	
	Always	Often	Sometimes	Rarely	Never

New Brunswick		X X X X	X X X		
	X X			X	
	Always	Often	Sometimes	Rarely	Never

Quebec		X X X X	X X X		
	X			X	
	Always	Often	Sometimes	Rarely	Never

Ontario		X X X X	X X X		
	X X			X	X
	Always	Often	Sometimes	Rarely	Never

Manitoba		X X X X	X X X X		
	X			X	X
	Always	Often	Sometimes	Rarely	Never

Saskatchewan		X X X X	X X X X		
				X X	X
	Always	Often	Sometimes	Rarely	Never

Alberta			X X X X		
	X	X X		X	X
	Always	Often	Sometimes	Rarely	Never

British Columbia		X X X X	X X X		
	X X			X	
	Always	Often	Sometimes	Rarely	Never

Theme 3 - Lesson 4:

Energy Audits

Estimated Completion Time: 2+ hours

Learning Objectives:

Mathematics:

- Pose and answer questions about data in a bar graph.

Social Studies:

- Gather and organize information about the way people live and choices they make regarding technology.
- Describe and assess personal and family uses of energy.
- Describe similarities and differences between their community and a community in a different region.

Science and Technology:

- Use appropriate science and technology vocabulary in oral and written communication.

Assignments:

- Complete an energy audit map of the classroom.

Activity:

Begin this activity by having small groups of students brainstorm lists of ways energy is used in different rooms in the home, such as appliances in the kitchen, electronics for entertainment in a family room, or lighting and heating/cooling throughout the home.

Explain that an “energy audit” is a review of a building’s features to see where it is using energy efficiently and where energy is being wasted. Energy audits investigate the energy-efficiency of appliances, the energy-efficiency of heating and cooling systems, or areas of buildings that release air that is warmed or cooled using energy.

Ask students who would want to do this and why it might be an important thing to do.

Guiding Questions :

- What kinds of things might families learn about their home by doing an energy audit?
- How would this be helpful?

Use the *Simplified Survey Data: Modifications from Energy Audits* or the data from Statistics Canada’s *2011 Households and the Environment Survey* to compare how many households in their home province

who had an energy audit performed on their home and made modifications based on the results of the audit. Have students discuss possible factors that could impact energy consumption, such as very cold winters or very hot summers and why this might make people want to do an energy audit on their home.

Tell the students that they are going to work in pairs to complete an energy audit on their classroom or school. Have them investigate their surroundings and locate objects that use and possibly waste energy.

After they have completed their scavenger hunt, have students use graph paper to draw a floor plan of their classroom and use their diagram to perform an energy conservation check by circling or drawing things on the floor plan that could be done to make the room and their day-to-day activities in the classroom more energy efficient. This could include:


- Turning off the lights when the classroom is not in use
- Using natural light from windows to light the classroom
- Ensuring all windows are closed tightly in the winter
- Turning the temperature down when they leave the classroom in the afternoon
- Shutting down the class computer when it is not in use











Theme 3 - Lesson 4: Energy Audit

Simplified Survey Data: Modifications from Energy Audits

If you have had an energy audit performed on your home, did you make changes or modifications as a result?

The table below shows how many households in Canada and in each province made changes to their home after performing an energy audit.

Each icon represents one household out of ten, therefore if you see this: , it means one household from a group of ten households that had an energy audit performed made changes to their home.

Area	Made changes due to an energy audit
Canada	
Newfoundland and Labrador	
Prince Edward Island	
Nova Scotia	
New Brunswick	
Quebec	
Ontario	
Manitoba	
Saskatchewan	
Alberta	
British Columbia	