Contents

*This lesson plan has an accompanying Slide Show (PDF file).

GRADE P-1 LEARNING EXPERIENCE

Waste Relay Race

Summary

Students participate in an exciting relay race to learn how to sort waste properly. Students will also learn why waste materials are sorted based on what they are made of.

Objective

This lesson will provide students with the knowledge and skills to properly sort materials in everyday routines.

Pre-Activity

CLASS DISCUSSION

DIRECTIONS

Ask students to point out the different bins in the classroom:

PAPER RECYCLABLES REFUNDABLES ORGANICS GARBAGE

Break students into five groups and assign each group a specific waste category.

- In each group, ask students to list the types of materials that belong in their waste category.
- What are the materials in their category made of?
- Ask them to brainstorm why each material belongs there?
- How long does it take for their materials to break down?
- Are the materials in their category reusable?

Have each group report back to the class on their discussion.

Review the **How Long Does it Last chart (Appendix 1)** with students. To verify "what goes where," refer to the Divert NS **Sorting Guide for Schools:**

LINK divertns.ca/resources/brochures-guides

- Use examples from around the classroom to review what belongs where.

MATERIALS

Whiteboard and markers

Bins for the five waste categories

Classroom waste items (e.g. paper, can, plastic bag, banana peel)

Appendix 1
How Long Does it Last? chart

DURATION
15 mins

MAIN LEARNING OUTCOME

GRADE: P 1

SUBJECTS:

Social Studies

Grade 1
Learners will implement age-appropriate actions for responsible behaviour in caring for the environment.

SKILLS
Investigate
Ask a question; locate 4–5 obvious details to support an answer; communicate findings.

Question
Generate broad questions that arise from a problem.

CROSS-CURRICULAR LINKS

Science

Learners will investigate materials through the senses.

SKILLS
Investigate
Ask a simple question; locate 2–3 obvious details to support an answer; communicate findings.

Activity

RELAY RACE

DIRECTIONS

PREP

Divide students into three (or more) equal groups. Encourage groups to make recycle-themed team names (e.g. Team Green)

Gather clean waste materials that represent at least one or two items from each waste category (garbage, paper, organics, recyclables, refundables). Ensure you have multiples of each material (for each of the teams) to ensure each group's basket is equal.

OPTION To add a level of difficulty, include items that need to be sorted into two or more waste bins (e.g. pop bottles with tops, juice packs with straws, etc.)

Set up waste bins at one end of the classroom or gym. At the opposite end create a starting line (using tape if needed). Put the three baskets of waste materials on the line to indicate where the groups will line up.

MATERIALS

5-10 clean waste materials x the number of groups

3 (or more) baskets for clean waste materials

(1 basket per group)

5 waste bins (1 per waste category)

RACE TIME!

Students in each group line up behind each other at the starting line.

On GO, the first student in each group chooses an item from their waste basket, runs to the end of the race area, and puts it in the correct bin. The teacher will ensure each item is put in the correct bin.

- *If a student correctly sorts an item, they can run back to their team, tag the next team member in line, and go to the back of their group.*
- *If a student is incorrect, they will be told which bin is correct. Then, they go back to tag the next team member. (The teacher should make note of any incorrect items,to be discussed later).*

The team that correctly sorts all their waste first wins!

DURATION
25 min

AFTER THE RACE

After the race, discuss the items that were frequently sorted incorrectly, or any items that seemed to be confusing or tricky for students.

ENVIRONMENTAL EVENTS

There are many great opportunities throughout the year to highlight the 3Rs in the classroom. Check out these annual events:

Waste Reduction Week	October (3rd week)
Earth Day	April 22
Compost Awareness Week	May (1st full week)
Environment Week	June (1st full week)

Post-Activity

SORTING ACTIVITY SHEET

DIRECTIONS

Students complete the **Sorting Activity sheet (Appendix C)**. Each student cuts out the waste items and glues them into the correct sections on the activity sheet.

OPTION Students can draw/write on a piece of paper what they are. (e.g. pizza slice) The students can walk to the appropriate bin and stand by it, showing that they would belong in that specific container.

OPTION Play the **What Goes Where Game**

If you are located in Colchester County, Pictou County or East Hants, visit colchester.recycle.game/

For South Shore–West Hants (Town and District of Lunenburg, Chester, Bridgewater, Mahone Bay, Region of Queens, Town and District of Shelburne, District of West Hants, Windsor or Lockeport), visit region6ns.recycle.game/

MATERIALS

Appendix 2
Sorting Activity sheet

Scissors, Glue

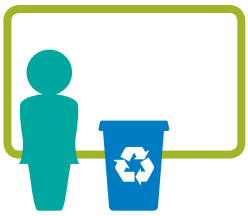
DURATION
25 min

Assessment

FORMATIVE Ongoing observation of student responses during class discussion, relay race, and daily recycling choices.

SUMMATIVE (OPTIONAL) The sorting activity sheet serves as a summative form of assessment.

Divert NS provides free waste sorting signage. Contact Divert NS, or download the signs at divertNS.ca



WASTE REDUCTION EDUCATORS

Divert NS provides funding to municipalities to deliver waste reduction education to schools across the province. Your local waste reduction educator(s) provides the following services, and more, free of charge!

- classroom presentations
- green team set up
- advice on bins and signage
- tours of local waste facilities
- school waste audits

To find out more, visit divertns.ca

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ABOUT DIVERT NS

Divert NS is a not-for-profit organization championing recycling in Nova Scotia. For over 20 years we've helped build a culture of recycling through environmental stewardship, education, and innovation. Divert NS operates the **Beverage Container Deposit–Refund Program** and the **Used Tire Management Program**. In addition, we work in collaboration with government, industry, and academia to divert waste-resources from landfill. Divert NS, in partnership with municipalities, delivers education and awareness programs to schools, businesses, and community groups. Divert NS also works to develop stewardship agreements and funds innovative research and development initiatives.

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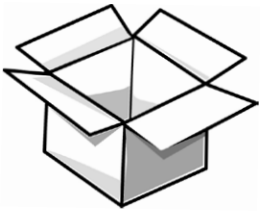
APPENDIX 1

WASTE RELAY RACE

How Long Does it Last?

	ITEM	HOW LONG DOES IT LAST ?
1.	Banana Peels	3 – 4 weeks
2.	Cardboard	2 months
3.	Aluminum Pop Can	200 – 500 years
4.	Disposable Diapers	500 years
5.	Plastic Bags	1000 years
6.	Styrofoam	1+ million years
7.	Cigarette Butt	1 – 12 years
8.	Tin Foil	Never/unknown
9.	Plastic Water Bottles	Never/unknown
10.	Milk Cartons	1 – 5 years



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10.	Milk Cartons	1 – 5 years

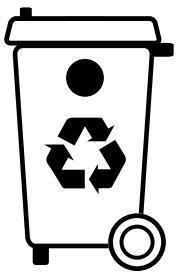
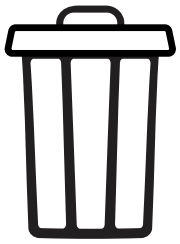
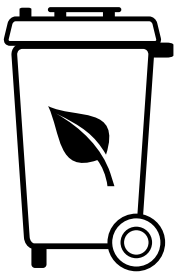
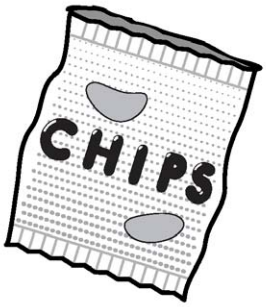
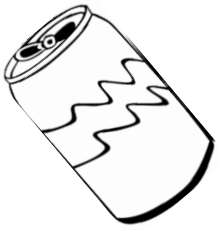
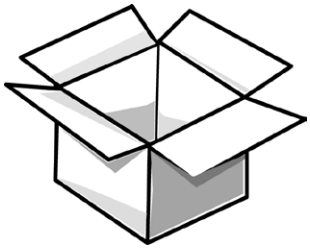
APPENDIX 2

WASTE RELAY RACE

Sorting Activity

Cut out the waste items below, and glue each into its correct bin.

ANSWER KEY

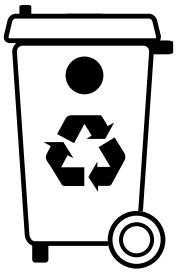
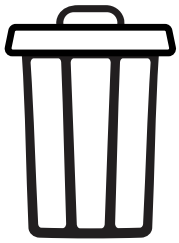
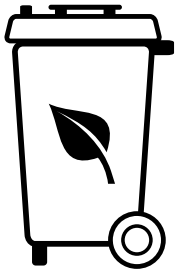
Recyclables	Garbage	Organics	Paper
			
			
			

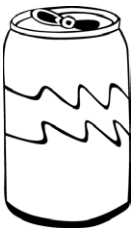
APPENDIX 2

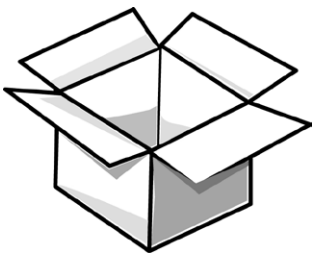
WASTE RELAY RACE

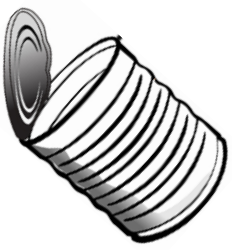
Sorting Activity

Cut out the waste items below, and glue each into its correct bin.

Recyclables	Garbage	Organics	Paper
			







GRADE 1 LEARNING EXPERIENCE

What is it Made of?

Summary

Learners will determine the properties of everyday objects through a variety of hands-on activities. Students will use this information to help them understand how recycling works through a "cut and paste" activity.

Objective

To teach the difference between plastic, metal and organic objects and to help students sort waste materials properly.

Pre-Activity

WHAT ARE THINGS MADE OF?

DIRECTIONS

INTRODUCTION

Write the question "What **STUFF** are **THINGS** made of?" on the board. After a brief discussion, ask students to share their responses.

Rewrite the question to read "What **MATERIALS** are **OBJECTS** made of?" Explain that scientists say MATERIAL instead of "stuff" and OBJECTS instead of "things."

MATERIALS

Whiteboard and markers

DURATION

10 mins

Now that they know the correct terms, review some examples of some **materials** that **objects** are made of. As students answer, display their words on the board. Examples: wood, glass, metal, plastic, rubber, paper, etc.

OPTION Students can play the **What Things are Made of Hangman Game** online at: www.eslgamesplus.com/whats-it-made-of-passive-voice-product-materials-esl-hangman/

GUESSING GAME

Show the **"Guessing Game" slide show (Appendix 1 – PDF file).** As each slide is shown, ask students to guess the material(s) they think the object is made of.

Note: An answer slide follows each quiz question slide.

MATERIALS

Appendix 1 Guessing Game (PDF slide show)

Computer and projector

MAIN LEARNING OUTCOME

GRADE: 1

SUBJECTS:

Science

Learners will construct a device in response to a problem.

SKILLS

Investigate
Ask a question; locate 4–5 obvious details to support an answer; communicate findings.

Evaluate
Review steps and results from an investigation or problem solving; Reflect on and communicate solutions or findings.

CROSS-CURRICULAR LINKS

Social Studies

Learners will implement age-appropriate actions for responsible behaviour in caring for the environment.

SKILLS

Investigate
Ask a question; locate 4–5 obvious details to support an answer; communicate findings.

English Language Arts

Writing & Representing
Learners will convey meaning by creating print and digital texts collaboratively and independently using imagination, personal experiences, and feelings.

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Activity

BOARD GAME

DIRECTIONS

Put students in groups of three to play the **"What is it Made of?" board game (Appendix 2).** Print one copy of the game for each group.

Each student takes a turn rolling the dice. They move forward the number of squares they rolled. Whatever object they land on, they need to say what material it is made of. (See board game for more detailed instructions.)

MATERIALS

Appendix 2: Print-outs of Board Game

Game pieces and one die for each group

DURATION
20 min

Post-Activity

CUT & PASTE THE RECYCLABLES

DIRECTIONS

Have the students complete the activity **Cut and Paste Recyclables (Appendix 3).**

They must cut out the materials words (plastic, paper, metal, glass, rubber) and place them in the correct blank to complete the sentences.

OPTION Students can write the correct answers in the blanks to make the activity more challenging.

MATERIALS

Appendix 3: Cut and Paste Recyclables activity

DURATION
5 min

Assessment

FORMATIVE Evaluate student learning by observing their answers during the presentation, the board game and the cut and paste activity.

SUMMATIVE (OPTIONAL) Collect and evaluate the cut and paste activity.

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APPENDIX 1

WHAT IS IT MADE OF?

Guessing Game

Answer key

PRESENTATION OVERVIEW

The following are the **answer slides** for the What is it Made of? guessing game presentation. Each answer slide is preceded by the quiz slide *(See sample quiz slide, right)*

For full guessing game, see
GR-1-What is-it-Made-of-Appx1-Guessing.pdf

(cont'd on next page)

APPENDIX 1

WHAT IS IT MADE OF?

Guessing Game *(cont'd)*

ELASTIC BANDS

Rubber

SCISSORS

Metal and Plastic

BOTTLE

Glass and Metal

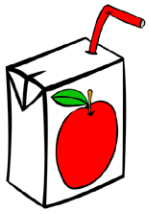
NEWSPAPER

Paper

CHAIR

Wood

JUICE BOX



To keep the juice fresh (and to prevent leaks), juice boxes are made of thin layers of paper, aluminum foil and plastic.

Paper, Plastic and Metal

SNEAKER SOLES

Rubber is used to make the soles extra grippy.

Rubber

BAGS

Plastic

BOTTLE

Glass

YOUR TURN

What objects do you see around the classroom that are made of:

Paper Metal Rubber Glass Plastic Wood

APPENDIX 2: **WHAT IS IT MADE OF?**

Board Game

Each player rolls the die, and moves forward that number of spaces. Whatever **object** they land on, they say what **material** is it made of.

If the student guesses correctly, the die is passed to the next player. If the guess is incorrect, the student rolls again, this time moving **backwards** that number of spaces. The die is then passed to the next player.

APPENDIX 3

WHAT IS IT MADE OF?

Name _____

Cut and Paste Recyclables

Cut out the MATERIAL WORDS below, and glue ONE into each sentence to complete it correctly.

1. Objects made of _____ , like **pop bottles**, can be recycled.

2. Objects made of_____ , like **jam and pickle jars**, can be recycled.

3. Objects made of_____ , like **car and truck tires**, can be recycled.

4. Objects made of_____ , like **magazines**, can be recycled.

5. Objects made of_____ , like **juice cans**, can be recycled.

METAL	PLASTIC	PAPER
GLASS	RUBBER	

GRADE 1 LEARNING EXPERIENCE

Posters that "POP"

Summary

Students will learn about the concept and importance of recycling. Students will encourage peers to recycle by creating posters to be displayed around the school.

Objective

To teach students about environmentally responsible behaviour and to promote recycling.

Pre-Activity

WHAT IS RECYCLING?

DIRECTIONS

DISCUSSION ABOUT WASTE

The discussion may be led by a teacher with students at their seats or in a circle.

Ask students what they do with things they no longer need or want. You can suggest specific objects such as a toy, a granola bar wrapper, a juice box, or a piece of clothing.

- I give it away
- I put it in my blue bag for recycling
- I give it to my little brother/sister
- I put it in the garbage

Ask students what happens to things they put in the garbage. If no one says it, explain that garbage goes to a place called a "LANDFILL." Write this word on the board and explain that a landfill is "a place where garbage is buried in the ground."

Most Canadian kids make about 1.8 kgs (4 lbs) of garbage a day. Pass around something that weighs about 1.8 kgs (such as several hardcover books) so that students understand the reference.

Explain that everybody they know makes about that much waste EVERY DAY, and all of it goes into the ground!

MATERIALS

Something that weighs roughly 1.8 kgs (4 lbs) (e.g. 4 hardcover books or a 2 kg bag of sugar)

Whiteboard and markers

MAIN LEARNING OUTCOME

GRADE: 1

SUBJECT:

Social Studies

Learners will implement age-appropriate actions for responsible behaviour in caring for the environment.

SKILLS

Investigate

Ask a question; locate 4–5 obvious details to support an answer; communicate findings.

CROSS-CURRICULAR LINKS

English Language Arts

Learners will respond personally and critically to a range of culturally diverse texts.

Learners will interact using effective oral language skills considering audience, purpose, and situation.

WHAT IS RECYCLING? (cont'd)

DIRECTIONS

OPTION

Put a 2 kg bag of sugar in a garbage bag. Pass it around so all students understand its weight. Explain that items such as paper, or anything made out of food, breaks down quickly but that anything made of plastic or metal takes much longer. As there is only so much space in a landfill, if people keep making that much waste there will not be any room left.

MATERIALS

Something that weighs roughly 1.8 kgs (4 lbs)
(e.g. 4 mid-sized hard cover books or a bag of sugar)

DURATION
10 min

GROUP WORK

Break students into small groups to brainstorm ways to reduce garbage. Ask students to share their solutions with the class. As the words **Reduce**, **Reuse**, **Recycle** are mentioned by the students, write them on the board and explain. Tell the students it is important to recycle so the waste can be made into something new instead of going to the landfill.

Activity
WHAT GOES WHERE

DIRECTIONS

MATERIALS

n/a

GROUP WORK

Break students into five groups to brainstorm what goes where. Assign one category of waste to each group:

PAPER **RECYCLABLES** **REFUNDABLES** **ORGANICS** **GARBAGE**

DURATION
20–30 min

Ask the groups to list the waste materials they think belong in their category, then have each group share their list with the class.

- *e.g. Any food waste, like an apple core or banana peel, belongs in organics. Chip bags, straws and plastic spoons belong in the garbage.*

OPTION Play the **What Goes Where Game**

If you are located in Colchester County, Pictou County or East Hants, visit colchester.recycle.game/

For South Shore–West Hants (Town and District of Lunenburg, Chester, Bridgewater, Mahone Bay, Region of Queens, Town and District of Shelburne, District of West Hants, Windsor or Lockeport), visit region6ns.recycle.game/

RECYCLING RELAY

Collect a variety of clean recyclables, paper and garbage, and separate it into three equal quantities, in three different bags.

Split the class into three teams, and have each team get in a line. Give a bag of waste to each team. The first team member must reach into the bag and grab a piece of waste, run up to the front of the class and place it in the correct bin. The first team to sort all of their waste wins.

When complete, inspect the bins. If there is any item in the wrong bin, ask the students where it should go, and discuss any points of confusion. If all the bins contained mistakes, then declare a rematch.

MATERIALS
Clean waste & recyclables

Bins for:
- Paper
- Recyclables
- Organics
- Garbage
- Refundables

DURATION
20–30 min

WHAT GOES WHERE (cont'd)

DIRECTIONS

WHAT GOES WHERE?

Give students the two-page activity **What goes where? (Appendix 2)** and have them complete it.

NOTE: Page 1 of the activity shows the bins and columns where the students will glue the objects. Page 2 shows the objects that the students will cut out.

For assistance with "what goes where," you can refer to the Divert NS **Sorting Guide for Schools** divertns.ca/resources/brochures-guides

MATERIALS

Scissors and glue

Appendix 1
What goes where?
2-page activity

DURATION
20–30 min

Post-Activity

CREATE A POSTER THAT "POPS"

DIRECTIONS

Break students into five groups. Give each group a piece of poster board and several items from each of the five waste streams:

- **ORGANICS** – pictures of an apple core, orange peel and a banana peel
- **GARBAGE** – chip bag, wrapper, straw
- **PAPER** – looseleaf, envelope, newspaper
- **REFUNDABLES** – juice box, water bottle
- **RECYCLABLES** – plastic bag, tin can, milk carton

Ask the students to divide their poster board into five sections and to write the following headings at the top: Recyclables, Organics, Paper, Garbage and Refundables. The teacher may do this step ahead of time.

Have the students glue or tape the waste items onto the poster board under the correct heading.

Hang the posters above recycling centres around the school.

OPTION Students can look for clean garbage around the school to add to their posters.

MATERIALS

Five pieces of poster board

A variety of clean waste items including bottles, cartons, juice boxes, newspaper, magazines, chip bags, a straw, a granola bar wrapper

DURATION
60 min

Assessment

FORMATIVE Evaluate student learning over the course of the class discussion, through the cut and paste sorting activity, the relay race and the poster.

SUMMATIVE (OPTIONAL) Evaluate the cut and paste sorting activity and/or the poster.

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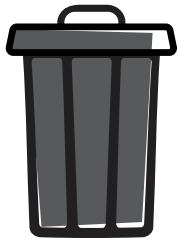
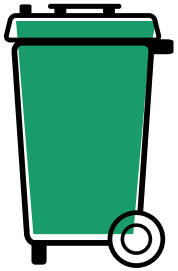
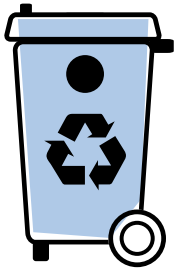
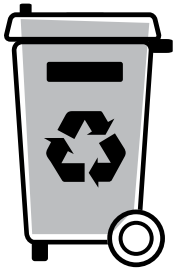
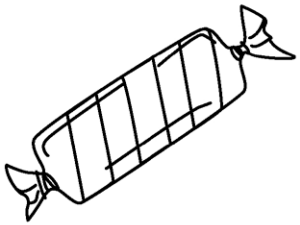
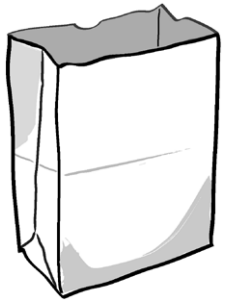
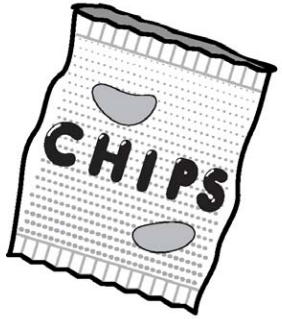
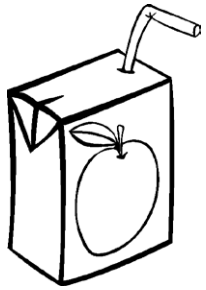
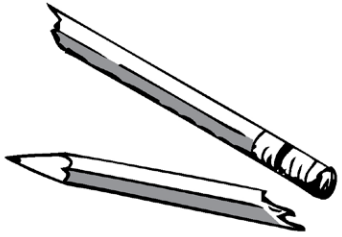
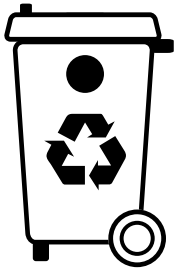
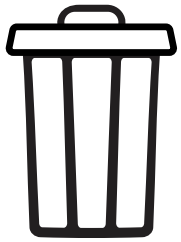
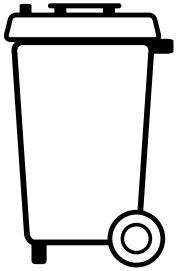
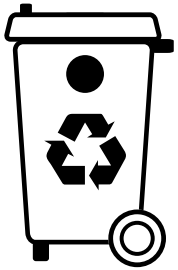
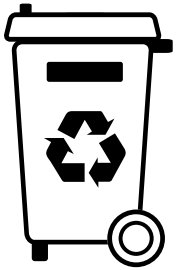
What goes where?

Name: ANSWER KEY

Recyclables	Garbage	Organics	Refundables	Paper
				
Colour this bin BLUE	Colour this bin BLACK	Colour this bin GREEN	Colour this bin BLUE	Colour this bin GREY
				
				
				

What goes where?

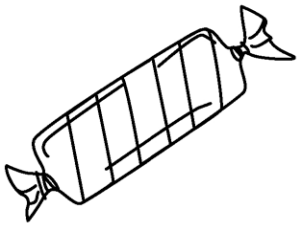
Name: _____

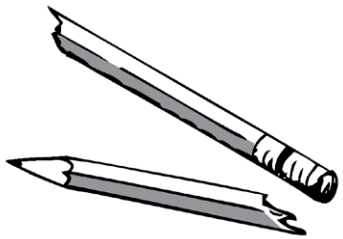
Recyclables	Garbage	Organics	Refundables	Paper
				
Colour this bin BLUE	Colour this bin BLACK	Colour this bin GREEN	Colour this bin BLUE	Colour this bin GREY

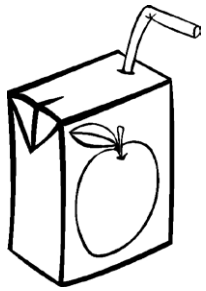
Cut out the objects on the next page. Then, glue each object under its correct bin.

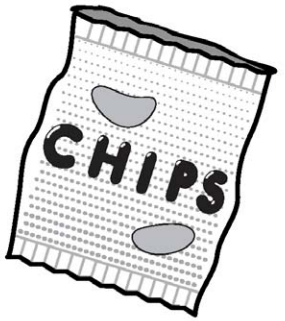
What goes where?

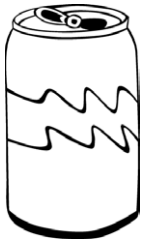
Cut out these objects. Glue each object under its correct bin.

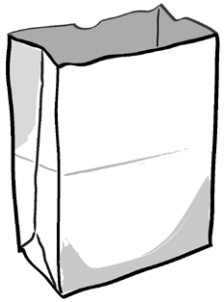








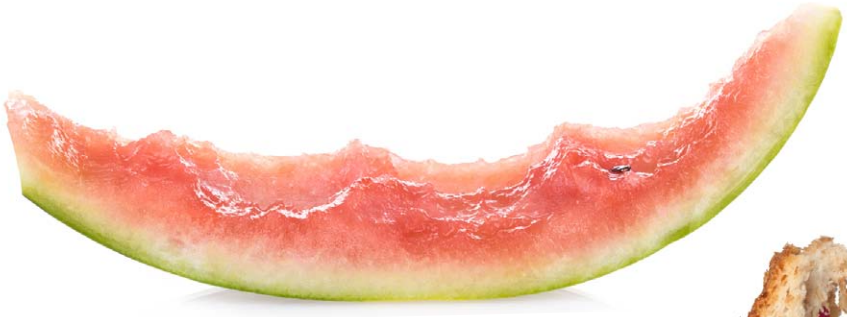




APPENDIX 3: **POSTERS THAT "POP"**

Photos for Post-Activity

Cut out these images of food waste to use on your poster (in place of real organics!)



GRADE 1 LEARNING EXPERIENCE

Waste Comes Alive

Summary

Students collect waste items from school and make them "come alive." Students will develop a creative biography for their garbage buddy, and learn what the item can be recycled into after it is collected.

Objective

Students will think critically about the disposal of everyday items. The activities will promote proper waste sorting habits by engaging and educating students about what happens after items are collected.

Pre-Activity

WHERE DOES WASTE GO?

DIRECTIONS

CLASS DISCUSSION

Explain that there are five types of waste that need to be sorted at school and at home. As a class, name the five categories of waste:

PAPER **RECYCLABLES** **REFUNDABLES** **ORGANICS** **GARBAGE**

For more information, refer to the Divert NS **Sorting Guide for Schools** divertns.ca/resources/brochures-guides

MATERIALS

Whiteboard and markers

DURATION
10 mins

GROUPS

Break the students into five groups and assign each group one waste category. Each group will guess what types of materials belong in their category. Ask them to predict what happens with the material in their category once it has been sorted.

DURATION
20 mins

Each group can discuss the following questions:

- Do the items go to the curb or get dropped off somewhere else?
- What type of facility receives the material? (e.g. landfill, ENVIRO-DEPOT™)
- Where is this facility located in their community?
  - Have any of the students visited this facility?
  - What processes and equipment are used at this facility?

MAIN LEARNING OUTCOME

GRADE: 1

SUBJECTS:

Science

Learners will construct a device in response to a problem.

SKILLS

Investigate
Ask a question; locate 4–5 obvious details to support an answer; communicate findings.

Evaluate
Review steps and results from an investigation or problem solving; Reflect on and communicate solutions or findings.

Social Studies

Learners will implement age-appropriate actions for responsible behaviour in caring for the environment.

SKILLS

Investigate
Ask a question; locate 4–5 obvious details to support an answer; communicate findings.

Question
Generate broad questions that arise from a problem.

CROSS-CURRICULAR LINKS

English Language Arts

Learners will respond personally and critically to a range of culturally diverse texts.

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WHERE DOES WASTE GO? (cont'd)

DIRECTIONS

ANSWERS TO PRE-ACTIVITY QUESTIONS

GARBAGE	Curbside collection, landfill facility – Material is buried
PAPER	Curbside collection, recycling facility – Products are sorted by workers into different categories of paper (cardboard, boxboard, newspaper, etc).
RECYCLABLES	Curbside collection, recycling facility – Products are sorted by workers into different categories of recyclables (plastic, metal, glass, etc).
ORGANICS	Curbside collection, composting facility – Food and yard waste is shredded and composted
REFUNDABLES	Drop off at ENVIRO-DEPOT™ – Products are sorted by workers into plastic, glass, aluminum, etc.

MATERIALS

Internet access

DURATION
20 mins

Do an internet search to find out where waste management facilities are located in your community.

Activity

GARBAGE BUDDY BIOGRAPHIES

DIRECTIONS

CRAFT TIME

Explain that to help learn the importance of recycling, students will create new friends out of waste items and bring them to life.

Provide a waste item to each student in the class. The items should be clean and dry, and have a flat surface for gluing on eyes, or for drawing a face.

- *Examples: pop or water bottle, paper towel roll, tin can, milk carton, cracker box*

Students attach pipe cleaners and googly eyes to create a garbage buddy, then give their garbage buddy a name.

OPTION Instead of googly eyes and pipe cleaners, students can make their Garbage Buddies using scrap paper/glue and markers

MATERIALS

Waste items, markers, scrap paper, glue/tape and scissors

Pipe cleaners, googly eyes (optional)

DURATION
10 mins

BIOGRAPHIES

Each student (or pair of students) will create a life story for their new garbage buddy. Explain that when a life story is written down, it is called a "biography." Since students will be writing their garbage buddy's life story down on paper, they will be writing biographies.

- *Students can use the* **Biography Blitz worksheet (Appendix 3)** *as a template for their story.*

OPTION Have students act out the biography as an alternative to writing

MATERIALS
Appendix 2
Biography Blitz worksheet

DURATION
20 mins

GARBAGE BUDDY BIOGRAPHIES (cont'd)

DIRECTIONS

Here is a sample story outline:

- The first part of the life story can be fun and imaginative. Example: The pop can was bought by Billy's mom at _____ store, and then Billy drank it at _____ Elementary School, and put in the recycling bin.
- The second part of the story will be based on what actually happens to the waste item after it is picked up by the collection truck or dropped at the ENVIRO-DEPOT™ (e.g. goes to a recycling plant).
- The end of the story will explore what their garbage buddy gets turned into (e.g. new pop bottle, carpet, egg carton)

Print the **What is it Made Into Chart (Appendix 2)** and circulate among the students to help them figure out what their item will become once it is recycled. If the student's item is not on the chart, research it on the internet.

MATERIALS

Appendix 1
What is it Made Into? chart

Post-Activity

SHARING BIOGRAPHIES

DIRECTIONS

Ask students to draw a picture of their garbage buddy's biography.

Pair students and have them share their story and pictures with their classmate.

MATERIALS

Scrap paper

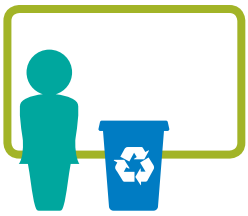
DURATION

20 min

Assessment

FORMATIVE Evaluate student learning by observing them during the group discussion and writing activity.

SUMMATIVE (OPTIONAL) Collect and evaluate the Garbage Buddy Biography pictures.



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- green team set up
- advice on bins and signage
- tours of local waste facilities
- school waste audits

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APPENDIX 1

WASTE COMES ALIVE

What is it Made into?

Print or project this chart for the class.

Recyclable Item	What it can be turned into
Pop Can	New pop can, bicycle parts
Juice Box	Paper towel, plastic pellets
Plastic bag	New plastic bags, plastic containers
Cracker box	New boxes
Water/juice bottle	New plastic bottles, clothing, carpet, stuffing for sleeping bags
Milk Carton	Cardboard, toilet paper
Newspaper	Carry out trays, egg cartons
Tin can	New tin can, bicycle parts
Looseleaf paper	Newspaper, toilet paper, boxboard or cereal or cracker boxes

APPENDIX 2

WASTE COMES ALIVE

Name _____

Biography Blitz Worksheet

I have a "Garbage Buddy." His/her name is _____.

He/she was bought at _____.

He/she was brought to _____
(NAME OF SCHOOL)

Elementary School by _____ and put into
(NAME OF CLASSMATE)

the recycling bin.

When the recycling truck picks up _____
(NAME OF RECYCLABLE MATERIAL)

my buddy will be taken to _____
(NAME OF CLOSEST RECYCLING DEPOT)

and turned into a _____.

It is a good thing _____
(BUDDY'S NAME)

will get recycled, otherwise he/she would end up in

_____ landfill near here, in _____.
(NAME OF NEAREST LANDFILL) (LOCATION OF LANDFILL)

GRADE 1–2 LEARNING EXPERIENCE

Jellyfish vs. Plastic Bag

Summary

Students will learn about the epidemic of plastic waste in the oceans, and its impact on wildlife. After learning how sea turtles often mistake plastic bags for jellyfish, students will brainstorm ways to keep our oceans clean by reducing and recycling plastics. Students consider the Mi'kmaw concept of **msɨt no'kmaq** [pronouced, *em-set no-gma*]—**we are all related**.

Objective

To create awareness of the impact of plastics on the environment and drive behaviour change, with a focus on the interconnectedness of all nature and creatures in Mi'kmaw culture.

Pre-Activity

"JELLYFISH" OR "PLASTIC BAG" GAME

DIRECTIONS

There is an epidemic of plastic in our oceans. Using a map, explain that there is a "garbage island" the size of Québec swirling in the Pacific Ocean.

The "garbage island" is mostly micro plastic—but before it becomes "micro," the plastic enters the ocean as bags and other waste.

Explain that wildlife, including sea turtles, often mistake plastic bags for jellyfish and they eat them. This can cause animals to become very ill and even die.

MATERIALS
World map

Internet access and projector

DURATION
10 mins

GAME

Ask for two volunteers to play the "plastic bag or jellyfish" game. Each student pretends they are a sea turtle. When they see a jellyfish appear on screen, they hit it with their fly swatter to receive a point. If a plastic bag appears and they swat it, they lose a point. The player with the most points wins.

Have a student or teacher keep score. Each round takes 90 seconds. Play as many rounds as desired. The Divert NS YouTube channel has a link to the game: www.youtube.com/watch?v=AwXVw4oyTmU&feature=youtube

MATERIALS
Fly swatters

Internet access and projector

DURATION
15 mins (or longer for more rounds)

MAIN LEARNING OUTCOME

GRADE: 1 2

SUBJECT:

Social Studies

(Gr 1) Learners will implement age-appropriate actions for responsible behaviour in caring for the environment.

SKILLS
Investigate
Ask a question; locate 4–5 obvious details to support an answer; communicate findings.

CROSS-CURRICULAR LINKS

English Language Arts

(Gr 2) Learners will interact using effective oral language skills considering audience, purpose and situation.

Art

(Gr 1–2) Outcome 1
Students will explore and manipulate a range of materials, technologies, and processes to create a variety of artworks that express feelings, ideas, and understandings.

Activity
WE ARE ALL RELATED

DIRECTIONS

ROLE PLAY WITH ELEMENT CARDS

MI'KMAW PERSPECTIVE — Introduce the Mi'kmaw phrase **msɨt no'kmaq** [pronouced, *em-set no-gma*]—**we are all related**. Then, students explore this concept of how the earth and all its creatures are connected using the **We are all Related** element cards **(Appendix 1).**

Divide the class into groups, and give each group a card, (or print multiple sheets and give each student an element card).

Thinking of themselves as that element, students will consider the questions: What do I eat? What eats me? How am I related to the other elements? What happens if another element gets sick? How does plastic pollution in the water affect the elements?

Break class into groups of five or six. One group at a time, have students act out how they are each related by linking arms with the elements they are connected with. For groups with soil or water cards, the connection chain will not be simple!

MATERIALS

Appendix 1
We are all Related Element Cards

DURATION
30 min

RESOURCE LINK
Mi'kmawey Debert Education and Outreach
1-877-892-2424, ext. 271
www.mikmaweydebert.ca

EXTENDED LEARNING OPPORTUNITY

Students can research facts about their element and share with the class.

The full set element cards (45 cards), with Mi'kmaw and English name translations can be downloaded through the Mi'kmawey Debert website:

LINK **See "Page 169 - 178 Element cards" at** www.mikmaweydebert.ca/home/sharing-our-stories/education-and-outreach/school-curriculum/supplementary-materials-for-teaching-about-the-mikmaq/

LISTENING AND DISCUSSION

Watch the PBS video **How Much Plastic is in the Ocean?** to learn about plastics making their way into the earth's oceans and how we can make a difference.

Before watching the video, discuss and define some key vocabulary words.

DECOMPOSE	**DEBRIS**	**GREAT PACIFIC GARBAGE PATCH**		
FOOD CHAIN	**SYNTHETIC**	**TOXINS**	**REDUCE**	**REUSE**
RECYCLE	**RETHINK**	**REPAIR**	**REFUSE**	

LINK www.pbs.org/video/how-much-plastic-is-in-the-ocean-jpfpsf/
(04:43 / PBS "It's Okay to be Smart" videos 2017)

OPTION Ask students to raise their hands when they hear these key words during the video.

After watching the video, have students sit in a circle giving each the opportunity to share in turn: "What things do we use that are plastic ?"

After the students have shared, lead a discussion on how we can use the "**6 Rs**" in the video to reduce plastic getting into landfills and our oceans.

MATERIALS
Internet access and projector, or class Chromebooks

DURATION
30 min

THE 6 RS
REDUCE
REUSE
RECYCLE
RETHINK
REPAIR
REFUSE

Post-Activity

CREATE A POSTER OR JELLYFISH

DIRECTIONS

OPTION 1

Have the students create a poster that shows their element and the other elements it is connected to. Students can move beyond the elements from the cards and show other parts of nature that interact with their element.

SAMPLE APPROACH: Cut out the element from old magazines, glue it to a page, and have the students use markers or crayons to create their picture or diagram around it.

MATERIALS

Poster paper and crayons

Magazines for collage (optional)

DURATION
30 min

OPTION 2

Create a "Jellyfish in a bottle" craft. Link to instruction video:

LINK www.pbs.org/parents/crafts-and-experiments/make-an-upcycled-jellyfish (PBS kids)

After the jellyfish live in the classroom for a week, make sure to take apart the craft and recycle the materials.

MATERIALS
Plastic bag, bottle, water, food colouring

DURATION
30 mins

Assessment

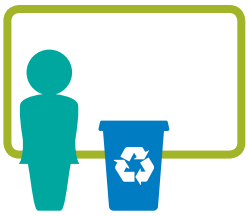
FORMATIVE Evaluate student comprehension through monitoring class discussions and activities.

SUMMATIVE (OPTIONAL) Option to use evaluation rubric to evaluate posters created by students.

ENVIRONMENTAL EVENTS

There are many great opportunities throughout the year to highlight the 3Rs in the classroom. Check out these annual events:

Waste Reduction Week	October (3rd week)
Earth Day	April 22
Compost Awareness Week	May (1st full week)
Environment Week	June (1st full week)



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APPENDIX 1

JELLYFISH VS. PLASTIC BAG

We are all related

This activity uses a selection of element cards (animals,plants, fish, water and soil) and allows students to create a cycle of life with each other. The purpose is to explore the Mi'kmaw concept of ***msɨt no'kmaq—we are all related****. [pronouced, em-set no-gma]*

This activity is adapted from the **Cycles of Life** Lesson Plan provided in Mi'kmawe'l Tan Teli-kina'muemk (Teaching About the Mi'kmaq) © The Mi'kmawey Debert Cultural Centre 2015. The full publication is available for download at: www.mikmaweydebert.ca/home/

QUESTIONS:

What do I eat? What eats me? How am I related to the other elements?

What happens if one of the elements gets sick from pollution?

The full set element cards (45 cards), with Mi'kmaw and English names, can be downloaded through the Mi'kmawey Debert website: www.mikmaweydebert.ca/home/wp-content/uploads/2015/06/Pg_169_178_GRA_ElementCards.pdf

GRADE 3 LEARNING EXPERIENCE

Compost Creators

Summary

This lesson goes beyond the classroom and into the schoolyard, as students will build a fully-functional compost pile. This hands-on lesson teaches students about the properties of soil and how composting is important to the environment. It also aligns with **Netukulimk** *(pronounced: ne·du·gu·limk)*—the Mi'kmaw concept of respecting the natural world around us and not taking more than we need.

Objective

To teach students about soil composition and how living things depend on and are affected by soil quality and composition. To learn about Mi'kmaw connection to nature (observe nature for patterns and answers).
Note: *It takes a minimum of six months to transform food waste into compost. To see the best results from your compost pile, the ideal time to start is early fall.*

Pre-Activity

DEFINITIONS

DIRECTIONS

COMPOSTING VS. RECYCLING

Break students into small groups. Half of the groups will discuss/write down what they know about **composting** and the other half will discuss/write down what they know about **recycling**.

COMPOSTING GROUPS / STARTER QUESTIONS:

- What kinds of materials can be composted?
- What are some different ways to make compost?
- Why do we compost?

RECYCLING GROUPS / STARTER QUESTIONS:

- What kinds of materials can be recycled?
- What are some different ways to recycle?
- Why do we recycle?

Have groups of students share what they have written down with each other. Discuss how composting and recycling are similar.

(cont'd)

MATERIALS

Whiteboard and markers

DURATION

15 mins

MAIN LEARNING OUTCOME

GRADE: 3

SUBJECT:

Science

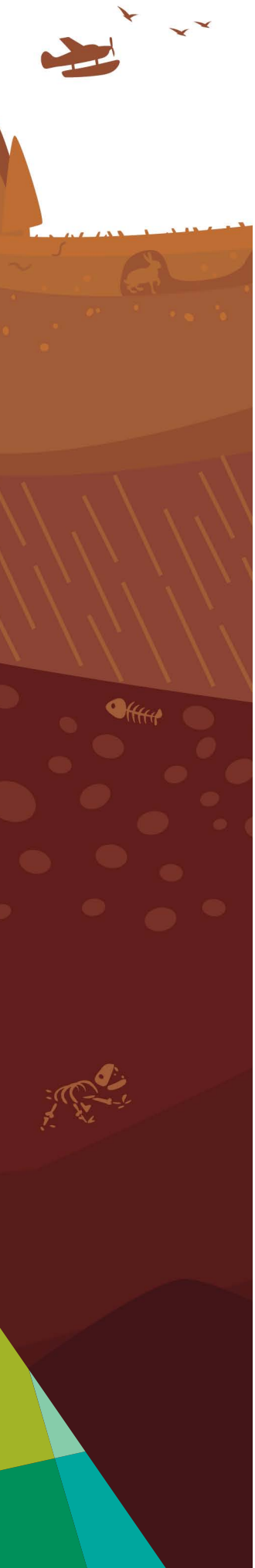
To teach students about soil composition and how living things depend on and are affected by soil quality and composition.

To learn about the Mi'kmaq connection to nature (observe nature for patterns and answers).

CROSS-CURRICULAR LINKS

English Language Arts

Outcome 1
Listening and Speaking
Students will communicate effectively and clearly and respond personally and critically.



DEFINITIONS (cont'd)

BASIC DEFINITIONS

Composting *is a natural process where organic material (e.g. food waste, grass/yard waste) is turned into a soil-like product called compost. Compost is a great fertilizer for plants. Composting is nature's way of recycling!*

Recycling *is when we transform waste materials into new and useful products. For example, a factory can take old glass, plastic and metal, and using extreme heat, they can liquify these materials and reform them as new cans or bottles.*

MI'KMAW PERSPECTIVE

When considering WHY we compost, it is relevant to consider the Mi'kmaw concept of **Netukulimk** (*pronounced: ne·du·gu·limk*)—respecting the world around us and not taking more than we need.

"We view the world and all that is in it as having spirit. We consider all life equal to our own and treat it with respect. We developed an intimate understanding of the relationships between the living and non-living so that each plant, animal, constellation, full moon, or red sky tells a story that guides our people so they can survive. These beliefs affect the manner in which we treat the natural world for sustenance and survival. Animals and plants are not taken if they are not needed. All spirits are acknowledged and respected as relatives and are offered tobacco, prayer, or ceremony (or combination) when taken. No part of an animal is wasted. All parts that cannot be used are returned to the Creator. The consciousness is described by the word, Netukulimk."

Source: Mi'kmaw Ecological Knowledge: Moose in Unama'ki (Page 4)
Download PDF at www.uinr.ca/wp-content/uploads/2014/05/Moose-MEK-web-1.pdf

Activity

BUILD YOUR OWN COMPOST PILE

DIRECTIONS

Before starting your compost pile, get permission from school administration. See **Plan of Operation form (Appendix 1)**.

MATERIALS

Appendix 1
Plan of Operation form

PART 1

DURATION
5 min

Once your students have an understanding of compost, it is time to build your own compost pile, and monitor its progress! **OPTION:** Have each student monitor a particular piece of food waste each week, noting decomposition.

PART 2: CREATE YOUR COMPOST PILE

DURATION
60 min

1. CHOOSE A COMPOSTER

MATERIALS
See items next to each step

While a container is optional, it can help keep the compost pile tidy. A composter will prevent organic material from blowing around and keep it from getting too wet from rain, which could cause it to smell. You can purchase a ready-made container, or find instructions online to make your own. The Divert NS website is a great place to start:

Backyard Composting (Information and PDF Booklet)
divertns.ca/recycling/what-goes-where/composting/backyard-composting

2. PICK A LOCATION

Choose a spot in the schoolyard with a fair amount of shade, such as under a tree or at the edge of a wooded area. This will prevent the compost from getting either too wet or drying out in the sun. The composter should be easy to access in all seasons.

BUILD YOUR OWN COMPOST PILE (cont'd)

DIRECTIONS

MATERIALS

3. BUILD THE PILE

A successful compost pile is made from alternating layers of browns (e.g. leaves / paper) and greens (e.g. kitchen waste / grass clippings). Start with browns, then switch between layers, ending with brown on top. Breaking large materials into pieces will help them decompose faster.

Supply of dry leaves and/or paper, and green organic material

4. ADD MATERIAL TO THE PILE

Greens, like food waste, add nitrogen and moisture to the pile while browns, like leaves or paper, help air circulate and also add carbon. Keeping greens sandwiched between browns helps everything break down faster. Keep browns close to the pile so they can be added on top of any greens.

5. MAINTAIN THE PILE

The pile should always be damp but not too wet, like a squeezed sponge. If the pile is too damp, add browns to help absorb moisture; if it is too dry, add more greens. Every two to three weeks turn the compost using a pitchfork or shovel to help air circulate. Oxygen is key to great compost.

Rake, shovel or pitchfork

TIPS FOR SUCCESS

- *Never put meat, fish, bones, fat, dairy, or pet waste in your backyard compost pile. These items take a long time to decompose, can attract rodents and create odours.*
- *Troubleshooting* www.planetnatural.com/composting-101/making/problems/

Post-Activity

COMPOST OBSERVATION

DIRECTIONS

MATERIALS

MONITORING THE COMPOST

Take your students outside to monitor the compost each week during class.

Appendix 2 Compost Pile Observation Sheet

Thermometer

OPTION Have the students work individually or in groups to fill in the **Observation Sheet (Appendix 2)**

OPTION Take photos of the pile each week to record progress.

DURATION
15–20 min

Every second or third week, turn the compost pile to mix the inner and outer layers. More frequent turning will speed up decomposition.

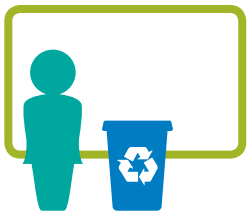
NOTE: A steady decrease in the temperature at the center of the pile will signal the end of the composting process. When the compost is finished, it will have a dark color and a crumbly soil-like texture.

MI'KMAW PERSPECTIVE:

During your visits to observe the progress, consider "oneness with nature" espoused by the Mi'kmaq. Students reflect on how we can be observant with nature to find answers we need.

RESOURCES: **Kekina'muek Muek: Learning about the Mi'kmaq of NS** *(Ch 8: Oneness with Nature)* Available at Nova Scotia school libraries, or PDF download at: cmmns.com/wp-content/uploads/2014/01/Kekinamuek-Manual.pdf

NS Office of Aboriginal Affairs: Links for Teachers and Students
novascotia.ca/abor/education/other-resources/



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- green team set up
- advice on bins and signage
- tours of local waste facilities
- school waste audits

To find out more, visit divertns.ca

BUILD YOUR OWN COMPOST PILE (cont'd)

DIRECTIONS

USING THE COMPOST

Use finished compost as a mulch or top dressing around plants shrubs and trees. The compost will provide soil nutrients, retain moisture, and inhibit weed growth.

Look for uses for compost around the school grounds.

OPTION Prepare a report that will describe the composting project. Present the report to the school principal.

OPTION Consider publicizing the project in the school and community newspaper.

MATERIALS

½ inch screen or sifter

If available: garden tools, such as shovel, tarp or wheelbarrow, bucket

DURATION
15 min

MI'KMAW PERSPECTIVE RESOURCE LINKS

Students may have more questions about the Mi'kmaw perspective. To dive deeper, watch video on **Netukulimk**.

VIDEO youtu.be/0mYfx5Plo_4
(02:39 / Source: Unama'ki Institute of Natural Resources)

For more classroom resources, visit the Mi'kmawey Debert website:
LINK www.mikmaweydebert.ca/home/sharing-our-stories/education-and-outreach/

Assessment

FORMATIVE Throughout the group discussion and compost pile construction and monitoring, observe and evaluate student behaviour/level of effort and engagement.

SUMMATIVE (OPTIONAL) Collect and evaluate the Compost Pile Observation Sheet.

TRY A SIMILAR ACTIVITY **Egg Carton Garden** (Grade 3)

ABOUT DIVERT NS

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APPENDIX 1

COMPOST CREATORS

DATE: _____

Compost Pile Plan of Operation

Teacher's Name: _____

School: _____

Grade: _____ Class/Subject: _____

PROJECT OVERVIEW AND PURPOSE:

_____

_____

Compost pile location: _____

COMPOST PILE PLAN OF OPERATION:

Who will maintain the pile? _____

How often will it be checked on? _____

What is the plan for when the class is finished with the pile? _____

_____

MATERIALS AND COSTS:

What materials are needed to construct and maintain the compost pile?

_____

_____

Are any materials being requested from the school administration?
If so, what is the total cost?

_____

_____

APPENDIX 2

COMPOST CREATORS

Compost Pile Observation Sheet

For students to complete weekly

Date:	Student Name(s):
Outside Temperature:	
Compost Pile Temperature:	Was there a change in the overall look of the compost pile? If so, please describe.
Was there a change in the color of the compost since last week? If yes, please describe.	
Which materials have started to break down? Which have not?	
Other observations	

GRADE 3 LEARNING EXPERIENCE

Egg Carton Garden

Summary

In this hands-on lesson, students will plant a seed in an egg carton containing a soil/compost mixture, and then watch it sprout! Students will learn about the science of composting, as well as the importance of composting at home and at school. Connections to Mi'kmaw practices of using plants for medicine are available. ***Note:*** *This activity takes 2–3 weeks to have seeds transform into sprouts/small plants.*

TRY SIMILAR ACTIVITIES:

See **Compost Creators** lesson plan as an option to create your own compost.

Objective

To teach students the science of composting, Mi'kmaw traditional knowledge of medicinal plants, and to promote composting through hands-on activities.

Pre-Activity

GROUP DISCUSSION

DIRECTIONS

Write the following vocabulary words on the board:

Compost, **Decompose**, **Organic Material**, **Fertilizer**

Break students into small groups and have them brainstorm what the words mean then share their thoughts with the class.

Share that composting is nature's way of decomposing organic material into a rich soil. Compost is important to plants because it is a fertilizer.

OPTION Have students draw their word and show how they are connected or place them in order.

MATERIALS

Whiteboard and markers

DURATION

10 mins

Activity

EGG CARTON GARDEN

DIRECTIONS

Explain that the class will be planting seeds in a combination of soil and compost, and watching them sprout over the next month.

DURATION

5 mins

MAIN LEARNING OUTCOME

GRADE: 3

SUBJECT:

Science

Learners will investigate plants in the environment.

SKILLS

Investigate

Ask questions; locate several details to support an answer; organize and compare details; communicate findings.

CROSS-CURRICULAR LINKS

English Language Arts

Outcome 1
Listening and Speaking
Students will communicate effectively and clearly and respond personally and critically.

EGG CARTON GARDEN (cont'd)

DIRECTIONS

Have each student follow these steps:

- Cut out an individual egg holder from the larger egg carton.
- Fill the egg holder with the soil/compost mixture.
- Plant a seed in the soil following the instructions on the seed packet (Keep the soil moist until the seed sprouts, then water as needed.)
- Write his/her name on a piece of paper attached to each egg holder.

MATERIALS

Egg cartons

Bag of soil

Compost (available in stores or from your local municipality)

Seeds (beans, or cucumbers recommended)

DURATION

20 minutes

OPTIONS FOR A MI'KMAW PERSPECTIVE

- Research Mi'kmaw traditional plants and choose one of those to grow.
- Find out if there is a local Mi'kmaw elder or herbalist to take the class on a medicinal plant walk.
- Ask a local Mi'kmaw elder to visit the class and share their knowledge on traditional medicines.

For help in finding a Mi'kmaw speaker for your class, contact:
Mi'kmawey Debert at 1-877-892-2424, ext. 271
www.mikmaweydebert.ca/home/sharing-our-stories/education-and-outreach/

More resources, including how plants are used in traditional culture:
www.cbu.ca/indigenous-affairs/mikmaq-resource-centre/

Post-Activity

PREDICTING THE PLANT LIFE CYCLE

DIRECTIONS

Have each student name his/her plant.

Ask students to predict what their plant will look like over the next month by filling in the **Plant Growth Activity Sheet (Appendix 1)**. Each student will draw how he/she predicts the plant will look after two weeks, three weeks, and one month.

After two weeks, three weeks, and one month, have students again fill in the Plant Growth Activity Sheet to compare how they thought the plant would look to how it actually looks.

MATERIALS

Appendix 1
Plant Growth Activity Sheet

OPTION FOR EXTENSION ACTIVITIES:

Once the seedlings are growing, transplant them into a school or community garden. The class could also arrange a field trip to a nearby community garden or farmers' market, where students can speak with gardeners/farmers about the importance of compost.

School or community garden

Local Farmers' Market

Assessment

FORMATIVE Assess student understanding by observing their work at different stages throughout the lesson.

SUMMATIVE (OPTIONAL) Option to collect and correct the Plant Growth Activity Sheet.

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We welcome feedback from students and teachers on these lesson plans and resources. Please send your feedback to:

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APPENDIX 1

EGG CARTON GARDEN

Plant Growth Activity Sheet

Your Plant's Name: _____ Your Name: _____

Plant Species: _____

DRAW YOUR PLANT AS A SEED

PREDICTION | ACTUAL

DRAW YOUR PLANT AT 3 WEEKS

PREDICTION | ACTUAL

DRAW YOUR PLANT AT 1 WEEK

PREDICTION | ACTUAL

DRAW YOUR PLANT AT 2 WEEKS

GRADE 4 LEARNING EXPERIENCE

Can a Plastic Bag Live Forever?

Summary

Students learn about the life cycle of a plastic bag and create a timeline comparing historic events with a plastic bag's lifespan. After learning how long bags last when not recycled or reused, students explore creative ways to reuse plastic bags.

Objective

This fun and interactive lesson will help students understand the impact of plastic waste on the environment and will highlight the importance of recycling and reusing plastic bags.

Pre-Activity

INFOGRAPHIC AND VIDEO

DIRECTIONS

THINK-PAIR-SHARE

Watch the video **The Majestic Plastic Bag – A Mockumentary** to introduce students to the concept of a life cycle of a plastic bag:

www.youtube.com/watch?v=GLgh9h2ePYw

(03:59 / Source: HealTheBay.org)

As a class, brainstorm the impacts plastic bags have on the environment. Discuss how reducing, reusing and recycling bags can reduce these impacts.

Read the **Life Cycle of a Plastic Bag (Appendix 1)** as a class.

OPTION Project Appendix 1 on the screen to save paper. Then pair up students and give them time to complete the follow up questions. Correct the answers as a class and discuss the findings.

OPTION In small groups, have students investigate online for the correct answers

Example of a website to research facts on plastic:
wrwcanada.com/en/get-involved/resources/plastics-themed-resources/plastic-facts

MATERIALS

Computer and projector

Appendix 1
Life Cycle of a Plastic Bag

DURATION
30 mins

MAIN LEARNING OUTCOME

GRADE: 4

SUBJECTS:

Social Studies

Learners will investigate the relationships between humans and the physical environment.

SKILLS

Investigate
Ask and revise questions; locate several relevant details to support an answer; organize and compare details; identify relationships and communicate findings.

Question
Generate broad questions that arise from simple to more complex problems and issues; narrow and begin to revise questions, to create a question to investigate.

CROSS-CURRICULAR LINKS

English Language Arts

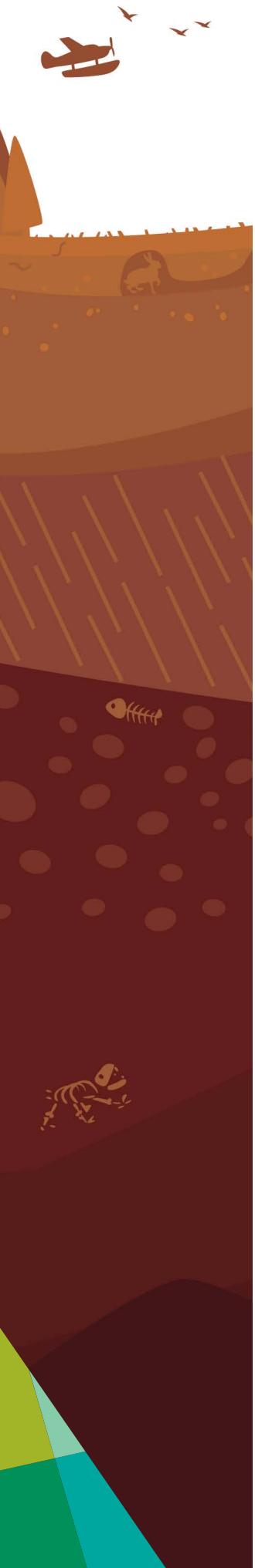
Writing and Representing
Learners will create text, independently and collaboratively, using a variety of types of writing for a range of audiences and purposes.

Art

Outcome 1
Students will explore the creative process, individually and collaboratively, using a range of materials and technologies, to create with respect and sensitivity a variety of artworks that express feelings, ideas, and understandings.

Math

Measurement: Outcome 2
Students will be expected to read and record calendar dates in a variety of formats.



Activity

CREATE A TIMELINE

DIRECTIONS

Introduce the concept of a timeline—a way to illustrate events that happened in a given time period. It takes 1000 years for a plastic bag to breakdown. To show how long 1000 years is, students will create a timeline poster.

- Students choose **ten** events from the list of **Events from the Last 1000 Years (Appendix 2)**.
- Draw a line across the middle of the bristol board. Place the number "**1000**" at the far left of the line and the number "**2000"** at the far right.
- Place the ten events on the timeline, in order.
- In the form of "Did you know?" bubbles, add the following to the poster:
  - The number of years it takes for a plastic bag to break down
  - The number of plastic bags that are used each year
  - A message to encourage people to recycle
  - "It takes the same time for a plastic bag to break down as it did for all these events to happen over the last 1000 years."

MATERIALS

Appendix 2:
Timeline of events of the last 1000 years

Bristol board or chart paper

DURATION
2 hours

OPTIONS Hang timelines around the school to show how long it takes for a plastic bag to break down.

Paste different plastic bags to timeline posters, to add a visual representation of how plastic lasts a long time under the 10 selected dates

Partner with a local grocery store and post the timelines in-store to encourage more people to use reusable bags.

Ask students to track how many plastic bags come into their house in a week or a month. Create a graph to estimate annual plastic bag use.

Post-Activity

"PLARN" BRACELETS

DIRECTIONS

INTRODUCTION

Ask students to bring in one or two plastic bags from home to prepare for this activity. (Bags of different colours will make the project more interesting.)

Have students discuss ways to reuse plastic bags. Ask students if they are familiar with "plarn" (plastic+yarn).

How to make Plarn:

Read the handout **How to Make Plarn (Appendix 3); and/or**
Watch the video: www.youtube.com/watch?v=4EnR6JMe1Jc
(04:14 / Source: Leisure Arts, Inc.)

You can use plarn for a variety of craft projects. Some projects require long strands of plarn; others, like braided friendship bracelets, need only two loops knotted together.

MATERIALS

Appendix 3:
How to Make Plarn
OR
Internet and projector

DURATION
5 min

PLARN BRACELETS (cont'd)

MAKING BRACELETS

DIRECTIONS

Review the instructions for **How to Make Plarn (Appendix 3)**. Ask students to complete **Steps 1, 2 and 3**, then stop.

After students have cut their plastic loops, they can trade with other students to have a variety of colours. Each student will need **six** loops to create a bracelet.

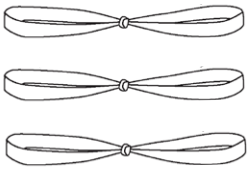
MATERIALS

Appendix 3: How to Make Plarn

DURATION

20 min

PREPARING LOOPS TO BRAID



Have students take **two** loops and complete **Steps 5 and 6,** three times—so they have **three** double loops to braid.

Stands can be used single thickness for a long braid (to wrap around twice), or folded in half for a thicker, shorter bracelet. Tape the end of the strands to the table or desk, and braid. Secure the finished end and close the loop with tape.

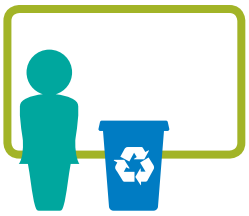
OPTIONS Connect this activity with local history. Scots reused old flour bags to make quilts. Acadians in Cheticamp reused old wool to make rugs to keep floors warm in the winter.

Student can watch a quick tutorial on plastic bag bracelets for more help:
www.youtube.com/watch?v=70sGbmUrw_w

Assessment

FORMATIVE Observe students as the answer the follow up questions to the infographic and as they make their timeline.

SUMMATIVE (OPTIONAL) Evaluate follow up questions to the infographic and/or their timeline.



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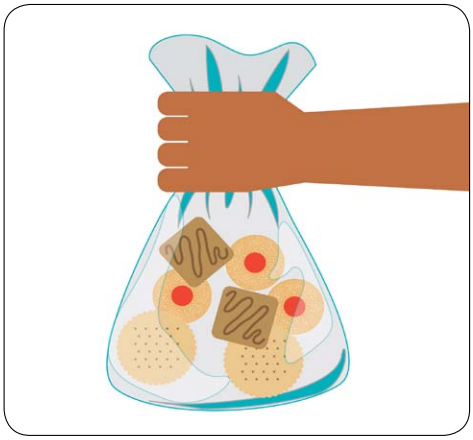
APPENDIX 1

CAN A PLASTIC BAG LIVE FOREVER?

Life Cycle of a Plastic Bag

Plastic bags start as oil that is pumped up from deep within the earth. The oil has been in the earth for 100s of millions of years.

The oil is then sold to a plastic factory where it is transformed into plastic bags, which are then sold to stores.



People use plastic bags to carry things like groceries or other goods.

The average plastic bag is used for only 20 minutes before it is tossed in the trash or the recycling bin.

Plastic bags that end up in landfills take an estimated 1000 years to break down. But they never really disappear—they turn into a plastic dust.

In the ocean, if the plastic bag isn't eaten by a sea creature, the water and the sun help to break down plastic much faster, in about 50 years. The plastic dust is then eaten by fish. Humans catch and eat the fish, and then the plastic dust ends up inside of us!

Nova Scotia recycles less than 50% of plastic bags. Although that is one of the highest recycling rates in the country, a large quantity of bags end up in landfills or on the ground as litter.

So there is still a lot of work to do, to **reduce**, **reuse** and **recycle** plastic bags!

APPENDIX 1

CAN A PLASTIC BAG LIVE FOREVER?

Comprehension Questions

Life Cycle of a Plastic Bag

After reading "Life Cycle of a Plastic Bag," answer the questions below:

1) **Five trillion bags** are made each year. Fill in the zeros below to show five trillion.
(How many zeros does it have? _____ Hint: 3 x 4)

5,___ ___ ___,___ ___ ___,___ ___ ___,___ ___ ___

2) What are plastic bags made of?

a) Water b) Oil c) Cookies

3) **True** or **False**: The average plastic bag is reused. (Circle your answer)

4) How many years does it take for a plastic bag to breakdown in a landfill?

5) What happens to plastic that ends up in the ocean? (List **two examples**)

6) What percentage of plastic bags are recycled in Nova Scotia?

7) What are **two ways** you can describe 1000 years?

APPENDIX 1

CAN A PLASTIC BAG LIVE FOREVER?

Name Answer key

Comprehension Questions

Life Cycle of a Plastic Bag

After reading **"Life Cycle of a Plastic Bag,"** answer the questions below:

1) **Five trillion bags** are made each year. Fill in the zeros below to show five trillion.
(How many zeros does it have? _____ Hint: 3 x 4)

5,000,000,000,000

2) What are plastic bags made of?

a) Water b) Oil c) Cookies

3) **True** or **False**: The average plastic bag is reused. (Circle your answer)

4) How many years does it take for a plastic bag to breakdown in a landfill?

about 1000

5) What happens to plastic that ends up in the ocean? (List **two examples**)

It might be eaten by sea creatures or fish.
After 50 years it and breaks down into tiny plastic dust.
If humans eat the fish, the plastic dust ends up in us.

6) What percentage of plastic bags are recycled in Nova Scotia?

50%

7) What are **two ways** you can describe 1000 years?

Examples: 2 x 500; 10 x 100, etc.
one millennium; ten centuries, etc.

APPENDIX 2

CAN A PLASTIC BAG LIVE FOREVER?

Events from the Last 1000 Years

Choose **ten** of these major events over the last 1000 years, and place them on a timeline.

1068 Construction begins on the Leaning Tower of Pisa in Italy

1150–67 University of Paris and University of Oxford are founded

1211 Genghis Khan invades China

1347–51 At least 25 million people die in Europe's "Black Death" (bubonic plague)

1428 Joan of Arc leads the French against the English

1438 The Incas rule in Peru

1497 John Cabot lands on the shores of what is now the east coast of Canada

1501 The first enslaved Africans are brought to the New World

1503 Leonardo da Vinci paints the Mona Lisa.

1510 Mi'kmaw Grand Chief Membertou was born

1534 First record of trade between the Mi'kmaq and the Europeans (Jacques Cartier)

1610 Galileo sees the moons of Jupiter through his telescope

1643 Taj Mahal completed

1660 Canada's first census records the population at 3418 people

1725 The Mi'kmaq and Maliseet signed their first treaty with the British to establish a peaceful alliance

1739 Canada's population is 42,701

1749 Halifax is founded

1752 Canada's first newspaper, the Halifax Gazette, is published

1775 The American Revolution begins

1782-85 Black Loyalists come to NS and NB after fighting for the British in the American Revolution

1833 Slavery is officially abolished in the British Empire

1851 Canada's first official postage stamp, the three-penny beaver, is issued

1867 The Dominion of Canada is created (uniting Ontario, Quebec, New Brunswick and Nova Scotia)

1871 Canada's population is 3,689,257

1876 The first telephone call is made by inventor Alexander Graham Bell

1904 Canada competes in the Olympics for the first time

1909 The first airplane flight in the British Empire happens at Baddeck, NS

1914 Canada enters World War I

1917 The Halifax Explosion happens

1918 Canadian women win the right to vote in federal elections

1918 Gabriel Sylliboy becomes with the first elected Mi'kmaw Grand Chief

1918 The First World War ends; Canada has lost 60,000 troops

1932 The CBC (Canadian Radio Broadcasting Commission) is created

1939 Canada declares war on Nazi Germany

1941 The federal government allows women to enlist in the army

1964 A new Canadian flag is introduced

1967 Canada celebrates its 100th birthday

1976 Montreal hosts the Summer Olympics

1980 Terry Fox runs his Marathon of Hope

1983 Mi'kmaw petrogyphs were found in Bedford, NS

1987 The $1 coin, or "loonie," is introduced

1988 First African Heritage Month in Nova Scotia

1997 The Confederation Bridge opens linking Prince Edward Island to the mainland

1999 Canada's newest territory, Nunavut, is created

APPENDIX 3

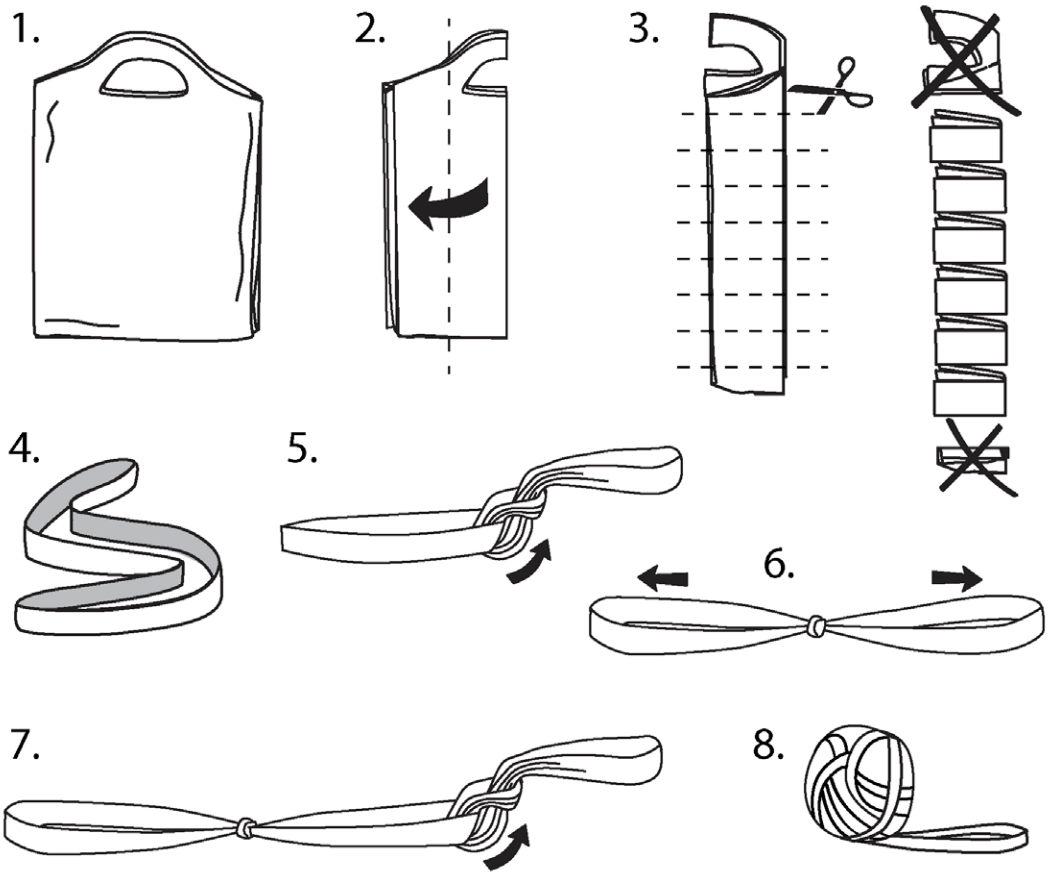
CAN A PLASTIC BAG LIVE FOREVER?

How to Make PLARN

Plarn is short for "plastic yarn." Plarn is made by cutting plastic grocery bags into strips, which are then strung together into a single long strand.

INSTRUCTIONS

1. Lay bag flat and fold it in half, lengthwise.
2. Fold bag in half again.
3. Cut folded bag into loops about 2 cm wide, discarding handles and bottom into the recycling bin.
4. Trade some loops with classmates, to mix up colours.
5. Knot loops together to form a single strand.
6. Pull the knot very gently. (For small projects, like braided bracelets, stop when two loops are knotted together.)
7. Keep adding loops to make your plarn long enough for your project.
8. Wind the strand into a ball and it is ready for your project.



GRADE 4 LEARNING EXPERIENCE

Cell Phone Waste and Chimpanzees

Summary

Through engaging activities, students will learn about planned and perceived obsolescence. Students will also learn about the types of metals/compounds that are found in cell phones, and the impact that metal mining has on chimpanzee habitat in the Congo Basin.

Objective

Students will understand the impact of cell phone waste on the physical environment and animal habitat. Students will also learn about proper electronics recycling in Nova Scotia.

Pre-Activity

WHY THE WASTE?

DIRECTIONS

CLASS DISCUSSION

Ask students to guess how many people live in Canada. Ask them how many cell phones are used in Canada.

Write these facts on the whiteboard:

- Approximately 35 million people live in Canada
- There are about 28 million cell phones in use.
- These phones are replaced about every 18 months.
- Approximately 19 million cell phones are thrown out every year!
- A small portion of the 19 million are recycled: 14–17%.

Ask the class why they think cell phones are replaced so often.

Review reasons for cell phone waste:

> **Planned obsolescence** is when manufacturers intentionally make products that break easily, or become out of date, and require replacement. For example, old cell phones can't run newer software, or new cell phones need different chargers.

(cont'd)

MATERIALS

Whiteboard and markers

DURATION

10–20 mins

MAIN LEARNING OUTCOME

GRADE: 4

SUBJECTS:

Social Studies

Learners will investigate the relationships between humans and the physical environment.

SKILLS

Investigate
Ask and revise questions; locate several relevant details to support an answer; organize and compare details; identify relationships and communicate findings.

Question
Generate broad questions that arise from simple to more complex problems and issues; narrow and begin to revise questions, to create a question to investigate.

CROSS-CURRICULAR LINKS

Science

Life Science: Habitats

Learners will analyse interconnectiveness of and within local habitats, inclusive of a Mi'kmaw perspective.

WHY THE WASTE? (cont'd)

DIRECTIONS

Once students are familiar with the term "**planned obsolescence**," have them guess what "**perceived obsolescence"** means.

- **Perceived obsolescence** is when consumers upgrade products to keep up with trends. For example, many people want the newest smartphone, so they throw out a phone that still works but is not the newest release.

Ask students why they think manufacturers would want cell phones to be replaced so often, and how throwing away 19 million cell phones in Canada could have negative impacts.

Activity

CELL PHONES AND CHIMPANZEES

DIRECTIONS

GROUP WORK

Break students into groups and ask them to read the **Call to Action handout (Appendix 1**).

- Visit the following website to learn more: www.mobilerecyclingday.org/

Ask groups of students to brainstorm some negative impacts of wasting cell phones.

Examples:

- *Minerals in cell phones come from the Earth.*
- *Mines have to extract minerals to make cell phone parts. Mine construction can destroy forests that are home to animals like chimpanzees.*
- *When cell phones are thrown out and end up in landfills; dangerous chemicals can leach into the ground.*

MATERIALS

Appendix 1: Call to Action handout

DURATION
30 mins

SMALLER GROUPS

Pair students up to investigate one of the minerals that makes up part of a cell phone. Students can choose one of the following:

- *gold, silver, tin, tungsten, tantalum (coltan), cadmium, lead, lithium, mercury, nickel, zinc*

Students will use the **Cell Phone Scavenger Hunt Worksheet (Appendix 2)** to guide their investigation.

MATERIALS
Internet access

Appendix 2: Cell Phone Scavenger Hunt worksheet

DURATION
20 mins

REPORT TO CLASS

Ask students to share what they found from their Scavenger Hunts.

DURATION
15 mins

Post-Activity

CELL PHONE RECYCLING

DIRECTIONS

GROUP DISCUSSION

Break students into small groups and ask them to write down what they know about cell phone recycling in Nova Scotia. If they do not know how cell phones can be recycled in the province, have them research it on the internet.

Note: Cell phones can be returned to many retail locations for recycling. Here are two cell phone recycling programs in Nova Scotia:

- ***Recycle My Cell** is a Canadian program that manages unwanted devices including cell phones, smartphones, wireless PDAs, device batteries, and pagers.* www.recyclemycell.ca/
- ***Call2Recycle**® is a North American used battery and cell phone collection program.* www.call2recycle.ca/

Ask groups of students to brainstorm what they can do to help decrease the negative impacts of cell phone waste.

IDEAS

Increase recycling rates of cell phones through an awareness/ poster campaign.

Students could start a collection program for cell phones at school.

Encourage family members and friends to keep cell phones longer before replacing them.

OPTION Have the students create posters to educate people about cell phone recycling.

MATERIALS

Paper
internet access

Poster supplies (optional)

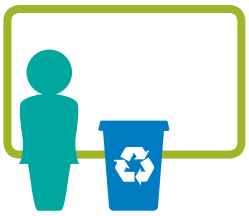
DURATION

30 min

Assessment

FORMATIVE Evaluate student learning over the course of the class discussion

SUMMATIVE (OPTIONAL) Option to correct the Cell Phone Scavenger Hunt Worksheet



WASTE REDUCTION EDUCATORS

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- green team set up
- advice on bins and signage
- tours of local waste facilities
- school waste audits

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APPENDIX 1

CELL PHONE WASTE AND CHIMPANZEES

Call to Action

Source: Call to Action www.mobilerecyclingday.org/ (downloaded June 20/2017)

© the Jane Goodall Institute

© the Jane Goodall Institute

By Jami Dwyer [Public domain], via Wikimedia Commons

Protecting Chimpanzees

Mobile phones and many other electronics contain valuable minerals, including gold, tin, tungsten and tantalum (coltan). Some of these minerals are only found in the Congo Basin, and are extracted from the area that has one of the largest intact populations of chimpanzees.

Mission Connection

The Jane Goodall Institute's work in Africa focuses on protecting chimpanzees and safeguarding their habitats through community centered conservation. Extraction of these natural resources involves destroying the forests that chimpanzees call home. Tracts of forest are cleared to make way for new roads leading to mining sites which then open up previously inaccessible forest to loggers and poachers.

Reducing Conflict Among People

In addition, control over the mining of these minerals has fueled conflict among human communities and perpetuated unsustainable livelihoods for the people who live among them. Conflict fueled in part by this industry has resulted in the deaths of more than five million people. Many people have moved into the forests in search of safety from the conflict, which results in hunting of local wildlife for food, including chimpanzees.

Every Individual Makes A Difference

As consumers, we can make a big difference by recycling our phones and reducing the demand for these minerals. Doing so removes these electronics from the waste stream, and also reduces the demand for extraction of resources from the habitats that many species, especially chimpanzees, other great apes, and human beings call home.

Call to Action is an international effort of the **Jane Goodall Institute (JGI)** to inspire action around recycling mobile phones (and other used electronics). Through these actions JGI is raising awareness about how such efforts can help promote conservation of critical habitats across the Congo Basin and around the globe.
website: www.mobilerecyclingday.org

APPENDIX 2

CELL PHONE WASTE AND CHIMPANZEES

Name _____

Cell Phone Scavenger Hunt

Here are some minerals used to make cell phones:

gold	silver	tin	tungsten	zinc	nickel
cadmium	lead	lithium	mercury	tantalum (coltan)	

Pick one mineral to research, and complete the graphic organizer, below:

Your chosen mineral →	
Information to Hunt For	Write each answer in the boxes below
What does the mineral look like when it comes out of the ground? What does it look like when it is in a cell phone?	
What countries have mines that get the mineral out of the ground?	
How is the mineral taken out of the ground and turned into cell phone parts?	
What animals and plants live in areas where the minerals are found?	
What happens if the mineral ends up in a landfill?	

GRADE 4 LEARNING EXPERIENCE

Do the Sorting Shuffle

Summary

In this lesson, learners become familiar with the different categories of waste through an interactive sorting activity. The lesson includes a discussion about how to better incorporate the 3Rs into everyday life.

Objective

To teach students proper waste sorting habits through a fun, hands-on activity. Through group discussion, students will reflect on how they reduce and reuse in their everyday life.

Pre-Activity

SORTING SIGNS

DIRECTIONS

GROUP AND CLASS DISCUSSION

Break the class into five groups and assign each group one of the **Waste Category Signs (Appendix 1):**

REFUNDABLES **RECYCLABLES** **ORGANICS** **PAPER** **GARBAGE**

Ask each group to brainstorm what materials belong in their assigned category.

Explain to the class that waste in landfills and waste that ends up as litter are big problems for the health of our ecosystems. (e.g. wildlife could mistake litter for food; landfills are expensive to build and maintain; runoff from landfills may contaminate waterways)

Ask students how waste ends up in landfills and as litter? Tell students that proper sorting of waste prevents material from ending up in landfills, in parks or on roadsides.

Explain that Nova Scotia has one of the best waste management systems in the country, and was one of the first provinces to have curbside organics collection. Because Nova Scotia has excellent composting and recycling systems, it is important to use them by sorting waste properly.

MATERIALS

Appendix 1: Waste Category Signs

DURATION

15 mins

MAIN LEARNING OUTCOME

GRADE: 4

SUBJECT:

Social Studies

Learners will investigate the relationships between humans and the physical environment.

SKILLS

Investigate
Ask and revise questions; locate several relevant details to support an answer; organize and compare details; identify relationships and communicate findings.

Question
Generate broad questions that arise from simple to more complex problems and issues; narrow and begin to revise questions, to create a question to investigate.

CROSS-CURRICULAR LINKS

English Language Arts

Reading and Viewing
Learners will respond personally and critically to a range of culturally diverse texts.

Activity
DO THE "SORTING SHUFFLE"

DIRECTIONS

Place the five **Waste Category Signs (Appendix 1)** in different areas of the room.

Print two copies of **Waste Item Cards (Appendix 2)**, and cut out the cards. (You will need one waste item per student.) Attach a piece of tape on each card and stick it onto the back of each student. Tell the players that each card represents a waste item.

Explain that each player is expected to find out what kind of waste item is on his or her back by asking "Yes or No" questions.

Divide the class into groups of four or five. Each player will then ask "Yes or No" questions to their group members that will help them learn the identity of their waste item. (The teacher can circulate amongst the groups giving clues if needed).

After each player has discovered the identity of their waste item, they will stand in the corner next to the proper sign (pop can next to REFUNDABLES, apple core next to the ORGANICS sign, etc). To help the students make sure they are standing in the correct place, refer to the Divert NS **Sorting Guide for Schools**, which can be found at divertns.ca/resources/brochures-guides

The first group to have all their players in the correct area wins!
Each member of the winning group then explains what their waste item was and why it belongs in the chosen bin (e.g. an apple core goes in the organics because it breaks down into compost, etc.)

MATERIALS

Appendix 1:
Waste Category Signs

Appendix 2:
Waste Item Cards

DURATION
30 mins

Post-Activity
THE "OTHER" R's

DIRECTIONS

Break the class into pairs and ask them to brainstorm ways we can **REDUCE** and **REUSE** in our everyday lives. Use the discussion guide below to prompt students:

REDUCE

- Reduce by not buying as much.
- Reduce by using reusable products like cloth shopping bags and reusable cups.
- Reduce by not eating in restaurants that use disposable dishes.
- Reduce by renting or sharing things like tools or games.

REUSE

- Reuse by fixing things that are broken.
- Reuse and save money by shopping at garage sales and flea markets.
- Reuse by trading seldom used toys with a friend.
- Reuse by saving paper with one blank side and using it for shopping lists.
- Reuse by giving old clothes to a friend or donating them to charity.

MATERIALS

n/a

DURATION
15 min

Assessment

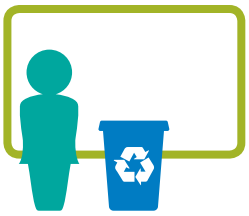
FORMATIVE Evaluate student learning by observing them throughout all of the lesson plan activities.

SUMMATIVE (OPTIONAL) Evaluate whether or not each group properly sorted themselves into the proper corner.

TRY SIMILAR ACTIVITIES

Waste Relay Race (Grade P–1)
Guess How Long that Garbage Lasts (Grade 4–5)

Divert NS provides free waste sorting signage. Contact Divert NS, or download the signs at divertNS.ca



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APPENDIX 1

DO THE SORTING SHUFFLE

Waste Category Signs

ORGANICS

REFUNDABLES

RECYCLABLES

PAPER

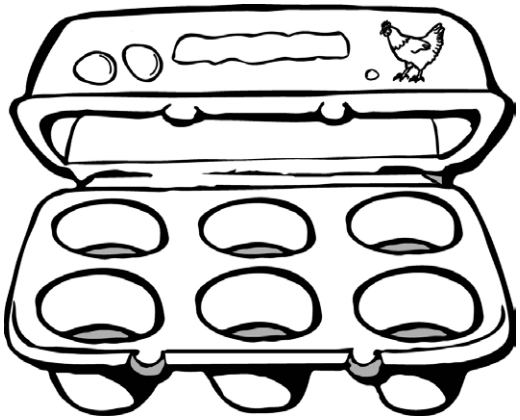
GARBAGE

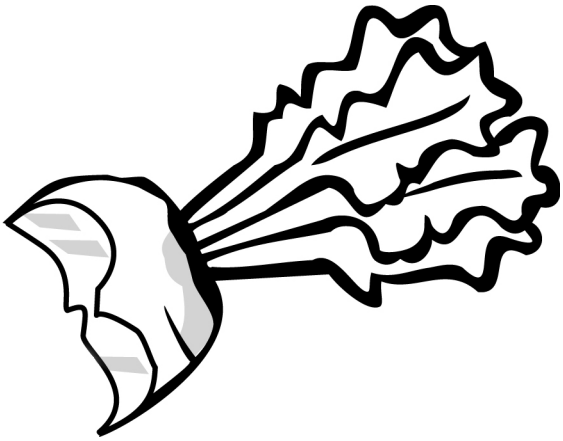
APPENDIX 2

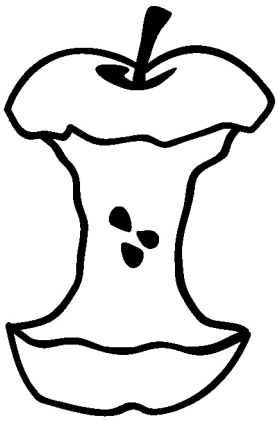
DO THE SORTING SHUFFLE

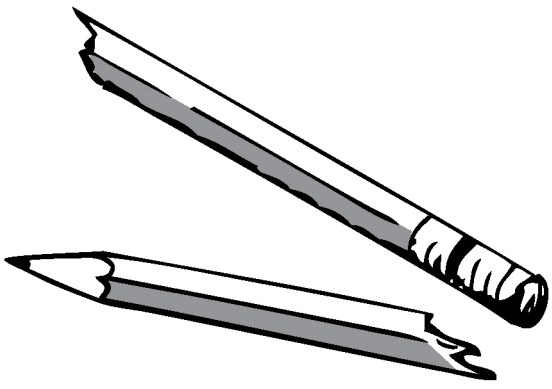
Waste Item Cards

Print two copies of each page (or enough for each student to have one waste item)

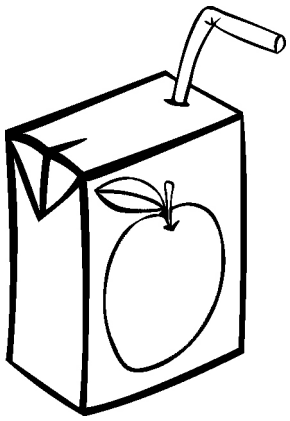


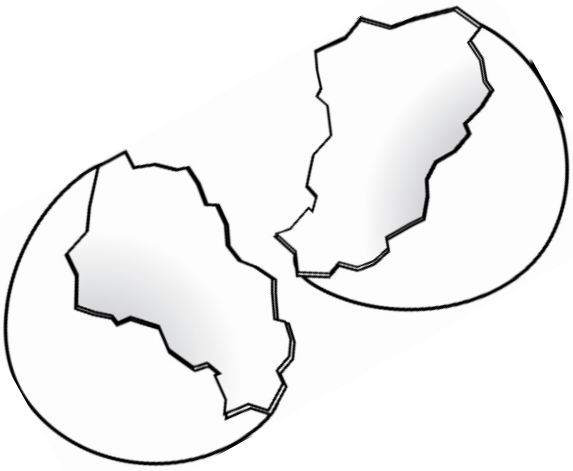






APPENDIX 2: **DO THE SORTING SHUFFLE (CONT'D)**





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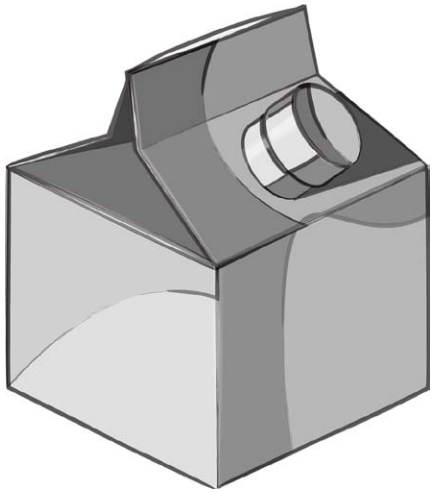

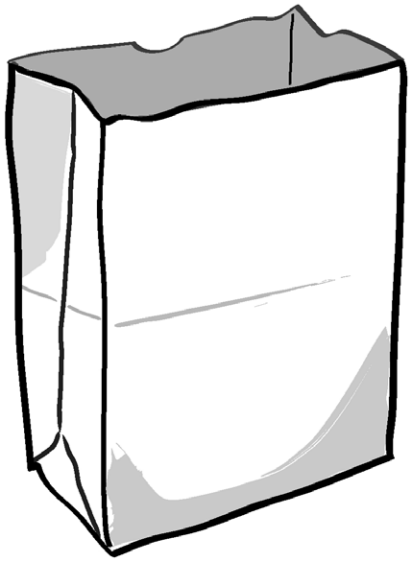

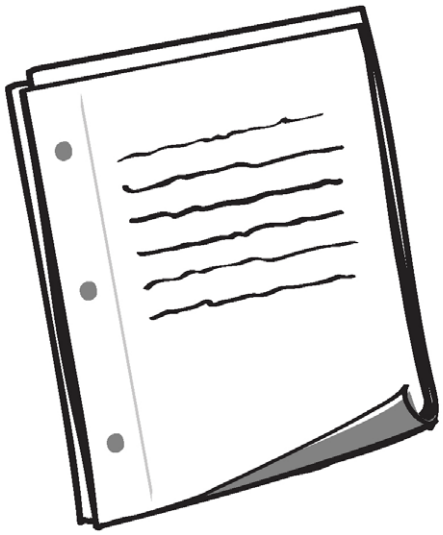

GRADE 4 LEARNING EXPERIENCE

Food Waste: The Journey from Mother Earth to Table

Summary

In this engaging and thought provoking activity, students will be given an opportunity to learn about the journey food goes through before it gets to us, and why it is important to appreciate our food.

Objective

Students reflect on their connection to food, practicing mindful eating by enjoying food with all senses. Students also understand the environmental impacts of food waste. Students are introduced to **Netukulimk** *(pronounced: ne·du·gu·limk)*—the Mi'kmaw concept of respecting the natural world and not taking more resources than we need.

Pre-Activity

READING AND REFLECTION ON FOOD

DIRECTIONS

Students watch a video about how easily food can be wasted. Students then discuss what they learned from the video.

LINK **Short Life of a Strawberry** (01:44)
www.youtube.com/watch?v=tKNhq8jLV_0

SAMPLE QUESTIONS FOR INQUIRY BASED LEARNING:

- What parts of this video surprised you?
- How will watching this video change how you think about the food in your fridge?
- What could the family do differently next time?
- Do you see food being wasted at school?
- How can students waste less food at school?

MATERIALS

Paper, Pen/ Pencils

Computer, Projector, Speaker

Appendix 1
Infographic

Appendix 2
Mi'kmaw Story

DURATION
20 mins

Students study the **Love Food Hate Waste Infographic (Appendix 1)** to learn more about the food waste that occurs in Canada.

TEACHER SUPPORT: 2.2 million tonnes is a big number. Here are a few examples to help students conceptualize it:

2 million small cars — Half a million elephants
10,000 blue whales — 1,000 spaceships

(cont'd)

MAIN LEARNING OUTCOME

GRADE: 4

SUBJECTS:

English Language Arts

– Students will be able to communicate information and ideas effectively and clearly, and to respond personally and critically.

Social Studies

– Learners will investigate the relationships between humans and the physical environment.

SKILLS

Investigate – Ask/revise questions; Locate several relevant details to support an answer; organize and compare details; identify relationships and communicate findings.

Question – Generate broad questions that arise from simple to more complex problems and issues; Narrow and begin to revise questions, to create a question to investigate.

– Learners will investigate the stories of various explorers, incl. Acadians, African Nova Scotians, Gaels, Mi'kmaq, and additional cultures.

Science

– Learners will analyse inter-connectiveness of and within local habitats, inclusive of a Mi'kmaw perspective.

SKILLS

Analyse – Gather and select appropriate information; Begin to reflect on the appropriateness of the information; Communicate findings.

READING AND REFLECTION ON FOOD (CONT'D)

DIRECTIONS

Students partner up to read the **Mi'kmaw Story** by Robert Bernard (**Appendix 2**).

ENGLISH LANGUAGE ARTS OPPORTUNITY — Students answer the following questions:

1. What key lessons did you learn from this story?
2. Why was it important for the Mi'kmaq to practice Netukulimk?
3. What things did they do to honour their relationships with the animals and land?
4. In what ways did they practice waste reduction?

TEACHER SUPPORT — To deepen learning on ***Netukulimk*** (*ne·du·gu·limk*)

"We view the world and all that is in it as having a spirit. We consider all life equal to our own and treat it with respect. We developed an intimate understanding of the relationships between the living and non-living so that each plant, animal, constellation, full moon, or red sky tells a story that guides our people so they can survive. These beliefs affect the manner in which we treat the natural world for sustenance and survival. Animals and plants are not taken if they are not needed. All spirits are acknowledged and respected as relatives and are offered tobacco, prayer, or ceremony (or combination) when taken. No part of an animal is wasted. All parts that cannot be used are returned to the Creator. The consciousness is described by the Mi'kmaw word, **Netukulimk**."

SOURCE **Mi'kmaq Ecological Knowledge: Moose in Unama'ki** (Page 4)
www.uinr.ca/wp-content/uploads/2014/05/Moose-MEK-web-1.pdf

Activity
CONNECTION TO FOOD

DIRECTIONS

Students are asked to close their eyes and consider the following, while it is read to them:

MI'KMAW PERSPECTIVE

The Mi'kmaq have a strong belief that everything around us has a spirit and therefore should be respected. This includes the food we eat, the materials we harvest from Mother Earth in order to have things like paper or pencils. Following this, we need to always treat everything around us with respect and express gratitude when we take anything from it.

"For countless generations, the First Nations and Inuit people have had unique, respectful and sacred ties to the land that sustained them. They do not claim ownership of the Earth, but rather, declare a sense of stewardship towards the land and all of its creatures. This sense of responsibility towards the land is more than a mental or even emotional obligation; it is tied intrinsically to Spirit. A strong communion with the spirit of all aspects of the Earth provides a unique perceptual lens through which all activities of daily life becomes an expression of Spirit."

SOURCE Learning with the Natural World (firstnationspedagogy.com/earth.html)

MATERIALS

Fruit, Paper, Pencils/pens

Appendix 3
Mother Earth to Table cards

DURATION
40 min

RESOURCE LINK
Mi'kmawey Debert Education and Outreach
1-877-892-2424, ext. 271
www.mikmaweydebert.ca/home/

CONNECTION TO FOOD (CONT'D)

FROM MOTHER EARTH TO TABLE

INQUIRY BASED LEARNING OPPORTUNITY

Students eat a piece of fruit (e.g. apple, banana, orange, berries, cranberry) **(Make sure there are no allergies.)** Then, they describe it on paper, using all their senses: What does it taste /sound/ feel/ look/ smell like?

In groups of four to five, students brainstorm each step involved in the **"Journey of the Fruit"** from Mother Earth to Table. Sample questions:

How did the apple become an apple? *How long did it take to grow?*
Did someone have to help it grow? *How did Mother Earth help it grow?*

Project the **Mother Earth to Table Cards (Appendix 3)** on screen and assign each student (or group) a step in the journey. OR, print two to three copies of Appendix 3 and cut out the steps. Give each student (or group) a step to hold. (Note: There are 12 steps, so multiple students will have the same step.)

Ask students to organize themselves in a line to show the journey from "seed" to "eating" of the fruit. (If students are having difficulty, show the process of apple farming: thebeakerlife.com/journey-of-a-bite-apples-7fb3e26235c5)

OPTION Students can also learn about **food miles**—the distance that foods travel to reach the consumer. www.foodmiles.com/

Post-Activity
LETTER OF GRATITUDE

DIRECTIONS

Students draw a picture or write a thank you letter to any of the following: the farmer, the land, the seed, the water, the animals that fertilized the seed, the transportation, or the person who gave them the apple.

Their letters should include a promise or commitment to waste less food, and some ways they have learned to do that.

EXAMPLES Cut up bananas, or other pieces of fading fruit, to freeze for smoothies; Put extra meal portions in freezer to reheat later; Plan meals and snacks for the week so food is not forgotten.

Students can conduct a **web quest** to research how to help food last longer, and reduce waste.

LINKS "Keep it Fresh" lovefoodhatewaste.ca/keep-it-fresh/produce-guide/
Tips /info on food waste in Canada lovefoodhatewaste.ca/

MATERIALS

Paper, Pencils, Crayons

Internet access for web quest

DURATION
30 min

Assessment

FORMATIVE Evaluate students by observation during brainstorm and letter writing portion, as well as how they show understanding of food travel process during main activity.

SUMMATIVE (OPTIONAL) Collect and evaluate students' letters.

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We welcome feedback from students and teachers on these lesson plans and resources. Please send your feedback to:

Toll-free
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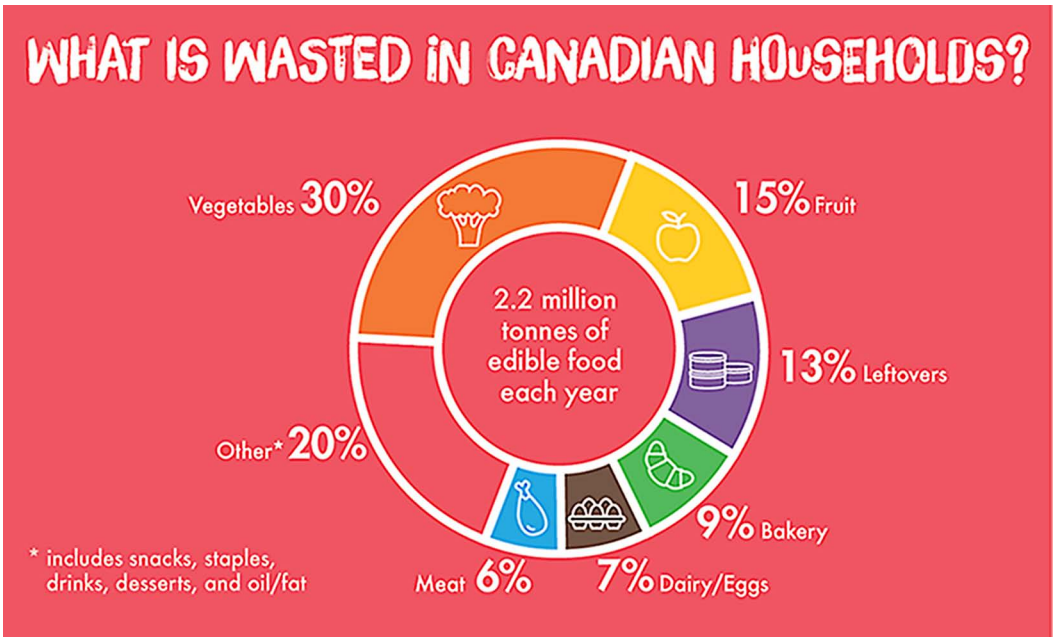
info@divertns.ca

APPENDIX 1

FOOD WASTE: THE JOURNEY FROM MOTHER EARTH TO TABLE

"Love Food Hate Waste" Infographic



Food Waste in Canada

One third of all food produced globally is wasted. Shocking, eh? The truth is that Canadians are throwing out more food than they realize – food that could, at one point, have been eaten.

Source: lovefoodhatewaste.ca/about/food-waste/ (downloaded 2019)

Love Food Hate Waste
(Metro Vancouver)

Link to Video
vimeo.com/275737307

"Every tonne of household food waste that is avoided is the equivalent of taking one car off the road each year."

Source: lovefoodhatewaste.ca/about/food-waste/

APPENDIX 2

FOOD WASTE: THE JOURNEY FROM MOTHER EARTH TO TABLE

A Story by Robert Bernard

The teacher begins by sharing with the students the story of a Mi'kmaw family set in the early 1300's, before the time of the arrival of Europeans, when only Mi'kmaw people occupied these lands they call Nova Scotia today. Back then and for the Mi'kmaw people today, the L'Nu (our traditional name as a people), the circle of life meant the process of respecting all components of the land, nature, animals, fish, plant life and abiding by the natural laws of the land, of Mother Earth.

Mother Earth would guide our path towards living a very traditional way of life, one that was filled with communicating between the relationships they provided us with spiritual thankfulness that is found in all living beings and plant life. It was about understanding and appreciating every little gift that was given to us as a people. It was about protecting the water, the environment and respecting how we harvested only what we needed to eat and not abusing or wasting what was offered to us by Mother Earth.

As part of the harvest the gatherers would say a small prayer of thanks to the animal, to the fish, to the plant or trees and thanking them for sharing their spirit and offering up their spirit to us for our survival.

This was called **Netukulimk**, [ne·du·gu·limk] which talked about the process of "only taking/using what you need" — the very earliest concepts of sustainability or having true respect of all the surroundings around you.

Families and individuals all knew about these important relationships, they knew that when they had to go harvest wood for their fires, they only took what they needed to stay warm. They only took enough so that they could cook their meals. And when they harvested animals and fish for their food, they always knew that if they took too much, that there may not be enough there when they came back again. The people knew about the natural laws of respect for all of these relationships they had with the land, the animals, fish and plants. They knew that the plants were also their medicines and they all trusted in the traditional knowledge and ways of the elders and the knowledge keepers and medicine men that helped to protect them when they became sick.

And as the children got older they all knew that they had a place and role to play in the community so that they could all work as one, together with the land and animals, so that those relationships that had been in place since time immemorial meant survival, and that was always the key.

Each time they had to hunt, fish or collect resources for their daily livelihood activities (like make baskets or create tools, weapons for hunting or clothes for their warmth and protection) they knew that they had to use as much of the resources they had in order to eat, live a warm safe life together with their brothers and sisters and families.

This is a story of survival, a story of resilience and a story of relationships in the circle of life and a story of the importance of cultural knowledge. The lessons learned here are about utilizing as much of the local resources as possible and not to waste and throw away or overuse (another form of waste). These lessons are now needing to be applied in today's world and in today's society.

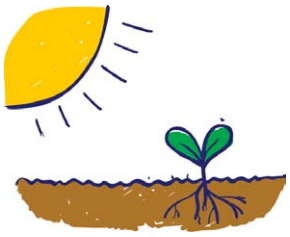
APPENDIX 3

FOOD WASTE: THE JOURNEY FROM MOTHER EARTH TO TABLE

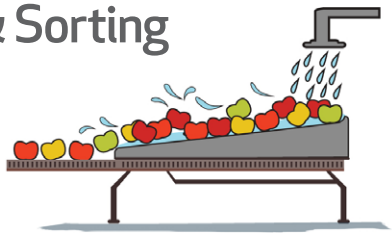
Mother Earth to Table Cards

Harvesting

Seedling



Washing & Sorting



Home Storage

Eating

Tree

Pruning

Storage

Watering

Seed

Distribution

Transportation

GRADE 4 LEARNING EXPERIENCE

How are Plankton, Plastic and Polar Fleece Connected?

Summary

Learners will investigate how plastic is formed and how recycling helps create a clean environment. Learners will create a commercial to demonstrate their new understanding of the process from plankton to plastic to polar fleece.

Objective

To teach students how plastic is made and recycled and to instill positive behaviours regarding recycling.

Pre-Activity

DISCUSSION AND PHOTO ACTIVITY

DIRECTIONS

GROUP AND CLASS DISCUSSION

Divide the students into small groups, and ask them to discuss why they think it is important to recycle. They can record their findings on sticky notes or chart paper and share a summary with the rest of the class.

As the groups share, probe so that students explore the concept of resources on earth being limited, and how recycling helps reduce the extraction of natural resources.

Discuss the link between resource extraction and climate change. For example, fossil fuel extraction increases the amount of carbon in the atmosphere, and deforestation decreases the amount of carbon reabsorption.

MATERIALS

Whiteboard and markers

Sticky notes or chart paper

DURATION

10 mins

OPTIONS Choose a discussion format that works best for your class, such as: small groups, whole class, Think-Pair-Share, Mind Mapping

ONLINE RESOURCES

www.readingrockets.org/strategies/think-pair-share

www.mindmeister.com/blog/teach-mind-mapping/

MAIN LEARNING OUTCOME

GRADE: 4

SUBJECT:

Science

Earth and Space Science: Rocks and Minerals
Learners will investigate how the Earth's surface changes over time.

SKILLS
Investigate
Ask and revise questions; Locate several relevant details to support an answer; organize and compare details; identify relationships and communicate findings

CROSS-CURRICULAR LINKS

English Language Arts

Writing and Representing
Learners will create text, independently and collaboratively, using a variety of types of writing for a range of audiences and purposes.

DISCUSSION AND PHOTO ACTIVITY (cont'd)

DIRECTIONS

CLASS / PAIRS DISCUSSION

Pair students up and ask them to guess the link between **plankton** and **polar fleece**.

Explain that plankton are small, microscopic organisms drifting or floating in the sea or freshwater. Plankton is an essential source of food for larger aquatic animals like fish and whales.

Ask groups to share their answers.

CLASS AND GROUP DISCUSSION

Divide the class into small groups and give each a copy of the **Photo Activity (Appendix 1)**. Explain that the ten photos on the page represent the transformation from plankton to polar fleece. Ask each group to try to put them into the correct order.

You will need to explain that plankton and other organic matter decomposed and was compressed under layers of rock and earth for millions of years * and became oil. The oil is harvested and transformed into plastics, which are transformed into a myriad of products, including polar fleece.

*** OPTION:** Go into more in depth with the rock cycle.

ONLINE RESOURCE youtu.be/BsIHV_voMk
(03:38 / Rock Cycle Video – Bill Nye the Science Guy)

MATERIALS

Appendix 1
Photo Activity

Scissors and glue

Answer Key for Appendix 1:

Correct order for the process from plankton to polar fleece

Activity
CREATE A COMMERCIAL

DIRECTIONS

Students will demonstrate their understanding of how plankton becomes polar fleece by creating a commercial to sell a polar fleece product, such as a scarf or a vest. They will promote their product by explaining the journey of how it was made.

Break students into small groups and ask them to complete the **Commercial Checklist and Planning Sheet (Appendix 2)**. You may choose to have students create a video of their commercial or perform it live in class.

OPTION Have students present the commercial at a school assembly to help raise awareness in the school.

MATERIALS

Appendix 2
Commercial Checklist and Planning Sheet

DURATION
1 hour planning
1 hour presenting

Post-Activity
TRUTH–TRUTH–LIE

DIRECTIONS

After all of the students have presented their commercial, each student will create two truths and one lie about what they learned from watching all of the commercials. Students will then exchange their two truths and one lie with another student. Each partner will identify the lie, correct it and hand it in as an **Exit Pass (Appendix 3)**. Remind them that their "lie" needs to be on topic.

MATERIALS

Appendix 3
Exit Pass

DURATION
10 minutes

Assessment

FORMATIVE Observe and check-in with students at various points throughout the lesson to check understanding.

SUMMATIVE (OPTIONAL) Evaluate student presentations (commercials).

ENVIRONMENTAL EVENTS

There are many great opportunities throughout the year to highlight the 3Rs in the classroom. Check out these annual events:

Waste Reduction Week
October (3rd week)

Earth Day
April 22

Compost Awareness Week
May (1st full week)

Environment Week
June (1st full week)

ABOUT DIVERT NS

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APPENDIX 1:

PLANKTON, PLASTIC AND POLAR FLEECE

Photo Activity

Cut out these 10 pictures and **arrange** them in the correct order to show the process of how PLANKTON can become POLAR FLEECE.









APPENDIX 3:

PLANKTON, PLASTIC AND POLAR FLEECE

Exit Pass

Name:_____

Identify the lie your partner told you and explain to me why it is a "lie".

APPENDIX 2:

PLANKTON, PLASTIC AND POLAR FLEECE

Name:_____

Commercial Checklist and Planning Sheet

Create a commercial to sell a polar fleece product of your choice. You could choose to sell a blanket, winter hat/gloves, sweater, coat, pyjamas, pet blanket, etc.

Your commercial **must explain** how the product was created. **Use this checklist** to make sure you include all the necessary information.

In my commercial, I explained:

- ❑ How ancient plankton was compressed under layers of rock and mud
- ❑ The plankton became oil
- ❑ The oil was extracted and processed into plastic
- ❑ The plastic became a product that was then recycled
- ❑ Through the recycling process, plastic can become polar fleece

Group members:_____

Product we are selling:_____

Summary of our commercial:
(What happens in your commercial?)

Props and other materials we need for our commercial:

GRADE 4 LEARNING EXPERIENCE

The Sorting Story

Summary

During this interactive lesson, the teacher will share a sorting story and students will listen for important cues. Students will draw a mural to illustrate the story's concepts.

Objective

This lesson will teach students about the impacts that humans can have on the environment through waste habits.

Pre-Activity

WHY SORT?

DIRECTIONS

CLASS DISCUSSION

Lead a class discussion about how waste is sorted at school. Review the five waste categories: refundables, recyclables, paper, organics and garbage.

Ask students why sorting waste is important.

Some reasons may be:

- *Saves landfill space.*
- *Recycling turns waste into something useful.*
- *Saves greenhouse gases that contribute to climate change.*
- *Nova Scotia has an advanced waste management system.*

Explain that if waste is not sorted properly, it ends up in a landfill.

Ask the students how long they think a plastic bag will take to break down in a landfill, and write their guesses on the whiteboard.

- *Answer: up to 1000 years!*

MATERIALS

Whiteboard and marker

DURATION

10 mins

MAIN LEARNING OUTCOME

GRADE: 4

SUBJECT:

Social Studies

Learners will investigate the relationships between humans and the physical environment.

SKILLS

Investigate
Ask and revise questions; locate several relevant details to support an answer; organize and compare details; identify relationships and communicate findings.

Question
Generate broad questions that arise from simple to more complex problems and issues; narrow and begin to revise questions, to create a question to investigate.

CROSS-CURRICULAR LINKS

English Language Arts

Listening and Speaking
Learners will communicate effectively and clearly respecting cultural contexts.

Activity

STORYTELLING

DIRECTIONS

Divide class into groups of four to six, and have each group form a circle. One student from each group will be given a marker. When the story is read, anytime the word **"LEFT"** is spoken, the marker is passed to the person on their **left**. Anytime the word **"RIGHT"** is spoken, the marker is passed to the person on the **right**.

Read the **Sorting Story (Appendix 1)** to the class or ask for a student or students to volunteer.

At the end of the story, have the students holding the whiteboard markers draw a scene on the whiteboard representing a part of the story. If the artist is reluctant, he/she could choose a volunteer from the group to draw with him/her.

OPTION Stop every couple of paragraphs to provide opportunity for more students to be the artist.

OPTION Instead of drawing a picture, ask the student holding the marker to write a sentence about why **Ms. LEFT** and **Mr. RIGHTman** say recycling is so important.

MATERIALS

Appendix 1
The Sorting Story

Whiteboard and markers

DURATION
15 mins

Post-Activity

$2 SUMMARY

DIRECTIONS

Ask the student to write a "$2 summary" about what they learned from the Sorting Story. Each word they write is worth 10 cents and they must write enough words to equal $2. Students must include the words **PLASTIC**, **GARBAGE**, and **RECYCLE** in their summaries.

OPTION Teachers could use the classroom rewards system for the students who reach the $2 goal. (e.g. stars, smiley faces, etc.)

MATERIALS

Writing paper or notebooks, or tablets

DURATION
10 min

Assessment

FORMATIVE Assess student understanding by observing their work at different stages throughout the lesson.

SUMMATIVE (OPTIONAL) Option to evaluate the $2 Summary

APPENDIX 1

THE SORTING STORY

Read Aloud Sorting Story

My friend **Ms. LEFT** called to invite me to a Recycling party. Before I **LEFT** my house, I drank a bottle of water and threw the empty bottle into the garbage. I thought to myself: "Recycling doesn't matter, **RIGHT**?" But, **Ms. LEFT** was my friend, so I thought I should at least make an appearance at her party. **Ms. LEFT** met me **RIGHT** at the door, so I went **RIGHT** on in.

I was still a little thirsty, so I decided to go **RIGHT** to the refreshments. As I looked to the **RIGHT** and to the **LEFT**, I saw that **Ms. LEFT** had labeled the containers that could be recycled: aluminum, glass and plastic. I went **RIGHT** for a drink in an aluminum can, took a sip, and realized **RIGHT** away it was tomato juice! Yuck! So I threw it in the garbage can **RIGHT** under the table.

Then **Ms. LEFT** came rushing **RIGHT** over. She picked the can out of the trash and put it in the recycling bin to the **LEFT**. **Ms. LEFT** told me that pop cans and bottles can recycled to make new cans. **RIGHT** away I realized that recycling helps conserve the Earth's natural resources.

RIGHT then I remembered the plastic bottle I had **LEFT** in the garbage at home. But one bottle doesn't matter, **RIGHT**? Hmmm.

Ms. LEFT then offered me one of her **RIGHTeous** cupcakes. They even had a recycling logo **RIGHT** on top of the icing.

RIGHT around the time I **LEFT** the drinks table, **Ms. LEFT**'s neighbour, Mr. **RIGHTman**, arrived at the party. **Ms. LEFT** asked him why he was late for the party, since he lives **RIGHT** across the street. **Mr. RIGHTman** said he came from his job at a recycling facility. **Mr. RIGHTman** also said if anybody needed a job, he could get them one **RIGHT** away, since recycling programs have created thousands of jobs in Nova Scotia in the last 20 years!

Since **Ms. LEFT** told me I could recycle aluminum cans, I wondered what else I could recycle that I usually **LEFT** in the garbage. I asked **Mr. RIGHTman,** and he said: "Well, **RIGHT** now you can recycle newspaper, glass, plastic bottles, cardboard, car batteries, and even old car tires!"

Ms. LEFT told **Mr. RIGHTman** that she usually **LEFT** her old tires at the landfill across town on the **RIGHT. RIGHT** away **Mr. RIGHTman** said: "Used tires can be recycled into many different things, like floor mats, mulch and garden hoses. Even the soles of both your **LEFT** and **RIGHT** shoes can be made from old car tires!"

"**RIGHT** on!" said **Ms. LEFT**.

RIGHT about then I started to get curious. I asked **Mr. RIGHTman**: "What are old plastic bottles turned into?" **Mr. RIGHTman** handed me a card from his **RIGHT** shirt pocket. "You can read about it **RIGHT** here," he said. The card said: "Plastic pop bottles and milk jugs can be turned into new bottles, carpet, clothes and other things."

RIGHT away I knew what I needed to do. I said goodbye to Mr. **RIGHTman** and thank you to **Ms. LEFT**. As I **LEFT** the party, **Ms. LEFT** yelled: "Wait! Don't you want some **LEFTovers**?"

As I rushed back to my house, I dodged things **RIGHT** and **LEFT**, wondering if they were also made from recycled materials. When I got to my house, I burst **RIGHT** through the door, ran **RIGHT** around the corner, to where I **LEFT** the plastic bottle in the garbage **RIGHT** before the party. **RIGHT** away I put the bottle in the recycling bin in my closet.

Since **Ms. LEFT**'s party, I haven't thrown a single recyclable product in the garbage. After all, recycling is the **RIGHT** thing to do…**RIGHT**?

GRADE 4 LEARNING EXPERIENCE

Waste Management: Past and Present

Summary

Students will learn how attitudes and behaviors around waste have changed during recent generations, and learn about the traditional Mi'kmaw view that all resources are to be respected, and not wasted. The class will invite an older member of the community for an interview, and will reflect on their own recycling habits.

Objective

To teach students about the importance of recycling, and have them reflect on how recycling and composting have become important in the last few decades.

Pre-Activity

CLASS DISCUSSION

DIRECTIONS

RECYCLING OVERVIEW

To gauge how much your students already know about recycling, ask them to describe what recycling is, using their own words.

Basic definition: *Recycling is the process through which discarded plastic, glass or paper items are transformed into new and usable products.*

MATERIALS

Whiteboard and markers

DURATION

10 mins

THE FIRST RECYCLING PROGRAM

Have students guess when the first "blue box" recycling program started in Canada? Have students guess in which province it started.

Answer: *Canada's first blue box recycling program started in 1983 in Ontario (Kitchener). That means that anyone over the age of about 40 would not have had a recycling program at home or at school when they were a child!*

MAIN LEARNING OUTCOME

GRADE: 4

SUBJECT:

Social Studies

Learners will investigate the relationships between humans and the physical environment.

SKILLS

Investigate

Ask and revise questions; Locate several relevant details to support an answer; organize and compare details; identify relationships and communicate findings.

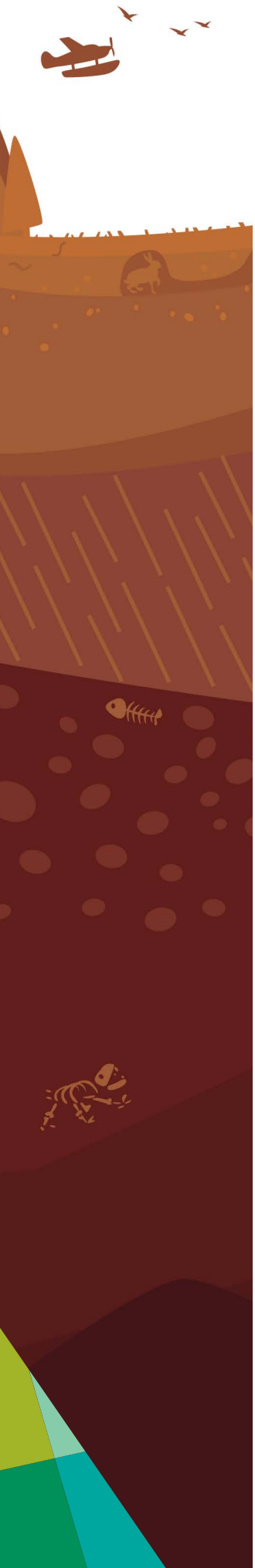
Question

Generate broad questions that arise from simple to more complex problems and issues; narrow and begin to revise questions, to create a question to investigate.

CROSS-CURRICULAR LINKS

English Language Arts

Learners will communicate effectively and clearly respecting cultural contexts.



CLASS DISCUSSION (cont'd)

DIRECTIONS

STATIONS

Divide students into four groups and have the following tasks posted in four separate areas of the classroom (stations).

Each group has five minutes at each station to complete the posted task.

STATION 1 Students search around the classroom for an item that says "Made from 100% recycled material."

STATION 2 Students brainstorm reasons why recycling is good for the environment.

STATION 3 Group members hypothesize what happens to recyclables after they are collected at the curb.

STATION 4 Students list items that can be made from recycled materials.

MATERIALS

Whiteboard and markers

An item made from 100% recycled material

DURATION
25 min

After each group has a turn at each station, come back together as a class and have a member from each group share something that was discussed. Have at least one student from each group share their experiences at the stations.

DURATION
10 min

OPTION Ask students to document their experience at different stations, through writing.

Activity
ELDER INTERVIEWEES

DIRECTIONS

PLANNING THE INTERVIEW

Ask your class the definition of "interview," and its purpose. Tell your students you will be inviting a special guest to class—someone approx 60 years or older—to be interviewed about how waste was dealt with in the past, before there were recycling and composting programs.

Have your students break into groups, and ask each group to brainstorm two questions to ask the special guest. Use the **Sample Interview Questions (Appendix 1)** to help get ideas flowing!

- From all the questions generated, have the class choose six to eight
- Have the class brainstorm potential interviewees — a grandparent or guardian who might be interested in being interviewed / a member in the community who the class could contact?

MATERIALS

Whiteboard and markers

Appendix 1
Sample Interview Questions

DURATION
20 min

OPTION Students carry out a mock interview amongst themselves in class, for practice

FOR A LOOK AT MI'KMAW HISTORY

Have the class read a sample of a transcribed interview:
Elder Caroline Brooks recounts her memories of daily life as far back as 1910.
www.mikmaweydebert.ca/home/wp-content/uploads/2015/06/Pg125_Interviews_Brooks-Mrs.-Caroline.pdf

Note The term "Indian" is used in the interview. This was a term used in history. Now, we say Indigenous or First Nations, or in this case, a Mi'kmaw person.

Resources To learn more about inviting an elder to your classroom:
www.mikmaweydebert.ca/home/ (See "Education and Outreach")
www.integrativescience.ca/People/Elders/

ELDER INTERVIEWEES (cont'd)

DIRECTIONS

SPECIAL GUEST INTERVIEW

When you arrange your interview, tell the guest that the students will ask them 6 to 8 questions (approx 30 min) about waste reduction—how they remember reducing waste and dealing with garbage when they were school-aged. How are things different or similar today compared to when and where they grew up?

On the day of your interview, choose three or four students to each ask two questions to the special guest.

OPTIONS The students could sit in a "panel" to interview your guest.

You can record the interview—by taking notes, or through an audio or video recording (with permission).

MATERIALS

Relative or community member

6 – 8 interview questions

DURATION
30 min

Post-Activity

SNOWBALL ACTIVITY

DIRECTIONS

Have the students write down something they found surprising about the interview or one thing they learned from the special guest on a piece of scrap paper and bunch it up like a snowball.

Have the students form a circle. Each student throws their paper snowball into the middle of the circle. Then one by one, have each student pick up one of the "snowballs" and read it aloud. (Remember to recycle your paper!)

OPTIONS Students can draw posters showing how people dealt with waste in the past. Have your class give a presentation at a school assembly or Heritage Fair with your special guest.

MATERIALS

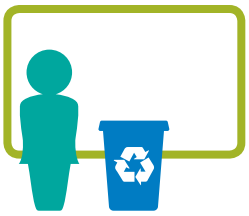
Scrap paper

DURATION
30 min

Assessment

FORMATIVE Evaluate student learning over the course of the class discussion, including level of engagement and effort.

SUMMATIVE (OPTIONAL) Evaluate each group member's contribution to the class discussion, including the interview questions they provided.



WASTE REDUCTION EDUCATORS

Divert NS provides funding to municipalities to deliver waste reduction education to schools across the province. Your local waste reduction educator(s) provides the following services, and more, free of charge!

- classroom presentations
- green team set up
- advice on bins and signage
- tours of local waste facilities
- school waste audits

To find out more, visit divertns.ca

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Share on social media!
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APPENDIX 1

WASTE MANAGEMENT: PAST AND PRESENT

Sample Interview Questions

Use these samples to help your class brainstorm interview questions.

When and where did you grow up?

Did you live in a town, city or in the country?

Growing up, how did you store your food?

Do you remember a time you had to throw something out?

How did people in your community try to have less waste?

When you were growing up, what did your family do with empty tin cans? How about paper? And what about glass bottles?

What did your family do with old clothes or toys?

When you were younger, did people litter? If so, was there more or less litter than what you see today?

How old were you when you began recycling or composting in your home?

When you were younger, where did you take your garbage for disposal?

GRADE 4 & 5 LEARNING EXPERIENCE

Guess How Long that Garbage Lasts

Summary

Learners will investigate how long various waste items take to decompose. They will learn about chemical changes that take place in landfills from solid waste to the production of methane gas. Through group discussion and creative assignments, students will examine the environmental impacts of landfills.

Objective

This lesson will educate students about the chemical changes that occur in landfills. The activities will promote proper waste sorting by engaging and educating students about what happens after items are disposed.

Pre-Activity

GROUP DISCUSSION

DIRECTIONS

Write the following words on the whiteboard:

decompose **landfill gas** **recycling**

Break students into small groups and assign a word to each group. Ask students to brainstorm a definition for their word.

As a class, share the definitions the students created, then lead a discussion using the points below:

- How long does it take different waste items to break down in the landfill.
- What are the negative effects that landfills have on the environment?
- What chemical changes might occur in landfills?
- How does the decomposition process produce gas or liquids?

The discussion will help the class understand how important it is to divert waste from landfills through recycling.

MATERIALS

Whiteboard and markers

DURATION

10 mins

MAIN LEARNING OUTCOME

GRADE: 4 5

SUBJECTS:

Social Studies (Gr 4)

Learners will investigate the relationships between humans and the physical environment.

SKILLS

Investigate
Ask and revise questions; locate several relevant details to support an answer; organize and compare details; identify relationships and communicate findings.

Question
Generate broad questions that arise from simple to more complex problems and issues; narrow and begin to revise questions, to create a question to investigate.

Science (Gr 5)

Learners will test how physical and chemical changes affect the properties of matter.

SKILLS

Investigate
Ask and revise questions; locate several relevant and dependable details to support an answer; organize and compare details; identify relationships.

Compare
Make observations; identify similarities and differences; identify relationships and offer an interpretation; reflect on the findings.

CROSS-CURRICULAR LINKS

English Language Arts

(Gr 4 & 5) Learners will communicate effectively and clearly respecting cultural contexts.

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Share on social media!
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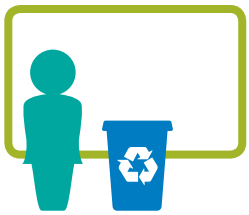

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Share on social media!
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Activity
TRASH TRIVIA

DIRECTIONS

Break the class into two groups and play the **Guess How Long That Garbage Lasts** trivia game; assigning one point per correct answer.

After the trivia game, ask the students what they learned about how long garbage lasts. Students should observe that organics and paper break down much faster than plastic, glass and metal.

OPTION Allow students from the opposing team to attempt to answer the question if the first team gets it wrong.

MATERIALS

Appendix 1:
Guess How Long That Garbage Lasts Trivia Game (PDF)

DURATION
15 min

Post-Activity
RECYCLING AND YOU

DIRECTIONS

Break the class into groups of three or four. Ask students to brainstorm answers to the following questions, and share them with the class:

- Why is it important to divert waste from the landfill?
- How does recycling divert waste from landfills?
- What connection is there between landfills and climate change?

As a class, brainstorm ways to divert waste from landfills through recycling or reusing. How can the students promote recycling at home and at school?

OPTION Following the brainstorm portion, have students create posters on how to promote recycling at home and school (as an alternative to presenting ideas to the class)

MATERIALS

Whiteboard and markers

DURATION
15 min

Assessment

FORMATIVE Assess student understanding by observing their work at different stages throughout the lesson.

SUMMATIVE (OPTIONAL) Option to collect and grade the small group discussion sheets.

SUGGESTED FOLLOW-UP ACTIVITY **Can a Plastic Bag Live Forever? (Grade 4)**

ABOUT DIVERT NS

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APPENDIX 1

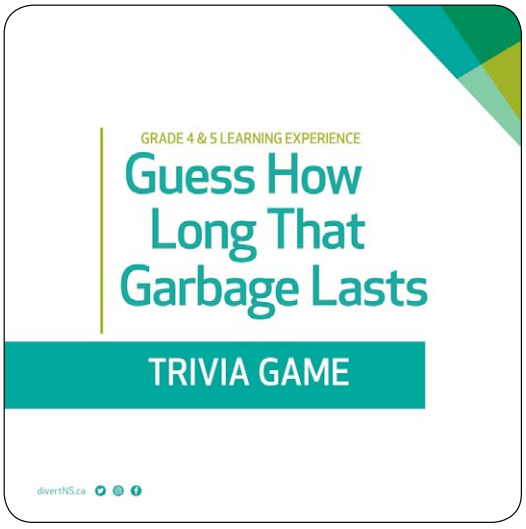
GUESS HOW LONG THAT GARBAGE LASTS

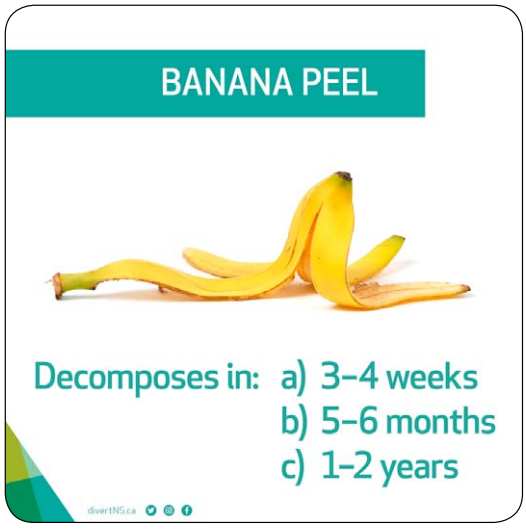
Trivia Game

The following is a slide overview for the separate file entitled:

GR-4-5-Guess-How-Long-that-Garbage-Lasts-Appx1-Trivia.pdf

In the PDF, the answer slides follow the ten quiz question slides shown here.





APPENDIX 1

GUESS HOW LONG THAT GARBAGE LASTS — TRIVIA GAME (PAGE 2/2)

MILK CARTON

Decomposes in: a) 100 years
b) 50 years
b) 1–5 years

ALUMINUM CAN

Decomposes in: a) 1 year
b) 1000 years
c) 500 years

LEATHER

Decomposes in: a) 1 year
b) 50 years
c) 300 years

DISPOSABLE DIAPERS

Decompose in: a) 1 year
b) 2000 years
c) 500 years

FISHING LINE

Decomposes in: a) 800 years
b) 1 year
c) 2000 years

GLASS JAR

Decomposes in: a) 5 years
b) 175 years
c) 1 million years

GRADE 4 & 6 LEARNING EXPERIENCE

Make Your Own Paper

Summary

Students will learn about the sustainability of Canadian forests and compare forestry practices in Canada and Brazil. They will establish a link between sustainability and recycling through a hands-on activity—making their own recycled paper.

Objective

To teach students that reusing and recycling paper is better for our forests, because it reduces the demand for tree harvesting.

Pre-Activity

DEFINITIONS

DIRECTIONS

FIND YOUR MATCH

Print two copies of the **Definitions Sheet (Appendix 1)** and cut out each **word** and **definition**. (Each sheet has eight words and eight definitions).

Give one **word** or **definition** to each student and ask them to find a person who has the matching word to their definition (or the reverse). If you have extra words and definitions, you can hand out the spares to any students who find their match quickly.

As students find their "match," ask them to write or tack the vocabulary word onto the board. The person with the definition can hold onto it for the time being.

Once all the words are written or tacked on the board, ask each pair of students to read the word, then the definition to the class.

Review the definitions with the class to clarify understanding.

MATERIALS
Appendix 1
Definitions sheet

Whiteboard
and marker

DURATION
10 mins

MAIN LEARNING OUTCOME

GRADE: 4 6

SUBJECT:

Social Studies (Gr 6)

Learners will compare sustainability practices between Canada and a selected country.

SKILLS
Investigate
Ask and revise questions; locate several relevant and dependable details to support an answer; organize and compare details; identify relationships, recognize represented perspectives, and communicate findings.

CROSS-CURRICULAR LINKS

Art (Gr 6)

Outcome 1
Students will explore the creative process using a range of materials and technology to create with respect and sensitivity.

Science (Gr 4)

Learners will analyze interconnectiveness of and within local habitats, inclusive of a Mi'kmaw perspective.

DEFINITIONS (cont'd)

DIRECTIONS

ARTICLE

Read the article **A Look at the Boreal Forest and the Amazon (Appendix 2)**. The article can be read as a class, in small groups or independently.

OPTION Watch videos on Boreal Forest & Amazon Rainforest

www.youtube.com/watch?v=_XjpzlVVdW8
(0:58 / Source: BorealConservation.org)

www.youtube.com/watch?v=zRB4q19wc04
(02:35 / Source: VirturalFieldtrips.org)

MATERIALS
Appendix 2
A Look at the Boreal Forest and the Amazon

DURATION
10 min

VENN DIAGRAM

With a partner, have students fill out the **Venn Diagram (Appendix 3)**. In the circles, ask students to write what is unique to Canada and what is unique to Brazil and what is the same when it comes to forestry practices.

Draw or project the Venn diagram on the board, and use students' input to fill it in. (Option to have students come up to the board and write it themselves.)

Go over the findings as a class.

MATERIALS
Appendix 3
Venn diagram

DURATION
10 min writing
10 min review findings

Activity
PAPER MAKING

DIRECTIONS

PREDICTIONS

In pairs, ask the class to make predictions on how paper is made. What materials are required? How long does it take?

DURATION
10 min

VIDEO

Watch the short video **How Paper Is Made**, then have students complete the **question sheet (Appendix 4)**.

www.youtube.com/watch?v=7IP0Ch1Va44

(02:15 / Source: YouTube video: MilesRose.net)

MATERIALS
Appendix 4
How Paper is Made question sheet

DURATION
10 min

HANDS-ON

Pair or group students to make recycled paper by following the directions in **How to Make Recycled Paper (Appendix 5)**.

MATERIALS
Appendix 5
How to Make Recycled Paper

DURATION
30 min

Post-Activity
RECYCLING MESSAGES

DIRECTIONS

Once the student-made recycled paper is dry, have the students write messages about the importance of recycling on their newly created paper.

Post messages in the classroom or around the school to promote paper recycling.

OPTION Opportunity to buddy up with younger grade class and share with them their newly made paper and the message around saving it.

MATERIALS

Student-made recycled paper

DURATION

15 min

Assessment

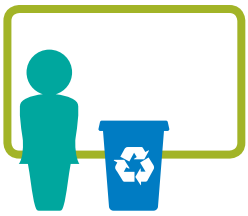
FORMATIVE Assess student understanding by observing their work at different stages throughout the lesson.

SUMMATIVE (OPTIONAL) Option to correct the Venn diagram, the question sheet or the recycling message

ENVIRONMENTAL EVENTS

There are many great opportunities throughout the year to highlight the 3Rs in the classroom. Check out these annual events:

Waste Reduction Week	October (3rd week)
Earth Day	April 22
Compost Awareness Week	May (1st full week)
Environment Week	June (1st full week)



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APPENDIX 1:
MAKE YOUR OWN PAPER

Print enough copies of this sheet to give each student either a word or a definition. Ask the students to find a person whose word they think matches their definition (or whose definition matches their word).

Definitions

Sustainability	To maintain something forever. Human actions can sometimes be unsustainable because they threaten the ability of certain ecosystems or species to survive.
Natural Resources	Materials found in nature that can be used by people, such as water, plants, soil, stone, minerals, and fossil fuels.
Deforestation/ Clear Cutting	Clearing, or cutting down, of forests. The word is normally used to describe the actions of humans in removing forests from the planet.
Boreal Forest	Canada's largest vegetation zone, making up 55 per cent of the country's land mass. It extends from British Columbia in the west to Newfoundland and Labrador in the east.
Pulp and Paper Industry	Companies that convert woody plant material into a wide variety of pulps, papers and paperboards.
Rainforest	Forests with tall trees, warm climates, and lots of rain.
Paper recycling	Processing waste paper for reuse.
Timber	The wood of trees cut and prepared for use as building material or for making paper.

Definitions sourced or adapted from: *Sustainability* worldwide.org; *Natural Resources* kids.britannica.com/kids/article/natural-resource/399553; *Deforestation* www.britannica.com/science/deforestation; *Boreal forest* www.thecanadianencyclopedia.ca/en/m/article/boreal-forest/; *Pulp and paper* www.thecanadianencyclopedia.ca/en/m/article/pulp-and-paper-industry/; *Rainforest* kids.mongabay.com/elementary/001.html (2017)

APPENDIX 2:
MAKE YOUR OWN PAPER

A Look at the Boreal Forest and the Amazon

Canada's largest forest, the **Boreal Forest**, stretches from one end of Canada to the other and is, in fact, the largest forest in the world! Many different types of animals, such as lynx, moose and bears make their home among the spruce, fir and pine trees of this massive forest. The forest is also important to Canadians because it provides us with **natural resources**, such as **timber** which we use to build our homes and make the paper that we write on. In fact, the **pulp and paper industry** is worth $831 million in Nova Scotia alone!

Sadly, many of the companies which are part of the pulp and paper industry cut down ALL the trees in a specific area. We call this **deforestation** or **clear cutting**. When this happens, the animals of the forest lose their homes. It also, affects humans when this happens because the Boreal Forest filters millions of litres of water daily, and lowers the impact of climate change by storing carbon and producing oxygen.

Thankfully, when trees are cut down in the Boreal Forest, the law in Canada says that they have to be replanted. This is what we call **sustainability**, because it means that the forest will grow back so that future generations of humans and animals can experience it. Unfortunately, when companies replant trees, they only plant one type of tree so it will take hundreds of years for the forest to be full of many different types of trees, like it was before.

In Brazil, they have the Amazon **Rainforest**, which is also home to many different animals such as monkeys, sloths and toucans. As well as being home to these animals, it also helps humans. We call the Amazon "the lungs of the world," because it provides us with more than 20% of the world's oxygen. Just like in the Boreal forest, there is deforestation happening in the Amazon. The difference is that a lot of the trees that are cut or burnt down are not replanted. There are many reasons for this including lack of law enforcement and the fact that many of the trees are cut down to make space to grow crops such as coffee or to raise livestock such as beef. This is not sustainable, because it means the trees won't grow back for future generations of humans and animals.

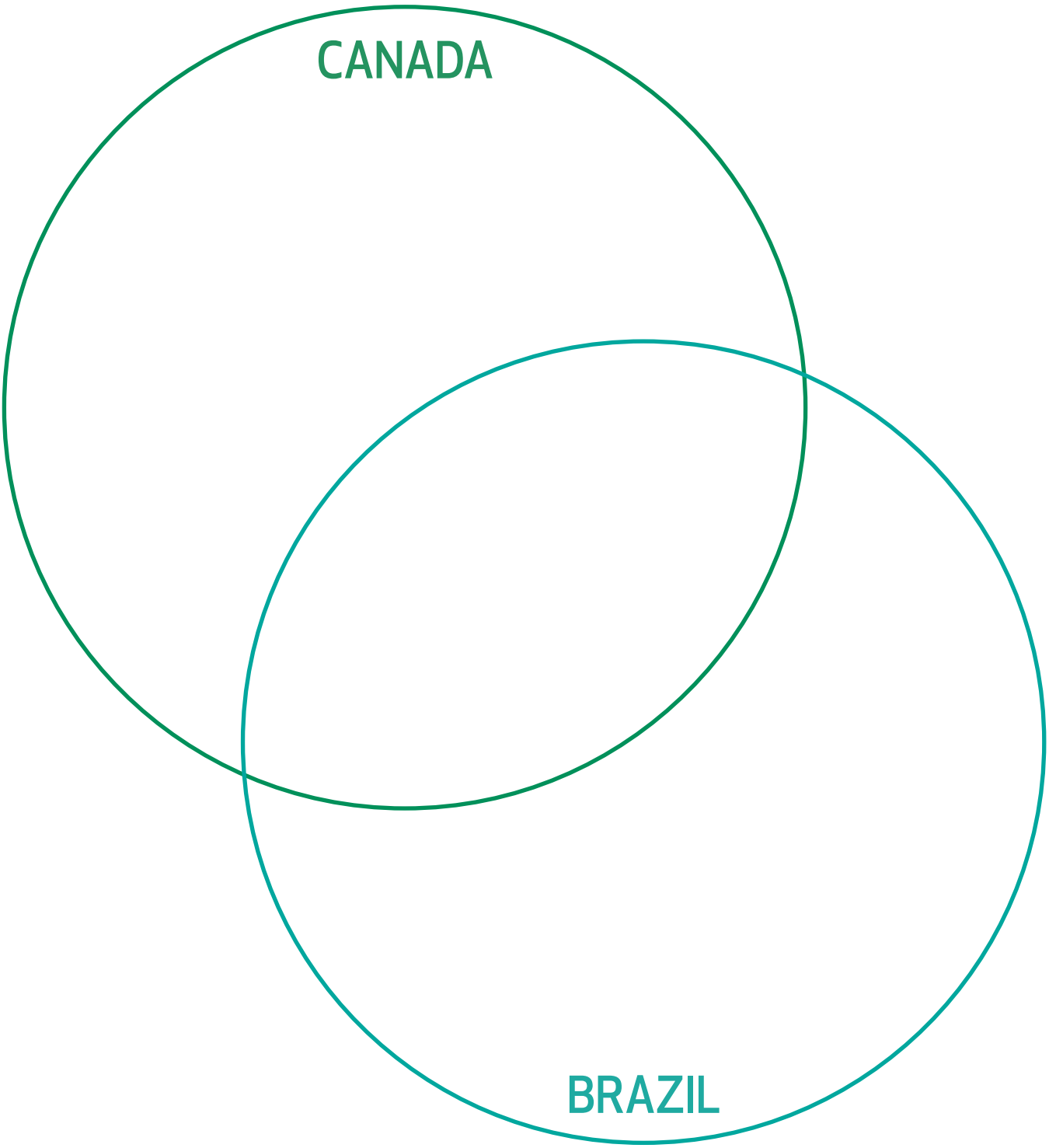
One thing we can all do is to make sure that we **recycle** any paper we use, to reduce the number of trees that are cut down.

APPENDIX 3

MAKE YOUR OWN PAPER

Venn Diagram

In the circles below, write what is unique to Canada and what is unique to Brazil, when it comes to forestry practices. In the overlapping area, write what is the same in both countries.



APPENDIX 4

MAKE YOUR OWN PAPER

How is Paper Made?

Name: Answer key

Answer the questions below.

1. What is paper made of? trees

2. How many trees can be saved by recycling **one ton** of paper? 17
   Fun fact: A cow weighs about one ton.

3. Write the following steps in the correct order to make paper.

The tree bark is removed.	1. Trees are brought to a factory.
Chemicals are added to the paste.	2. The tree bark is removed.
The tree is chopped into wood chips.	3. The tree is chopped into wood chips.
The wood chips are mixed with water and turned into a paste.	4. The wood chips are mixed with water and turned into a paste.
The flattened paste dries and becomes paper.	5. Chemicals are added to the paste.
Trees are brought to a factory.	6. The paste is flattened to squeeze the water out.
The paste is flattened to squeeze the water out.	7. The flattened paste dries and becomes paper.

4. Fill in the blank:
   Instead of using wood chips, paper can be recycled into new paper!

5. In your opinion, why is recycling paper better than creating paper from trees?

APPENDIX 4

MAKE YOUR OWN PAPER

How is Paper Made?

Name: _____

Answer the questions below.

1. What is paper made of? _____

2. How many trees can be saved by recycling **one ton** of paper? _____
   Fun fact: A cow weighs about one ton.

3. Write the following steps in the correct order to make paper.

The tree bark is removed.	1.
Chemicals are added to the paste.	2.
The tree is chopped into wood chips.	3.
The wood chips are mixed with water and turned into a paste.	4.
The flattened paste dries and becomes paper.	5.
Trees are brought to a factory.	6.
The paste is flattened to squeeze the water out.	7.

4. Fill in the blank:
   Instead of using wood chips, _____ can be _____ into new paper!

5. In your opinion, why is recycling paper better than creating paper from trees?

APPENDIX 5:
MAKE YOUR OWN PAPER

How to Make Your Own Recycled Paper

MATERIALS

- Newspaper or used paper
- Blender
- Metal coat hangers
- Nylon pantyhose
- Large mixing bowls
- Paper towels
- Warm water

STEP 1

Pair or group students, and give each group a coat hanger and one leg cut from a pair of pantyhose.

STEP 2

Have a student from each group bend the coat hanger into a diamond shape and place the coat hanger inside the pantyhose leg.

STEP 3

Give each group a pile of used paper and have them rip it into small pieces and put those pieces into a large mixing bowl.

STEP 4

One by one, have each group give you their bowl of paper. Place the pieces of paper in the blender and pour in warm water (about a half-cup at a time), running the blender after each pour. Stop adding water when it becomes a soupy pulp with no big pieces of paper left. Try not to add too much water; super-wet pulp will take a long time to dry into paper.

STEP 5

Have students place the hanger-and-hose screen they made over the mixing bowl. The teacher can carefully pour the contents of the blender evenly over the screen so that the liquid drains out below into the bowl and most of the pulp stays on top.

STEP 6

Once most of the liquid has drained into the bowl, the students can gently place a paper towel over the screen and press it down to even out the pulp (smooth out any lumps and close any holes) and absorb some of the water.

STEP 7

Pick the screen up and place it on a couple of layers of paper towel. Place two more paper towels on top of the screen and gently press out some of the excess moisture.

STEP 8

Let the screen sit between the paper towels for 24 hrs. Carefully remove the paper towel and peel the recycled paper off the screen.

CONGRATULATIONS! NOW YOU HAVE HOMEMADE RECYCLED PAPER!

GRADE 4 & 5 LEARNING EXPERIENCE

Sorting Skits

Summary

In this engaging lesson, students use theatre and role playing to teach classmates about recycling. Learners work in groups to create skits that demonstrate the importance of sorting waste.

Objective

Students will learn how proper sorting diverts waste from landfills. Students will teach proper waste sorting habits through improvisation.

Pre-Activity

GROUP DISCUSSION

DIRECTIONS

WHY SORT WASTE?

Break students into small groups and have them discuss the following questions:

1. How does sorting waste divert material from landfills?
2. How do landfills impact the environment?

Landfills are harmful to the environment because they produce landfill gas: rotting material releases methane and carbon dioxide into the atmosphere contributing to climate change. Landfill runoff, if not properly managed, can pollute nearby waterways and contaminate nearby soils and wildlife habitat

3. What are some reasons that people do not sort their waste?

MATERIALS

n/a

DURATION

10 mins

MAIN LEARNING OUTCOME

GRADE: 4 5

SUBJECTS:

Social Studies (Gr 4)

Learners will investigate the relationships between humans and the physical environment.

SKILLS

Investigate

Ask and revise questions; Locate several relevant details to support an answer; organize and compare details; identify relationships and communicate findings.

Question

Generate broad questions that arise from simple to more complex problems and issues; Narrow and begin to revise questions, to create a question to investigate.

CROSS-CURRICULAR LINKS

English Language Arts

(Gr 4 & 5) Listening and Speaking

Learners will communicate effectively and clearly respecting cultural contexts.

GROUP DISCUSSION (cont'd)

DIRECTIONS

WHAT IS A SKIT?

Have a class discussion about why it is important to teach others about recycling, and how skits can be a fun way to do that.

Explain a typical skit and discuss how skits can be a fun way to learn.

- *A skit is a short performance (usually five minutes or less) that usually involves humour. Two or more people act out a scene through role playing (i.e. pretending to be somebody else). Note that skits do not usually have scripts, but rather characters follow a plot line through improvisation.*

Watch the recycling skit video **"Recycling News"** to show students an example of a skit.

LINK TO VIDEO: www.youtube.com/watch?v=2cPiT6Zy5J4
(03:30 / Source: YouTUBE, Mellissa Stagner)

MATERIALS

Internet and projector

On-line Video:
Recycling News (3.5 min)

DURATION
15 mins

Activity

SORTING SKITS

DIRECTIONS

PLANNING

Divide your class into groups of four students. *(Note: Groups of five or six are possible if you add more characters to the scenes. Or the same scene can be acted out by multiple groups.)*

Hand out one **Sorting Skit Scene** to each group and have them read the storyline. Revise storyline and characters as needed.

Assign roles from the **Sorting Skit Scene** to group members (i.e. school principal, garbage man, news anchor, etc). Each group can find a space in the classroom or hallway to work on their skit.

MATERIALS

Appendix 2
Sorting Skit Scenes

DURATION
30 min

PERFORMANCE

Have groups take turns performing their skit for their class. Groups can bring props and/or costumes from home to use during their skit.

OPTION Have groups volunteer to have their skit videoed to share on your school's website.

OPTION Have groups volunteer to perform their skits at a school assembly.

MATERIALS
Props or costumes (optional)

DURATION
30 min

Post-Activity

STUDENT SURVEY

DIRECTIONS

Remind the class that the purpose of creating the skits was to educate their viewers about the importance of sorting waste.

Hand out the **"Sorting Skit" Survey Sheet** (Appendix 3) to each student. Instruct students to fill in what they learned from the skits (i.e. What messages were the skits trying to get across?)

OPTION Have students fill out the **"Sorting Skit" Survey Sheet** after each skit or after all the skits have been performed.

MATERIALS

Appendix 3 "Sorting Skit" Survey Sheet (Print one for each student)

DURATION

20 min

Assessment

FORMATIVE Observe students throughout the educational activities to evaluate learning.

SUMMATIVE (OPTIONAL) Observe students throughout the educational activities to evaluate learning.

ENVIRONMENTAL EVENTS

There are many great opportunities throughout the year to highlight the 3Rs in the classroom. Check out these annual events:

Waste Reduction Week	October (3rd week)
Earth Day	April 22
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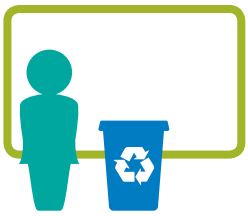

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APPENDIX 1

SORTING SKITS

Sorting Skit Scenes

Attached are five scenes to divide amongst the class. Recommended group size is four students, although larger groups can be used if needed.

More than one group can do the same scene, as each group will put their own spin on it.

SCENE 1

LANDFILL (GARBAGE DELIVERY)

Characters: **Student Names:**

1 garbage truck driver _____

2 landfill employees _____

_____

1 animal _____

Suggested Props:

recyclable items from the recycling bin

hats and button-up shirts for the landfill employees and truck driver

Plot:

- The landfill employees stand next to a pile of garbage, pointing out items that shouldn't be there (e.g. plastic water bottle, tin can, etc).
- The employees are making comments about how sad it is that people don't sort their waste properly.
- An animal then pops out and tries to eat a piece of waste, mistaking it for a food item. Employees shoo the animal away, while making comments about how animals can get sick when they mistake garbage for food.
- A garbage truck driver then pulls up in his/her truck. The truck driver explains that he/she has a delivery of garbage, but that a lot of it shouldn't have ended up in the landfill. The landfill employees agree, and point out other things that shouldn't be there. The truck driver then dumps his/her load of garbage (Note to actors: Get creative with this part!).
- The truck driver and employees then discuss ways that people can better sort their waste, and how important it is to remember to recycle and compost.

SCENE 2

CAFETERIA (STUDENTS THROW RECYCLABLES AND ORGANICS INTO GARBAGE)

Characters:

1 cafeteria worker

2 students

1 school principal

Student Names:

_____

_____

_____

_____

Suggested Props:

recyclable items from the recycling bin

apron or hat for cafeteria worker

button up shirt or blazer for principal

garbage and recycling bins for the cafeteria

Plot:

- The two students buy their lunch from the cafeteria worker, ordering items that come in recyclable packaging, such as milk, juice box, etc. The cafeteria worker reminds the students to recycle their containers when they're done.
- The students walk away, pretending to eat their lunch while talking about how they learned in class that garbage is becoming a global problem. They then say how it's too bad, but there's nothing they can do about it. The two students then throw their recyclable items into a garbage can.
- The school principal walks by and sees the students throw the recyclable items into the garbage. The principal looks angry, and asks them why they didn't recycle their waste?
- The students respond that landfill waste is a global problem and it is not like their tiny amount of lunchtime waste will make THAT much of a difference.
- The principal then gives the students a motivational "pep-talk" about how if everyone thought that way, then the problem of landfill waste would be even worse, and how every little action can make a difference.
- The students then feel happy and inspired and take their waste items out of the garbage and put them into the recycling bin. The students and the principal then give each other a big "high five"!

SCENE 3

OUTDOOR NEWS REPORT (A REPORTER INTERVIEWS PEOPLE)

Characters: **Student Names:**

1 news reporter _____

2 interviewees picking up litter _____

_____

1 person littering _____

Suggested Props:

recyclable items from the recycling bin

button up shirt, blazer or hat for news reporter

pretend microphone

two garbage bags

Plot:

- The reporter faces the audience and welcomes them to (outdoor location of your choice). He/she explains that there has been a big problem lately with litter in (your chosen location) and that it has been affecting tourism and has been polluting the water, etc.
- The reporter then sees two people picking up litter and sorting it into recycling and garbage. The reporter says how great it is to see people picking up litter and walks up to the two people.
- The two people picking up litter look surprised to see the reporter! The reporter asks them why they're picking up litter. One person says he/she lives close by and had litter blow into his/her garden! The other person says how he/she overheard a tourist saying that it was a dirty community. So they want to help the environment by cleaning the litter and they want to show pride in their community by making it look beautiful again!
- Another person then walks by and throws his/her coffee cup (or other litter) on the ground in front of the reporter and the two people picking up litter.
- One of the interviewees then confronts the person who threw their litter on the ground, saying how they are there picking up garbage because there is too much litter in their community.
- The person who littered then apologizes, picks up the litter and places it in one of the garbage bags.
- The reporter then turns back to the camera and explains that it's been an interesting day in (location of choice) and that if even one person has learned something new about not littering, it was all worthwhile. The reporter then signs off.

SCENE 4

AT HOME (A FAMILY TALKS ABOUT RECYCLING)

Characters: **Student Names:**

1 parent _____

2 children _____

_____

1 grandparent _____

Suggested Props:

recyclable items —
juice box or bottle
old t-shirt
garbage can

1 cane or
walking stick
for the grandparent

Plot:

- Two children arrive home after school; one is drinking from a juice box/bottle. The children are discussing how at school they learned that waste is a global problem, and that properly sorting waste at home can help reduce waste that goes to a landfill.
- One of the children finishes drinking his/her juice and notes that there is no recycling can in the home, so throws the recyclable item in the garbage.
- A parent enters holding an old T-shirt. Before the parent can speak, the children ask him/her why there is no recycling bin in the home? The parent says there wasn't a recycling bin at home when he/she was a child, so it never occurred to them.
- The children explain that at school they learned that landfill waste is a global problem, and that recycling can divert waste from landfills so that it doesn't contaminate the soil and water.
- The parent says he/she didn't know that, and thanks the children for telling them about properly sorting waste! The parent says he/she will get a recycling bin as soon as possible!
- The parent then holds up the T-shirt and asks if the children still want it. The children say that it doesn't fit anymore, so the parent says it will get thrown away.
- A grandparent walks into the room and says how when he/she was a child, old clothes weren't thrown away! Instead, old clothes were sewn into quilts, blankets or dish cloths! The grandparent then explains that not only does this decrease household waste, but it also saves the family money!
- The children then agree, and say how they'll start turning all their old clothes into dishcloths or other useful items. Then, they all "high five" each other!

SCENE 5

THE BEACH (FRIENDS SAVE A TURTLE FROM EATING A PLASTIC BAG)

Characters:

1 parent

2 friends

1 turtle

Student Names:

_____

_____

_____

_____

Suggested Props:

4 plastic bags

T-shirts/shorts

hats to wear at the beach, beach towel

"turtle costume" (e.g. a green sheet/ blanket for the turtle's back)

Plot:

- Two friends are walking along the beach, noting how much garbage there is along the coastline. They see three of the plastic bags scattered along the beach.
- A turtle appears crawling along the beach, moving towards a fourth plastic bag with its mouth open!
- One of the friends points to the turtle and reminds the other friend how they learned in science class that turtles eat jellyfish. The other friend then notes that plastic bags look a lot like jellyfish!
- The two friends then look at each other and exclaim that the turtle must think that the plastic bag is a jellyfish, and that is why the turtle is walking towards the plastic bag with its mouth open!
- The students then try to shoo the turtle away from the bag.
- A parent walks over and asks "What is happening?"
- The friends explain that they're saving a turtle from eating a plastic bag! The parent says he/she didn't realize that turtles sometimes mistake plastic bags for jellyfish, and praises the children for their knowledge and for helping to save wildlife.
- The students then pick up the plastic bags so other animals won't mistake them for food and eat them.
- The parent then asks the children: "Did you know that a plastic bag can last up to 500 YEARS?" So instead of letting it sit around the ocean for 500 years, they will recycle the bag so it can be turned into something new!
- The children, parent (and even the turtle) "high five" each other.

APPENDIX 2

SORTING SKITS

"Sorting Skit" Survey Sheet

Name _____

1. What issue did the skit/skits address? What was **one** of the take-away messages?

2. What did you like about the skit?

3. Do you think skits are a good way to get a message across? **Why or why not?**

GRADE 4-6 LEARNING EXPERIENCE

Recycling Rock Stars

Summary

In this interactive lesson, students will get creative by rewriting the lyrics to a popular song to promote recycling. Students will learn how recycling is connected to sustainable development.

Objective

To teach students about the link between sustainable development and their health and what role waste reduction and recycling plays in that relationship.

Pre-Activity

SUSTAINABLE DEVELOPMENT & HEALTH

DIRECTIONS

GROUP DISCUSSION

Break the students into pairs or groups and have them brainstorm a definition for sustainable development. Ask a few groups to share what they think it means.

> ***Sustainable development*** *is when resources like wood, oil, and water are used today in a way that guarantees enough will be left for use by the next generation.*

MATERIALS

Definition for "sustainable development"

DURATION

10 mins

STATIONS

Divide students into four groups and post the following discussion points in four separate areas of the classroom (stations). Each group has five minutes at each station to complete the posted task.

MATERIALS

Appendix 1
Station Questions

DURATION

20 mins

STATION 1 Students find connections between sustainable development and their life. (verbally and/or in writing)

STATION 2 Students create a definition of sustainable development in their own words. (verbally and/or in writing)

STATION 3 Students create a picture or a symbol that represents sustainable development.

STATION 4 Students think of words that are related to sustainable development.

MAIN LEARNING OUTCOME

GRADE: 4 5 6

SUBJECT:

Health (Gr 4-6)

Outcome 3.4
Students will explore the relationship between sustainable development and health.

CROSS-CURRICULAR LINKS

English Language Arts

(Gr 4) Writing and Representing
Learners understand and select appropriate communication forms to suit the intended message

Music (Gr 4-6)

Outcome 1
Students will perform, listen to, create, and reflect on rhythm, meter, and tempo using voice, movement, and instruments to express feelings, ideas, and understandings.

Social Studies (Gr 6)

Writing and Representing
Learners will create text, independently and collaboratively, using a variety of types of writing for a range of audiences and purposes

Learners will implement age appropriate actions that demonstrate responsibility as global citizens.

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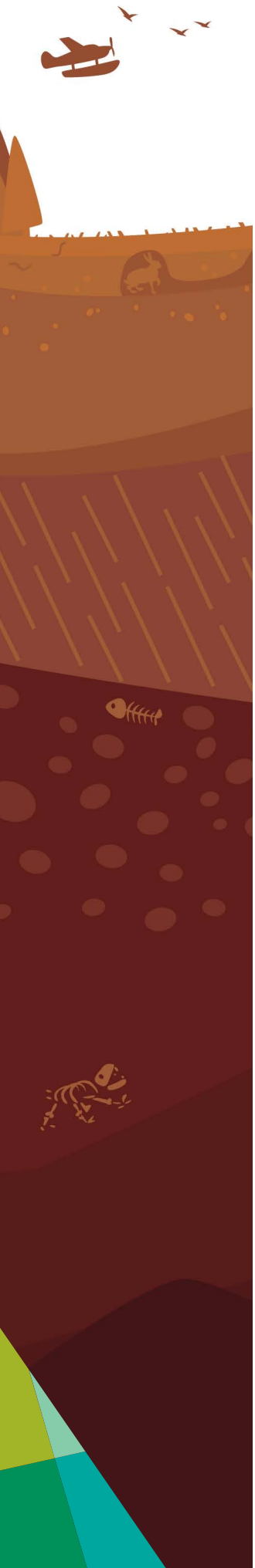


DIRECTIONS

CLASS DISCUSSION

MATERIALS

Internet and projector

DURATION

10-15 mins

After each group has a turn at each station, come back together as a class and have a member from each group share something that was discussed.

Explain that plastic and paper are two materials that humans rely on heavily. Ask the class to share some examples of why we "need" these materials. For example plastic is used in medical equipment, cars, and packaging, while paper is used for learning to write, reading (books), etc.

Explain that most plastic is made from oil and that paper is made from trees. If we continue to use these materials in a way that isn't responsible, there will there not be enough for future generations, and it will have negative effect on our health as well.

Explain that plastics and paper are easily recyclable in Nova Scotia. Rather than extracting oil, used containers can be recycled into new plastic products! Instead of cutting down trees, old paper can be recycled into new paper products. Recycling lowers the negative impact that resource extraction (e.g. mining new metals, cutting down trees) has on human health.

OPTION Print and cut out the "**Cause and Effect" activity sheet (Appendix 2)**. Put students into pairs or groups and give each group a copy of the pre-cut "causes" and "effects." Have them match up each cause with its effect.

Activity

REWRITE AND PERFORM SONGS

DIRECTIONS

SONG WRITING

MATERIALS

Internet and projector or other device(s) to show videos

DURATION

20 mins

To encourage people to recycle, students will choose a popular song and rewrite the lyrics to promote recycling, reducing, reusing and/or repairing.

OPTION Instead of a pop song, students can rewrite lyrics to a nursery rhyme such as "Twinkle, Twinkle Little Star", "Old MacDonald", "The Itsy Bitsy Spider" or "I'm a Little Teapot."

Share some of the following examples with the class to get ideas flowing:

- Toss It, Baby — Single-Stream Recycling Official Music Video:
  www.youtube.com/watch?v=exhgrxpeQws
- Reduce, Reuse, Recycle — Music Video Class of 2011/2012:
  www.youtube.com/watch?v=WbPqJO-FtU8
- Recycle Rap
  www.youtube.com/watch?v=xLgmFc0hdbs&list=RDexhgrxpeQws&index=2
- Recycle It (Shake It Off Parody)
  www.youtube.com/watch?v=K4HGa7WvqoQ

REWRITE AND PERFORM SONGS (cont'd)

DIRECTIONS

SONG SELECTION AND REWRITE

In pairs or groups, have the students choose the song they would like to rewrite and print out the original lyrics. (Note: Students using pop songs must rewrite **at least** the first verse and the chorus.)
OPTION: Do the activity as a class, assigning a verse to each group.

Once students have rewritten the lyrics, have them find a "karaoke" version of their song and submit the URL to the teacher.

MATERIALS
Computer and printer

DURATION
65 minutes

PERFORMANCE

Students can perform their song for the class, or they can record themselves singing and show the video to the class.

NOTE Students can download a mp3 file of the "karaoke" (music only) version of their song by visiting www.vidtomp3.com/ or mp3-youtube.download/en

MATERIALS
(option) Digital camera or tablet

DURATION
10 min

Post-Activity

SNOWBALL ACTIVITY

DIRECTIONS

Have the students write down what they learned from this activity on a piece of scrap paper and bunch it up like a snowball.

Have students form a circle and throw their scrap paper "snowballs" into the middle. Then go around the circle, one by one, having each student pick up one of the snowballs and read it aloud.

Remember to recycle your paper!

OPTION Students can sit in a circle and share what they learned one by one

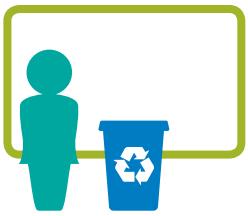
MATERIALS
Scrap paper

DURATION
20 min

Assessment

FORMATIVE Evaluate student learning by observing students throughout the various parts of the lesson.

SUMMATIVE (OPTIONAL) Evaluate the song written by the students.



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APPENDIX 1

RECYCLING ROCK STARS

Station Questions

Station 1: Talk!

- What are some **connections** between sustainable development and your life?
- What **products** do you use that are made from **oil**? (HINT: plastic is made from oil)
- What **products** do you use that are made from **trees**?

Station 2: Create!

As a group, make your own definition for **sustainable development**.

Station 3: Draw!

Each group member must draw a **picture or a symbol** that represents sustainable development.

Station 4: List!

As a group, **make a list of words** that pop into your head when thinking of sustainable development.

APPENDIX 1

RECYCLING ROCK STARS

Station Questions

Station 1: Talk!

- What are some **connections** between sustainable development and your life?
- What **products** do you use that are made from **oil**? (HINT: plastic is made from oil)
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Station 2: Create!

As a group, make your own definition for **sustainable development**.

Station 3: Draw!

Each group member must draw a **picture or a symbol** that represents sustainable development.

Station 4: List!

As a group, **make a list of words** that pop into your head when thinking of sustainable development.

APPENDIX 2

RECYCLING ROCK STARS

Cause and Effect

Print one sheet for each group. Cut along the lines, and have the groups match each **ACTION** with the **EFFECT** it can have on our health.

ACTION / CAUSE	EFFECT ON OUR HEALTH
When we extract oil from the ground and burn it for fuel, that contributes to global **climate change**.	Climate change increases extreme weather (like hurricanes and floods). During natural disasters like these, the chance of catching a disease from dirty water is increased.
When we allow plastic litter into the ocean, **it kills fish**.	Fish are an important food source for much of the planet. Without fish, many people would not get enough nutritious food to eat.
When we clearcut forests, **it also kills other plant and animal life** that live in the forest.	Many of the medicines we use today were discovered by studying plants. If we destroy the forest, and that kills plants and animal life too, then we may not be able to find new medicines.
We cut down forests to raise animals and grow crops, and to build houses and new neighbourhoods.	Trees provide us with the oxygen (air) we need to breathe. They reduce carbon dioxide in the air.
When we bury plastic in landfills instead of recycling it, sometimes the chemicals **in the plastic seep into our groundwater**.	We need water to live. If our groundwater has chemicals from plastic in it, we could get sick.
We cut down trees to burn as fuel (to heat our homes, for example) and that **pollutes the air**.	If the air we breathe is polluted, it makes it harder for people to breathe, especially if they have health problems like asthma.

GRADE 4-6 LEARNING EXPERIENCE

Slammin' Slogans

Summary

This hands-on lesson teaches students about textile recycling in Nova Scotia. Learners create a slogan to encourage textile recycling, which is then placed on T-shirts and displayed within the school.

Objective

To teach students about the impact of textile waste on landfills. Students will also learn that reusing and recycling are great ways to reduce the amount of textiles being sent to landfills.

Pre-Activity

CBC NEWS ARTICLE

DIRECTIONS

GROUP DISCUSSION

Break students into small groups and brainstorm answers to the following questions:

- What do you do with your old clothes?
- Can old clothes be recycled in Nova Scotia?
- What can old clothes be turned into?

Have students from each group share their answers with the class.

MATERIALS

n/a

DURATION

10 mins

NEWS ARTICLE

Have the students read the CBC News article on textile recycling **(Appendix 1)**. Choose a reading method that works for your class (e.g. as a class, individually, in pairs, or small groups).

OPTION Project the article onto a screen to save paper.

MATERIALS

Appendix 1
Why charities want your old, stained and ripped clothes
(CBC News article)

DURATION

10 mins

MAIN LEARNING OUTCOME

GRADE: 4 5 6

SUBJECT:

English Language Arts

(Gr 4) Learners will use writing and other representations to explore, clarify and reflect upon thoughts and experiences.

(Gr 6) Learners create text, independently and collaboratively, using a variety of types of writing for a range of audiences and purposes.

CROSS-CURRICULAR LINKS

Art (Gr 5)

Outcome 1 – Students explore the creative process, individually and collaboratively, using a range of materials and technology, to create with respect and sensitivity a range of artworks that express ideas, feelings and understandings.

Social Studies (Gr 6)

Learners implement age appropriate actions that demonstrate responsibility as global citizens.

Select – Locate several relevant and dependable details to support an answer

Plan – Identify steps to solve the problem. Execute the steps, modifying as necessary.

Evaluate – Review steps and results from an investigation or problem solving. Reflect on varying perspectives and alternative solutions or findings. Identify potential new problems and/or issues.

Apply – Carry out or complete a procedure/ technique

CBC NEWS ARTICLE (cont'd)

DIRECTIONS

After reading the article, review the following vocabulary:

Landfill	a system of garbage disposal in which the waste is buried between layers of earth
Textile *	Any "cloth material" or object made out of cloth. (e.g. clothing, sneakers, curtains, pillows or fabric scraps)
Taxpayer	someone who pays taxes
Municipality	a city, town, county or area that has its own government
Underlay	padded material placed under carpet

* the definition of textile is "woven material," but for this lesson the term is used more generally.

MATERIALS

n/a

DURATION

15 mins

Have students complete the **reading comprehension questions (Appendix 2)** for the CBC News article. Correct the questions and discuss as a class.

OPTION Make the comprehension questions part a "Jeopardy game"—have students split up into two teams, with the teacher calling out the questions and each team having a chance to answer; with opportunity to steal before the teacher gives the correct answer. This could save paper and encourage group work.

MATERIALS

Appendix 2
Reading Comprehension Questions

DURATION

10-15 mins

Activity
CREATE A T-SHIRT SLOGAN

DIRECTIONS

WRITING

Tell students they will be writing slogans to put on T-shirts to encourage their peers to recycle or reuse textiles. Pass out and review the **Slogan Creation Handout (Appendix 3).**

Go over the elements that make a good slogan:

- Highlight one key message.
- Keep it short.
- Give it rhythm, rhyme, and ring.

Here are some slogans that can be shared with students:

- Don't litter, it makes the world bitter!
- Never refuse to reuse!

MATERIALS

Appendix 3
Slogan Creation handout

DURATION

20–30 min

Have students create a paper copy of their T-shirt using the **template** provided **(Appendix 4).**

OPTION Have students bring in an old T-shirt and add their slogan/design to their T-shirt using paint or iron-on decals.
MATERIALS: Old T-shirt, paint or iron-on transfer sheets

OPTION Buddy-up with a younger grade class, and have the students teach their younger counterparts about why it is a good idea to donate old clothing or re-purpose it. (Great to implement if school already has an existing peer mentorship program.)

MATERIALS

Appendix 4
T-shirt template

DURATION

20–30 min

Post-Activity

T-SHIRT DISPLAY

DIRECTIONS

Students present their designs to the class.

OPTIONS Have students vote on their favourite slogan.

Create a "clothesline" in the school for the whole student body to see the students' designs.

If the teacher chooses the option of using old t-shirts, do a fashion show in an assembly to showcase the newly designed t-shirts and raise awareness. (The fashion show can have different student volunteers "MC" the event, by announcing all the different models and their creations.)

MATERIALS

T-shirt designs

Twine & clothes pins

DURATION

10–15 min

Assessment

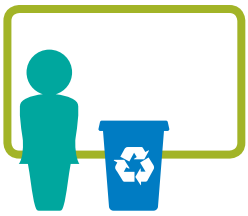
FORMATIVE Observe students throughout the educational activities to evaluate learning.

SUMMATIVE (OPTIONAL) Observe students throughout the educational activities to evaluate learning.

ENVIRONMENTAL EVENTS

There are many great opportunities throughout the year to highlight the 3Rs in the classroom. Check out these annual events:

Waste Reduction Week	October (3rd week)
Earth Day	April 22
Compost Awareness Week	May (1st full week)
Environment Week	June (1st full week)



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APPENDIX 1

SLAMMIN' SLOGANS

Why charities want your old, stained and ripped clothes

by Nina Corfu, CBC News (Posted: Jan 19, 2017 7:00 AM AT)

Just because your old socks, stained shirts and frayed towels are no longer fit for the closet, it doesn't mean they belong in the trash.

The latest audit of Halifax's Otter Lake **landfill** shows that **textiles** make up eight per cent of the materials in the dump.

"There's definitely room for improvement," Matt Keliher, the city's manager of solid waste, told CBC's Information Morning.

Keliher said residents should be putting old clothing, linens and shoes into charity donation boxes, even if they're unlikely to be worn or used again.

Not only is recycling textiles the environmentally friendly thing to do, Keliher said, it would also save **taxpayers** money.

It's almost three times more expensive to put something in the landfill than it is to recycle it, he said.

Keliher said he's keeping an eye on Colchester County—which started picking up textiles at the curb for recycling in May 2016—to see how well that program is working.

Halifax's recycling plant is at capacity, he said, but plans are in the works for an expansion to allow for more recycling possibly textile recycling—within the next two years.

In the meantime, Keliher said members of the Association for Textile Recycling in Nova Scotia (AFTER) handles the recycling of items placed in donation bins around the **municipality**.

Reg Chitty, manager of the Value Village thrift store in Bayers Lake business-park in Halifax, said his company pays charities for all textiles they bring to the store for processing, even if the clothes are damaged and could never be worn.

Even if the old clothes you donate can't be resold, they will likely be recycled.

Only 25 per cent of the donated materials ever make it to the sales floor, he said. The rest is sent away to be resold or recycled.

"Your sock with a hole in it," said Chitty, "might become insulation for a car door, or it might become a piece of matting, or it might become **underlay**."

Items of clothing that are only slightly damaged, or not appropriate for resale at Value Village, are baled and sent overseas to be sold in countries as far away as Ghana, India or Bolivia.

Those items would likely be "sold in an open-air market over there by people who want to be entrepreneurs," Chitty said.

"It gives them an opportunity to raise money for their family because there's somebody, somewhere who may want to buy that."

APPENDIX 2
SLAMMIN' SLOGANS

Name Answer key

Reading Comprehension Questions

for "Why charities want your old, stained and ripped clothes" (CBC News Nova Scotia)

1. What **percentage** of garbage is made up of **textiles** in the Otter Lake Landfill in Halifax?

   8%

2. **True or False:** Textile donation bins are **only** meant for used clothing in good condition.

   If false, explain **why**. False

   Why? Examples:
   Charities can sell all the donations, even the ones in poor condition.
   Ripped or old clothes can be made into other things.

3. **True** or **False**:
   Recycling is more expensive than just throwing something in the trash.

   False

4. What is the **acronym** for the **Association for Textile Recycling in Nova Scotia**?

   AFTER

5. If donated textiles can't be resold as is, they can be recycled into new materials. Give **two examples** of what they could be recycled into:

   underlay, insulation, or matting

6. What happens to used clothes sent to countries like Ghana, India or Bolivia?

Circle the answer found in the article.

a) They are given to people in need
b) They are sold at markets
c) They are sold in stores

APPENDIX 2

SLAMMIN' SLOGANS

Name _____

Reading Comprehension Questions

for "Why charities want your old, stained and ripped clothes" (CBC Nova Scotia)

1. What **percentage** of garbage is made up of **textiles** in the Otter Lake Landfill in Halifax?

2. **True or False:** Textile donation bins are **only** meant for used clothing in good condition.

   If false, explain **why**.

3. **True** or **False**: Recycling is more expensive than just throwing something in the trash.

4. What is the **acronym** for the **Association for Textile Recycling in Nova Scotia**?

5. If donated textiles cannot be resold as is, they can be recycled into new materials. Give two examples what they could be recycled into:

6. What happens to used clothes sent to countries like Ghana, India or Bolivia? *Circle the answer found in the article.*

   a) They are given to people in need.

   b) They are sold at markets.

   c) They are sold in stores.

APPENDIX 3

SLAMMIN' SLOGANS

Name _____

Slogan Creation Handout

Create a slogan to encourage others to recycle or reuse their old clothes.

Tips for a good slogan:

- Highlight one key message.
- Keep it short.
- Give it a rhythm, rhyme, and ring.

Samples of slogans:

- Never refuse to reuse
- Don't litter, it makes the world bitter!

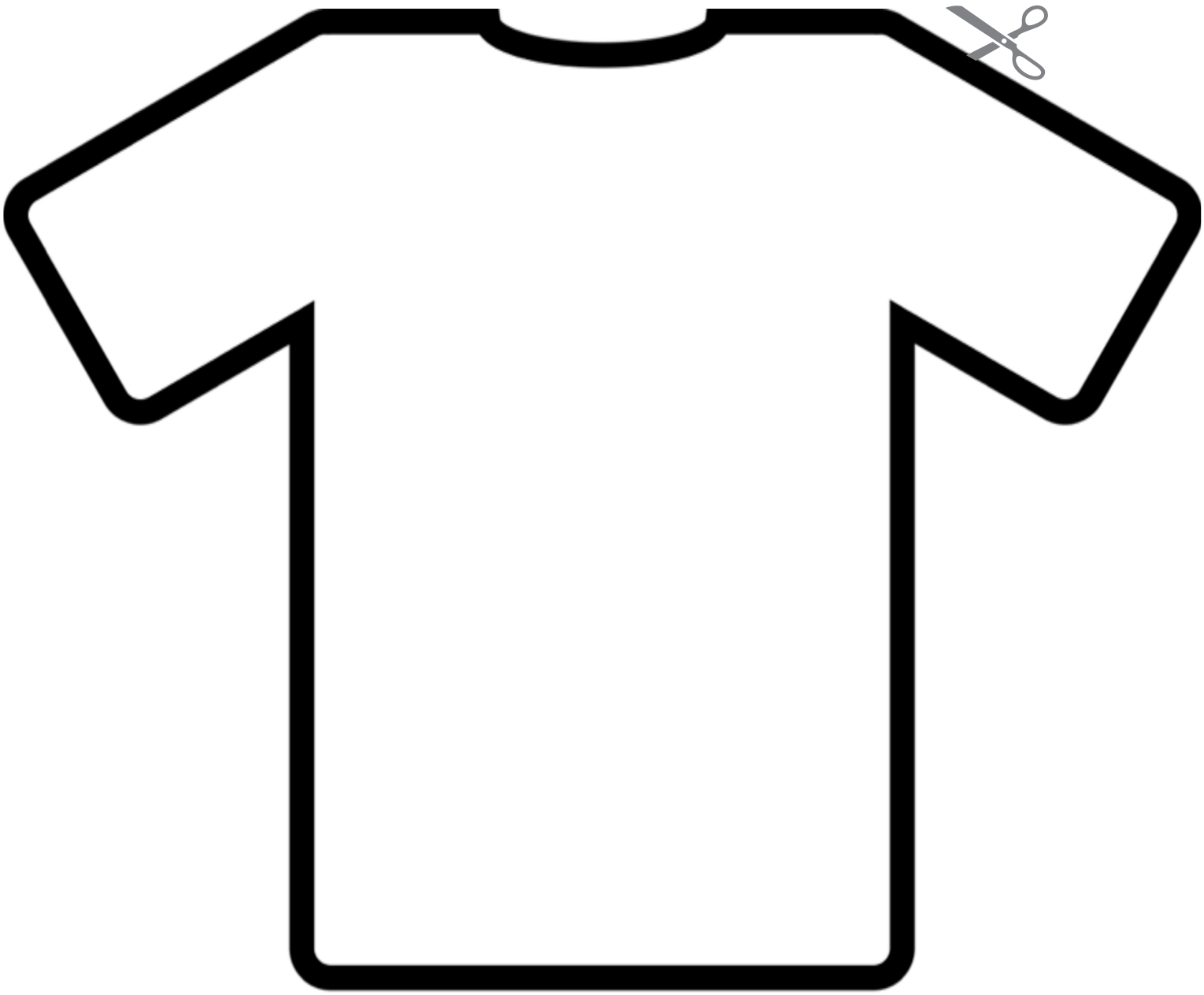
Write your slogan in the space below, and add a picture to go with it.

APPENDIX 4

SLAMMIN' SLOGANS

T-Shirt Cutout

Draw your finished slogan and design onto this T-shirt. Write your name on the back, and cut out your T-shirt to be part of a classroom or hallway display.



GRADE 5 LEARNING EXPERIENCE

Trash or Treasure: What can we learn from the past?

Summary

Learners will apply critical thinking to compare modern life to that of the past. Students learn about artifacts of Mi'kmaw ancestors uncovered in Nova Scotia. Students will participate in a hands-on activity to predict what future generations may be able to discover about our daily life based on the waste materials we leave behind.

Objective

Students will learn how our use of materials has changed over time, how this impacts the environment and what we can do to help divert waste.

Pre-Activity

CLASS DISCUSSION

DIRECTIONS

Start a class discussion by asking students to suggest ways we can study the past:

- Storytelling, art, songs
- References—books, internet, maps
- Museums
- Artifacts
- Archaeology
- Elders

Ask students to think of day-to-day items and artifacts often found underground by archaeologists.

- Pottery
- Glassware
- Stone tools (e.g. weapon points, knives, scrapers, etc.)

Ask students to guess why these types of artifacts are found, but not others. Are these items the only things that people 'threw out' years ago?

Explain that artifacts do not tell the whole story, because some items (like banana peels) decompose quickly and others break down more slowly, or not at all. So just because banana peels are NOT found in a dig, doesn't mean people did NOT eat them.

Use **Decomposition Times (Appendix 1)** to review and discuss how long it takes various materials to decompose.

MATERIALS

Whiteboard and markers

Appendix 1
Decomposition Times for Various Materials

DURATION
15 min

MAIN LEARNING OUTCOME

GRADE: 5

SUBJECT:

Social Studies

Learners will investigate how we learn about the past, with a focus on Acadians, African Nova Scotians, Gaels, Mi'kmaq, and additional cultures

SKILLS

Investigate
Ask and revise questions; Locate several relevant details to support an answer; organize and compare details; identify relationships and communicate findings.

CROSS-CURRICULAR LINKS

Science

Chemical & Physical Properties
Learners will test how physical and chemical changes affect the properties of matter.

DISCUSSION FOR SMALL GROUPS

Over hundreds of years, humans have made life more and more convenient. Break students into small groups to brainstorm modern everyday items and what they have replaced from past years. Ask them to think about examples of household products that are currently disposable that would have been reusable in the past.

Examples include:
- Woven baskets vs. plastic bags
- Furs for clothes vs. denim
- Pottery cups vs. disposable cups
- Glass bottles vs. plastic bottles

MI'KMAW PERSPECTIVE – OPTIONS

1) Students read about/see slideshow/access video about sources of artifacts and stone used for tools found in Mi'kma'ki. These sites provide evidence of where Mi'kmaw ancestors lived and travelled, over 11,000 years ago. (Source: MikmaweyDebert.ca)

   mikmaweydebert.ca/home/ancestors-live-here/debert/a-living-community

   mikmaweydebert.ca/home/ancestors-live-here/debert/understanding-and-protecting-the-sites/

2) Students watch a news video/ read about an archaeological dig in Shelburne County. (Fort Saint Louis National Historic Site, Port La Tour, NS)

   aptnnews.ca/2018/07/26/modern-archeological-dig-at-french-settlement-in-nova-scotia-is-from-a-mikmaq-perspective/ (APTN News Report: video and article)

   museum.novascotia.ca/blog/tag/katiecottreau-robins (NS Museum Blog of the dig)

Activity
ARCHEOLOGICAL TRASH OR TREASURE

DIRECTIONS

PREPARATION

Have students bring in a few small, household items from their house (with permission from their parents), or from around the classroom. These items will be the "artifacts" for the following activity.

OPTION Each student could search the schoolyard for three pieces of garbage. This would be a great activity for a Schoolyard Cleanup or Earth Day (April 22).

ACTIVITY

Explain to students they are archaeologists living **100 years in the future** who have just discovered these new "strange-looking" artifacts.

Have students imagine they have not seen these objects before. They must examine their objects to determine what each item might have been used for, and what it could tell us about the way the people who used them lived.

Students will use the **Trash or Treasure Activity Sheet (Appendix 2)** to record their notes.

MATERIALS

Small household items

Examples: egg cup, cookie cutter, measuring spoon/ cup, shoelaces, clothes pin, paper clips, old keys, hair ties/clips, Mason jar lids

MATERIALS
Appendix 2
Trash or Treasure Activity Sheet

DURATION
30 min

DIRECTIONS

DISCUSSION

In small groups, have students share their hypotheses about their items and stories with their classmates.

MATERIALS

DURATION
10 min

Post-Activity

THEN AND NOW

DIRECTIONS

Imagine in a hundred years where future generations will find our garbage. In landfills? In the oceans? Everywhere? Discuss waste practices of the past compared to today.

Explain that in the past people would often bury garbage in their own backyard. What happened when the human population grew and grew? Landfills were required.

Show the class a video on landfills. What are the issues with landfills? (e.g. methane gas/climate change; too much waste; expensive to build)

LINK TO VIDEO www.youtube.com/watch?v=x4x8HsAhp8U
(08:30 Source: YouTube, SciShow)

MATERIALS

Internet
and projector

SciShow YouTube video
(8.5 min)

CONCLUSION: TAKING ACTION!

Ask students what can be done to reduce our need for landfills and to help the environment. Examples:

- Reduce, reuse and recycle
- Minimize waste
- Avoid disposable items
- Compost food and yard waste

Can these things be done in the classroom? At home? At school? In the community?

OPTION Time-travel waste suggestion box: Students can write letters to future students in their school, explaining the ideas they had to reduce waste during their time. Letters can be kept in a time capsule, to open 10–20 years later.

MI'KMAW PERSPECTIVE — EXTENDED LEARNING OPPORTUNITY

OPTIONS Visit a local archaeological dig if a site tour is available.

Invite an archaeologist who has been part of the dig to come to the school to share with students directly.

LINK Mi'kmawey Debert Education and Outreach (1-877-892-2424, Ext. 271)
www.mikmaweydebert.ca/home/

Assessment

FORMATIVE Observations can be conducted throughout the lesson, including during class discussions and the main activity.

SUMMATIVE (OPTIONAL) Collect and grade the Activity Sheet (Appendix 2)

APPENDIX 1:

TRASH OR TREASURE: WHAT CAN WE LEARN FROM THE PAST

Decomposition Times for Various Materials

	ITEM	HOW LONG DOES IT LAST ?
1.	Banana Peels	3 – 4 weeks
2.	Cardboard	2 months
3.	Aluminum Pop Can	200 – 500 years
4.	Disposable Diapers	500 years
5.	Plastic Bags	1000 years
6.	Styrofoam	1+ million years
7.	Cigarette Butt	1 – 12 years
8.	Tin Foil	Never/unknown
9.	Plastic Pop Bottles	Never/unknown
10.	Milk Cartons	1 – 5 years

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TRASH OR TREASURE: WHAT CAN WE LEARN FROM THE PAST

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9.	Plastic Pop Bottles	Never/unknown
10.	Milk Cartons	1 – 5 years

APPENDIX 2:

Name _____

TRASH OR TREASURE: WHAT CAN WE LEARN FROM THE PAST

Making Inferences from Waste

Waste Object	What I Know About It	What I Infer From It
EXAMPLE: Stretchy elastic circle covered with cloth material. Looks like a modern-day hair elastic.	*Hair elastics are used to tie hair back (either for fashion or comfort)*	*Owner of this item likely had long hair*

GRADE 6 LEARNING EXPERIENCE

Garbage Collectors

Summary

Students learn about the amount of waste generated and recycled in Canada. After a week of collecting their classroom waste, students sort it properly to determine what per cent of the waste is recyclable. ***Note:*** *This activity takes one week to complete.*

Objective

Students will measure the waste generated in their classroom in one week, and determine the percentage of classroom waste that is paper, organics, recyclables, refundables, and garbage.

Pre-Activity

WASTE STATS AND FACTS

DIRECTIONS

Break the class into small groups and ask them to predict what countries generate the most garbage. Have the groups share their predictions.

> *Canada generates an average of 777 kg of waste per person each year—the highest in the world!*

In small groups, have students go to www.atlas.d-waste.com/ to explore per capita waste generation and the percentage of waste recycled.

Using the **Waste Generation and Recycling Rates worksheet (Appendix 1)**, ask the students to record which countries recycle the most AND which generate the most waste.

Discuss which countries recycle the most and which countries generate the least waste. Are they the same countries? Which country recycles the most? *(Note: Like Canada, Germany has high waste generation, but higher recycling rates)*

Ask the students if they know what percentage of waste can be recycled.

> *In Canada, approximately 75% of waste CAN be recycled. Canada recycles 27% of its waste.*

MATERIALS

Internet and computer or tablets

Appendix 1
Waste Generation and Recycling Rates worksheet

DURATION
15 mins

MAIN LEARNING OUTCOME

GRADE: 6

SUBJECT:

Math

Outcome 6
Students will be expected to demonstrate an understanding of per cent (limited to whole numbers) concretely, pictorially, and symbolically.

Indicators
Identify and describe per cent from real-life contexts, and record them symbolically.

CROSS-CURRICULAR LINKS

Social Studies

Learners will implement age appropriate actions that demonstrate responsibility as global citizens.

SKILLS

Select
Locate several relevant and dependable details to support an answer

Plan
Identify steps to solve the problem. Execute the steps, modifying as necessary.

Evaluate
Review steps and results from an investigation or problem solving. Reflect on varying perspectives and alternative solutions or findings. Identify potential new problems and/or issues.

Apply
Carry out or complete a procedure/ technique

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WASTE STATS AND FACTS (cont'd)

DIRECTIONS

CLASS ACTIVITY

Students will collect data to determine the classroom's overall waste generation and the per cent of that waste that is paper, organics, recyclables, refundables, and garbage.

- Students to collect all waste generated in their classroom for one week.
- Collect organics in a plastic bin that is weighed and emptied daily. Fill out the **Classroom Organics Daily Recording Sheet**.
- Collect the other waste streams—paper, recyclables, refundables and garbage —in a separate area of the classroom.

MATERIALS

Plastic bin for organic waste

Scale

Appendix 2
Classroom Organics Daily Recording Sheet

DURATION
5 mins

Activity
CLASSROOM COLLECTION

DIRECTIONS

ONE WEEK LATER

Review the five waste categories in Nova Scotia—paper, organics, recyclables, refundables, and garbage. As the organics category was weighed the previous week, have the students predict what percentage of their total classroom waste for one week will fall into each of the remaining four waste categories.

Divide students into groups. Provide each group with a portion of the classroom's waste and ask them to sort the waste into the four remaining categories.

Once each group has correctly sorted the waste (teacher verifies each group's sorting), each group weighs each category and records it on the **Classroom Waste Data Worksheet.**

Once all of the groups have weighed the waste, students write their group totals on the board to determine a class total.

TEACHER SUPPORT: divertns.ca/recycling/sorting-guide

MATERIALS

Scale

Classroom waste from the previous week

Appendix 3
Classroom Waste Data Worksheet

DURATION
15 min

FRACTIONS & PERCENTAGES

Demonstrate an example of how to write a fraction of waste, using one of the categories (e.g. organics) on the **Classroom Waste Data Worksheet**.

Have the students work in pairs to determine the remaining fractions and percentages of the other waste categories.

Students complete the remainder of the **Classroom Waste Data Worksheet.**

DISCUSSION:

- How much waste was generated by the classroom in one week?
- How much waste would be generated in a year? *(Classroom total x 52).*
- How much waste do you think the school generates in one week? *(Classroom total x number of classrooms in school)*

DURATION
15 min

Post-Activity
INCREASING WASTE DIVERSION

DIRECTIONS

Pair the students up and have them discuss actions that could help increase recycling rates at school and in their community.

Students write their actions on Post-it notes and post them on the classroom wall.

OPTION Share "post-it" actions in school announcements by sticking them in the hallway.

Teacher can have students volunteer to deliver the post-its around the school and encourage other classes to participate.

MATERIALS

Post-it notes and pen/pencils

DURATION
10 min

Assessment

FORMATIVE Evaluate student learning over the course of the class discussion.

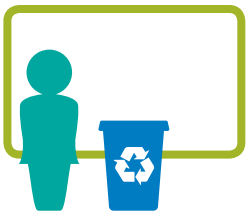
SUMMATIVE (OPTIONAL) Option to correct the Classroom Waste Data Worksheet

TRY A SIMILAR ACTIVITY **Solid Waste Surveys** (Grade 6)

ENVIRONMENTAL EVENTS

There are many great opportunities throughout the year to highlight the 3Rs in the classroom. Check out these annual events:

Waste Reduction Week	October (3rd week)
Earth Day	April 22
Compost Awareness Week	May (1st full week)
Environment Week	June (1st full week)



WASTE REDUCTION EDUCATORS

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- classroom presentations
- green team set up
- advice on bins and signage
- tours of local waste facilities
- school waste audits

To find out more, visit divertns.ca

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ABOUT DIVERT NS

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APPENDIX 1

GARBAGE COLLECTORS

Waste Generation and Recycling Rates

Go to www.atlas.d-waste.com to explore per capita waste generation and the percentage of waste recycled.

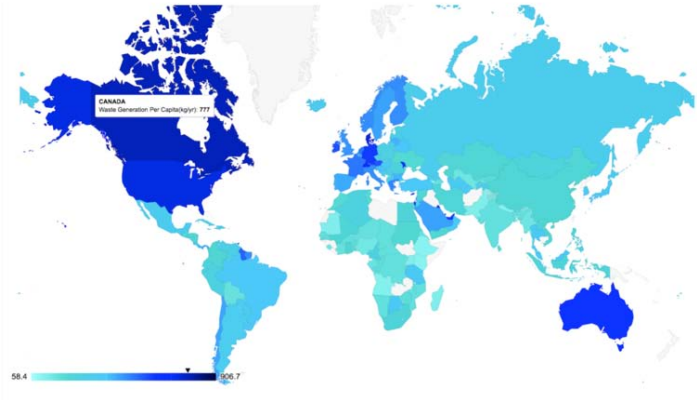
Country	Waste Generation (kg per person)	Recycling Rates (% of waste recycled)

You will see these maps on the site. Hover with your mouse over a country to see its rate for waste or recycling.

www.atlas.d-waste.com

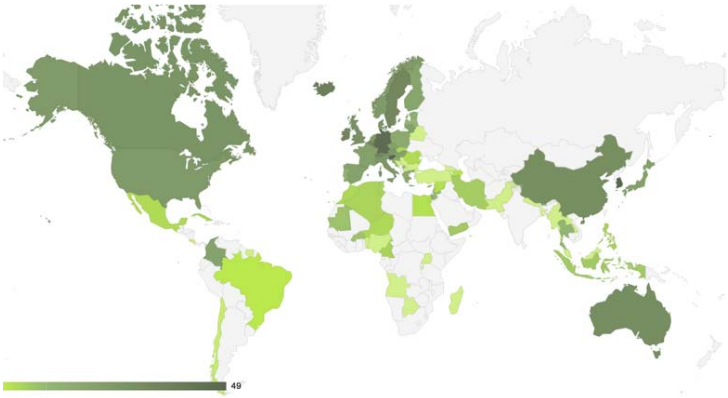
WASTE GENERATION

(kg per person)



RECYCLING RATES

(% of waste that is recycled)



APPENDIX 2

GARBAGE COLLECTORS

Classroom Organics Daily Recording Sheet

	Weight of Empty Plastic Bin (kg)	Weight of Empty Plastic Bin + Organics (kg)	Weight of Organics (kg)
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
		Total Organic Waste	

APPENDIX 3

GARBAGE COLLECTORS

Classroom Waste Data Worksheet

1. ORGANICS WASTE

Total **ORGANICS** collected in one week (kg) ▶ _____ **A**

2. OTHER CLASSROOM WASTE — GROUP TOTALS FOR EACH CATEGORY

	Recyclables (kg)	Refundables (kg)	Paper (kg)	Garbage (kg)
Group 1				
Group 2				
Group 3				
Group 4				
Group 5				
Group 6				
Totals (kgs)				**A**

3. TOTAL WASTE

Total weight of all five waste categories (kg) ▶ _____ **B**

4. CLASSROOM WASTE — CATEGORY PERCENTAGES

	Organics	Recyclables	Refundables	Paper	Garbage
A Category Total (kg) / **B** Total Waste (kg)					
Percentage % = A / B x 100					

5. What percentage of classroom waste is going to landfill (garbage)? _____

6. What percentage of classroom waste is organic? _____

7. Estimate how much waste the classroom generates in one year. _____
   (Hint: you will have to find out how many weeks there are in a school year.)

GRADE 6 LEARNING EXPERIENCE

Plastics in the Schoolyard

Summary

In this hands-on lesson, students learn about proper waste sorting and put their knowledge to work by doing a garbage clean up around the school. Students use their detective skills to determine that the majority of litter is made of plastic.

Objective

To encourage students to recycle plastics so they do not end up in a landfill or in the ocean.

Pre-Activity

SCHOOLYARD CLEANUP

DIRECTIONS

THINK-PAIR-SHARE

MATERIALS

Scrap paper

Internet and projector or viewing devices

Start by doing a "Think-Pair-Share" activity about sorting waste. On scrap paper, have each student write down what they know about proper waste sorting. (e.g. what goes in the recycling bin?) Then, ask them to find a partner and share what they wrote. Bring the whole class together and ask a few students to share what they wrote.

Show the class the sorting guide for your region/ municipality, and discuss it as a class. You can find your local sorting guide by visiting Divert NS. divertns.ca/recycling/sorting-guide

DURATION
10-15 mins

OUTDOOR CLEANUP

MATERIALS
Garbage bags
Protective gloves

Appendix 1
Classroom Waste Data Worksheet

Hold an outdoor Garbage Treasure Hunt! Students should think of the plastic garbage as treasure, as it can be used again (recycled) if disposed of the right way. Break the class into groups and give each a bag and protective gloves.

OPTIONS Sign your class up for a litter clean up in your area, like the **Great Nova Scotia Pick-Me-Up**. www.nspickmeup.ca/

This would make a great **Earth Day activity (April 22)**

DURATION
30–60 mins

Once the yard is clean, have students sort each item into the correct bin (garbage, recyclables, organics, refundables, paper). Tally their results using the Classroom Waste Data sheet. They will notice that the majority of the items they collect are made of plastic.

Note: *Plastics found outside that are too dirty will have to be disposed of as garbage—but you can tally them with your plastics, as they should have been recycled.*

MAIN LEARNING OUTCOME

GRADE: 6

SUBJECT:

Social Studies

Learners will implement age appropriate actions that demonstrate responsibility as global citizens.

SKILLS

Select
Locate several relevant and dependable details to support an answer

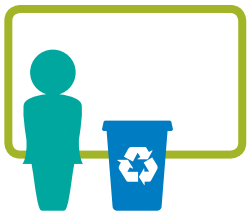
Plan
Identify steps to solve the problem. Execute the steps, modifying as necessary.

Evaluate
Review steps and results from an investigation or problem solving. Reflect on varying perspectives and alternative solutions or findings. Identify potential new problems and/or issues.

Apply
Carry out or complete a procedure/ technique

English Language Arts

Learners will use writing and other representations to explore, clarify and reflect upon thoughts and experiences.



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Activity
VIDEO AND DISCUSSION

DIRECTIONS

After identifying that most of the garbage collected around the school yard was made of plastic, ask the students what they think happens to plastic once it is discarded into a garbage or recycling bin.

DURATION
5–10 min

Show students the video "**What really happens to the plastic you throw away**," then give them the **Video Comprehension Sheet (Appx 2)**.

www.youtube.com/watch?v=_6xlNyWPpB8

(04:00 / Source: TED Ed YouTUBE video by Emma Bryce)

MATERIALS
Internet and projector

Appendix 2:
Comprehension Sheet

DURATION
30 min

OPTION **INQUIRY BASED LEARNING OPPORTUNITY**

Instead of the Comprehension Sheet, students work on a reflection piece (one-pager), detailing what they learned from the video and the different processes all three bottles would have gone through.

Encourage students to express their thoughts on all three processes, and the one that led to the least amount of waste.

Post-Activity
$2 SUMMARY

DIRECTIONS

Ask the student to write a "**$2 Summary**" about what they learned from the video. Each word they write is worth 10 cents and they must write enough words to equal $2. They must include the words **Plastic**, **Garbage** and **Recycle** in their summary.

MATERIALS
Paper and pencils

DURATION
5–10 min

OPTION If students do a reflection piece in Main Activity instead of the Comprehension Sheet, the $2 summary could be done in groups.

Assessment

FORMATIVE Observe students throughout the activity to check understanding and comprehension.

SUMMATIVE (OPTIONAL) Option to evaluate the video comprehension questions or the $2 summary

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APPENDIX 1

PLASTICS IN THE SCHOOLYARD

Classroom Waste Data Worksheet

Date: _____

Names of Group Members: _____

_____

_____

For every item you put in the **garbage**, **recyclables**, **refundables**, **paper** or **organics** bins, mark a tally line in the space below.

Don't forget to tally in groups of five. 

Organics	Recyclables	Refundables	Paper	Garbage

What material did you find the most?
(glass, paper, cardboard, styrofoam, plastic or other)

APPENDIX 2

PLASTICS IN THE SCHOOLYARD

Video Comprehension Sheet

After sorting all that litter, you probably noticed that most of it was made of plastic. Plastic can be easily recycled in Nova Scotia, but what happens to the plastic that ends up in landfills or waterways?

Watch **"What really happens to the plastic you throw away"** (by Emma Bryce) to find out, then answer the questions below.

1. New plastic is made from:
   A) Oil C) Milk
   B) Water D) Honey

2. Which process best describes the "**life**" of a plastic bottle?
   A) Liquid plastic is poured into a plastic bottle mold > The bottle is discarded > The liquid is consumed > Pellets are melted > The new bottles are filled with liquid
   B) Pellets are melted > Liquid plastic is poured into a plastic bottle mold > The new bottles are filled with liquid > The liquid is consumed > The bottle is discarded
   C) The bottle is discarded > Liquid plastic is poured into a plastic bottle mold > The new bottles are filled with liquid > The liquid is consumed > Pellets are melted

3. **Leachate**, is a harmful chemical that is made when rainwater mixes with chemicals found in plastics. When leachate leaks out of landfills, it can:
   A) move into groundwater
   B) move into soil
   C) move into streams
   D) All of the above

4. In the video, **Bottle #2 ends** up in the "Great Pacific Garbage Patch." Pause the video at the 02:23 mark and answer the following question:

   What is the name of the floating garbage patch closest to Nova Scotia?
   A) Indian Ocean Gyre
   B) The South Atlantic Gyre
   C) South Pacific Gyre
   D) The North Atlantic Gyre

5. According to the video, what happens when sea animals, like turtles, eat plastic?
   A) They don't eat plastic.
   B) Nothing happens. They simply eat it and then digest it.
   C) They feel full, so they don't eat, and end up starving to death.
   D) It makes them healthy and strong.

6. In the video, it explains that humans end up ingesting plastic. How does this happen?
   A) By drinking water with plastic in it.
   B) The plastic moves up the food chain. First it is eaten by a small lantern fish, which is eaten by a squid, which is eaten by a tuna and then we humans eat the tuna.
   C) By eating food off of plastic dishes.
   D) By swimming in the ocean.

7. In the video, what happens to **Bottle #3** ?
   A) It is thrown on the ground as litter.
   B) It is put in the ocean.
   C) It is reused to hold a new liquid.
   D) It is recycled and turned into something new, such as a jacket or an umbrella.

GRADE 6 LEARNING EXPERIENCE

A Recipe for Electricity: How Different Resources can Power your House

Summary

Through engaging hands-on activities, students will learn how electricity is made from renewable and non-renewable sources. Students will draw, act, create models, write poems, or write stories to explain how electricity can be generated from organic material.

Objective

Students will understand how electricity can be generated from various resources, including organic waste.

Pre-Activity

WHERE DOES ELECTRICITY COME FROM?

DIRECTIONS

MAGNETIC FORCE

MATERIALS
Magnets and paper clips

DURATION
5 min

Give students magnets and paper clips. Ask them to move paper clips around their desks without letting the magnets touch the paper clips. Ask students if they know how magnets are related to the generation of electricity.

Explain that just as magnets can move paper clips without touching them, spinning magnets can move particles (electrons) in wires—which generates electricity.

VIDEO

MATERIALS
Internet and projector or other viewing devices

Students watch the video **Energy 101** to learn about how electricity can be generated from natural resources.

LINK TO VIDEO www.youtube.com/watch?v=20Vb6hILQSg
(05:00 / Source: energynownews, YouTube)

Energy 101
video (5 min)

DURATION
5 min

MAIN LEARNING OUTCOME

GRADE: 6

SUBJECT:

Science

Learners will evaluate renewable and non-renewable sources of energy.

SKILLS

Evaluate
Review steps and results from an investigation or problem solving. Reflect on and communicate varying perspectives and alternative solutions or findings. Identify potential new problems and/or issues.

Investigate
Ask and revise questions; locate several relevant and dependable details to support an answer; organize and compare details; identify relationships, recognize represented perspectives, and communicate findings.

Compare
Make observations; identify similarities and differences; identify relationships and offer an interpretation; reflect on the findings.

Analyse
Gather and select appropriate information. Begin to reflect on accuracy, validity, and, importance, of the information. Communicate findings.

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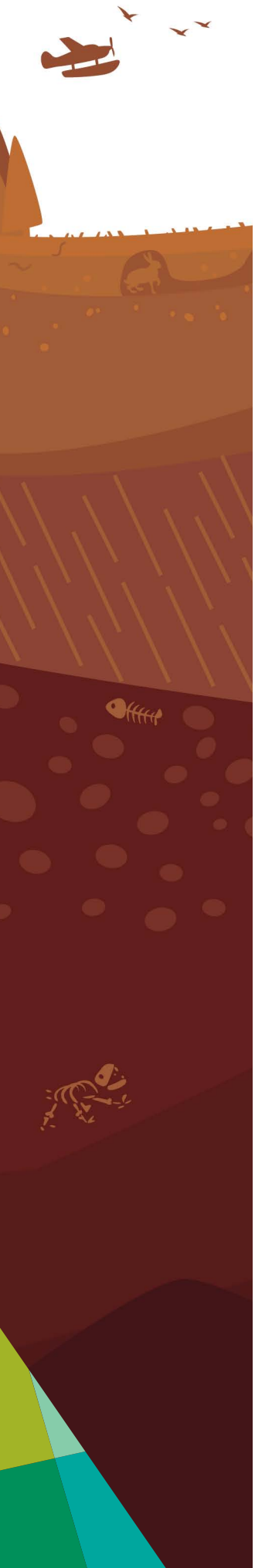

WHERE DOES ELECTRICITY COME FROM? (cont'd)

DIRECTIONS

GROUP DISCUSSIONS

DURATION
10 min

Discuss the section of the video that described how coal, natural gas, and biomass can be burned to heat water, create steam, spin a magnet, and create electricity.

Break the students into small groups and ask them to write down examples of fuel sources that can be combusted to make electricity. Where are they from? What impacts are there on the earth when we collect these natural resources?

Review biomass fuel sources, and note that wood pellets are made from wood scraps from the lumber industry.

Discuss what natural gas is and where it comes from.

Explain how food waste and animal waste can produce another gas—methane, which can be combusted to make electricity. Explain that when these organic materials decompose in places without oxygen (i.e. landfills) methane is created.

Activity

CREATIVE DEPICTIONS OF ELECTRICITY GENERATION

DIRECTIONS

MATERIALS

Appendix 1
Natural & Renewable Resource cards

Appendix 2
Electricity's Journey to My House sheet

Internet access

DURATION
30 min

COMPOSITION

Divide students into small groups and provide each group with a **Natural & Renewable Resource Card (Appendix 1)**.

Each group is asked to develop a creative story (or poem, model, etc.) explaining how their assigned natural or renewable resource is collected and turned into electricity, and how the electricity travels to their house. Use **Electricity's Journey to My House sheet (Appendix 2)** as a resource.

To help develop stories, students will research (using the internet) how the natural resources are collected.

STORY SHARING

DURATION
30 min

Ask each group to share their story with the class. If time is limited, ask groups to volunteer to share their stories with the class or have them share their stories with another group.

OPTION Watch how "Energy Efficiency" is Nova Scotia's cleanest, cheapest fuel:

youtu.be/FGnh0uzZmmU
(02:07 / Efficiency Nova Scotia)

Post-Activity

GROUP DISCUSSION

DIRECTIONS

As a class, discuss the following questions:

- Which of the fuels we discussed today (coal, natural gas, biomass, methane) are renewable resources? Which are non-renewable?
- Ask the students which resources have the greatest impact on the earth when they are collected to make electricity.
- Which resources have the smallest impact?
- Do you think it is better to use renewable resources to generate electricity or non-renewable resources?
- What waste materials often end up in the landfills that we could use to generate electricity? Food waste (methane), wood (biomass).

MATERIALS

n/a

DURATION

20 min

Assessment

FORMATIVE Evaluate student learning over the course of the class discussion.

SUMMATIVE (OPTIONAL) Option to evaluate the "Electricity's Journey to My House" story

ENVIRONMENTAL EVENTS

There are many great opportunities throughout the year to highlight the 3Rs in the classroom. Check out these annual events:

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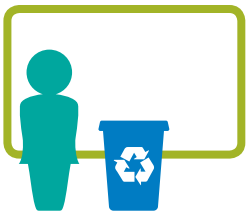
Earth Day	April 22
Compost Awareness Week	May (1st full week)
Environment Week	June (1st full week)



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APPENDIX 1:

A RECIPE FOR ELECTRICITY

Natural & Renewable Resource Cards

Methane Gas	Solar
Wood Pellets	Wind
Natural Gas	Geothermal
Coal	Tidal

APPENDIX 2:

A RECIPE FOR ELECTRICITY

Electricity's Journey to My House

The recipe cards below explain how various resources can be used to create electricity for your house.

1) Pick one of the "recipes" below, and do some more research so you understand how electricity can be created using that method. Find out:
   a) how your resource is collected;
   b) how it is turned into electricity; and
   c) how that electricity travels to your house.

2) Show or explain what you have learned in **ONE** of these ways:

   Act it out, draw a diagram with notes, write a poem, write a story… you decide!

Recipe for Electricity: Solar Energy

1. Solar Panels absorb the sun's energy and convert it to "DC" current.
2. An inverter converts DC current to "AC" current, the kind used by most home appliances.
4. Electricity flows through wires in your home, providing power to your lights and wall outlets.
5. Often, excess electricity produced by solar panels at home can be sold back to the local power company.

Recipe for Electricity: Wind & Tidal Power

1. Wind or water spins the propeller blades around a rotor.
2. The rotor is connected to the main shaft.
3. The main shaft is attached to the gearbox, which increases rotations across the high-speed shaft.
4. The high-speed shaft spins a generator.
5. The generator creates electricity.
6. The electricity travels through wires to your neighbourhood and to your house.

Recipe for Electricity: Combustible Material

1. A combustible (burnable) resource is collected.
2. The resource is brought to a power plant.
3. The resource is combusted (burned).
4. Heat from burning the resource warms water and creates steam.
5. The steam turns propeller blades inside a turbine.
6. The propeller-like blades spin a rotor, which makes a magnet spin.
7. The spinning magnet generates electricity.
8. The electricity travels through wires to your neighbourhood and to your house.

GRADE 6 LEARNING EXPERIENCE

Recycling Film Festival

Summary

Students will choose a recycling video from the internet and host a Recycling Film Festival.

Objective

To inspire positive behaviour change in regards to recycling and learn about the responsibilities of being a global citizen.

Pre-Activity

VIDEO AND DISCUSSION

DIRECTIONS

VIDEO AND QUESTION SHEET

Share the following video with the class:

Reading Rainbow: How Trash is Recycled with LeVar Burton

www.youtube.com/watch?v=FX55cKJvg-g

(06:24 / Source: Reading Rainbow/You Tube)

While watching the video, students can answer the questions that accompany the video. (**See Appendix 1: Reading Rainbow Quiz.** Answer key provided for teacher use.)

Once students have answered the questions, you may correct and discuss as a class.

MATERIALS

Internet and projector or viewing devices

Appendix 1
Reading Rainbow Quiz

DURATION
25 mins

DISCUSSION AND ACTIVITY BRIEFING

Ask the students if they learn from videos? Ask them to explain why/why not. Tell them they will be finding their own video about recycling to show the class to help the class learn about why it is important to recycle.

DURATION
5 mins

MAIN LEARNING OUTCOME

GRADE: 6

SUBJECT:

Social Studies

Learners will implement age appropriate actions that demonstrate responsibility as global citizens.

SKILLS

Implement

Select – Locate several relevant and dependable details to support an answer

Plan – Identify steps to solve the problem. Execute the steps, modifying as necessary.

Evaluate – Review steps and results from an investigation or problem solving. Reflect on varying perspectives and alternative solutions or findings. Identify potential new problems and/or issues.

Apply– Carry out or complete a procedure/ technique

CROSS-CURRICULAR LINKS

English Language Arts

Listening & Speaking
Learners will communicate effectively and clearly respecting cultural contexts.

IC Technology

Outcome 3: Communication
Students will use digital tools to communicate and work collaboratively, including at a distance, to support individual learning and to contribute to the learning of others.

ABOUT DIVERT NS

Divert NS is a not-for-profit organization championing recycling in Nova Scotia. For over 20 years we've helped build a culture of recycling through environmental stewardship, education, and innovation.
Divert NS operates the Beverage Container Deposit-Refund Program and the Used Tire Management Program. In addition, we work in collaboration with government, industry, and academia to divert waste-resources from landfill.
Divert NS, in partnership with municipalities, delivers education and awareness programs to schools, businesses, and community groups. Divert NS also works to develop stewardship agreements and funds innovative research and development initiatives.

We welcome feedback from students and teachers on these lesson plans and resources. Please send your feedback to:

Toll-free
1.877.313.7732

info@divertns.ca

divertNS.ca

Activity

RECYCLING FILM FESTIVAL

DIRECTIONS

VIDEO SEARCH

Break students into groups of two or three. Have them choose a video about recycling from YouTube.ca and fill out the **Video Worksheet (Appendix 2)**.

Provide criteria for their search:

- Video length – maximum five minutes
- Canadian content preferred
- Provide suggested search terms (e.g. "bottle recycling")

Tell students how you would like them to save the link (URL) for the video they have chosen, so it can be shown later.

MATERIALS

Appendix 2:
Video Recycling worksheet

Computers or tablets for internet search

DURATION
1 hour

VIDEO SHARING

- Have a "Recycling Film Festival" where students present their videos to the class, explain why they chose them, and have the chance to quiz fellow students on what they learned in each video.

OPTIONS

- Create tickets from scrap paper and invite other classes
- Provide popcorn
- Have awards, like Most Informative / Coolest Effects / Best Overall
- Show the winning group's video at an assembly to promote recycling school-wide!

MATERIALS
Internet & projector (or other device for sharing)

Completed worksheets (containing My Video Quiz questions for classmates)

DURATION
Time will vary.
Allot at least 1 hour.

Post-Activity

CREATE A "VLOG" OR WRITTEN REFLECTION

DIRECTIONS

If you have access to devices such as a digital camera, iPad, or Chromebooks, have students create a "vlog" (video log) reflection of what they learned. Students can also write a reflection on what they learned from the videos that were shown in the film festival.

OPTION Show students "How to Vlog / Tips for Kids"
www.youtube.com/watch?v=u5si3NF-q88 (06:17)

MATERIALS

Digital video recording device

DURATION
1 hour

Assessment

FORMATIVE Observe students while they answer the discussion questions from the Reading Rainbow: How Trash Is Recycled with LeVar Burton video. Observe the presentation of their video, and their reflection.

SUMMATIVE (OPTIONAL) Option to evaluate the discussion questions from the Reading Rainbow video, their presentation, or their reflection.

APPENDIX 1
RECYCLING FILM FESTIVAL

Name Answer key

Quiz

Reading Rainbow: How Trash is Recycled with LeVar Burton

1. How many tons of trash do humans generate each year? 5 billion tons
   (Did you know that a 1 ton is about 2000 pounds, which is the weight of a small car?)

2. Instead of putting waste in landfills, a better way to deal with our trash is to ...

   R**educe**, R**euse**, R**ecycle**

3. Which of the following materials is not recycled in the video? (Circle your answer)

   Glass paper **wood** plastic metal

4. What happens to plastic we put in our recycling bin?
   Number the following steps, from 1 to 6, to put them in the correct order.

1. The plastics are sorted by "type"		3. The tiny pieces go through a process to remove any labels that were on the plastic.
2. The plastic is ground into tiny pieces	4. The pieces of plastic are washed and rinsed in hot water.	
6. The melted plastic is turned into "pellets" and is sent off to be turned into something new.		5. The clean pieces of plastic are melted and mixed together.

5. Write **three** things you learned from watching this video. (Use full sentences):

   1)

   2)

   3)

APPENDIX 1

RECYCLING FILM FESTIVAL

Name _____

Quiz

Reading Rainbow: How Trash is Recycled with LeVar Burton

1. How many tons of trash do humans generate each year? _____billion tons
   (Did you know that a 1 ton is about 2000 pounds, which is the weight of a small car?)

2. Instead of putting waste in landfills, a better way to deal with our trash is to ...

   R_____, R_____, R_____

3. Which of the following materials is not recycled in the video? (Circle your answer)

   Glass paper wood plastic metal

4. What happens to plastic we put in our recycling bin?
   Number the following steps, from 1 to 6, to put them in the correct order.

1. The plastics are sorted by "type"		The tiny pieces go through a process to remove any labels that were on the plastic.
The plastic is ground into tiny pieces	The pieces of plastic are washed and rinsed in hot water.	
The melted plastic is turned into "pellets" and is sent off to be turned into something new.		The clean pieces of plastic are melted and mixed together.

5. Write **three** things you learned from watching this video. (Use full sentences):
   1)

   2)

   3)

APPENDIX 2

RECYCLING FILM FESTIVAL

Name _____

Video Worksheet

Go to **Youtube.ca** and search "recycling for kids" or simply "recycling."
Find a video that interests you, and that will teach the class something about recycling.
Make sure you pick a video that is **between 1 minute and 5 minutes long.**

1) Answer the following questions about your video:

   a. What is the name of your video?

   b. Why did you choose this video?

   c. What did you learn from watching this video?

   d. Write down four questions to quiz your class after they watch your video. (They can be multiple choice, true or false, or discussion questions.)

      1.

      2.

      3.

      4.

GRADE 6 LEARNING EXPERIENCE

The Reduce through Upcycling Challenge

Summary

Students are challenged to creatively repurpose or "upcycle" common household items and pitch their innovations to their class. Students share their pitch with the rest of the school to promote learning about reducing consumption and repurposing items as an alternative to purchasing new items.

Objective

Students reflect on common items that can be repurposed/upcycled. Students learn about the Mi'kmaw perspective of sharing with each other and treating all resources with respect (e.g. repurposing materials/ eliminating or minimizing waste). Students learn about practices to reduce waste and personal consumption, by thinking of new ways to use old items.

Pre-Activity

UPCYCLING COMMON HOUSEHOLD ITEMS

DIRECTIONS

The class is broken into groups to brainstorm about the concept of upcycling.

LAUNCHING PAD QUESTION FOR INQUIRY BASED LEARNING

> *What is an item at home (or at school) that is being reused in a new way—one that is different from its intended purpose?*

If students are having trouble thinking of items at home or in the classroom, encourage them to think about elders in their life, and what items they may repurpose.

Examples of repurposed/upcycled items:

- Butter containers used for leftover food
- Jars used as drinking glasses
- Old T-shirt used as a reusable tote bag
- Broken mug pieces into framed artwork
- Shoe box used to hold socks neatly
- Refer to **Appendix 1** for more examples and pictures

MATERIALS

Paper, Markers, Pencils

Appendix 1
Repurposed Common Household Items

DURATION
15 mins

(cont'd)

MAIN LEARNING OUTCOME

GRADE: 6

SUBJECTS:

Social Studies

Learners will implement age-appropriate actions that demonstrate responsibility as global citizens.

SKILLS

Implement

Select: Locate several relevant and dependable details to support an answer

Plan: Identify steps to solve the problem. Execute the steps, modifying as necessary.

Evaluate: Review steps and results from an investigation or problem solving. Reflect on varying perspectives and alternative solutions or findings. Identify potential new problems and/ or issues.

Apply: Carry out or complete a procedure/ technique

Analyse

Gather and select appropriate information. Begin to reflect on accuracy, validity, and importance, of the information. Communicate findings.

English Language Arts

Listening & Speaking

Learners will communicate effectively and clearly respecting cultural contexts.

Learners will use writing and other representations to explore, clarify and reflect upon thoughts and experiences.

UPCYCLING COMMON HOUSEHOLD ITEMS (CONT'D)

DIRECTIONS

MI'KMAW PERSPECTIVE

Once students have had time to discuss, ask questions, and brainstorm ideas around repurposing, call their attention to a Mi'kmaw concept called **"Netukulimk"** (*pronounced: ne·du·gu·limk*) — having respect for all resources and encouraging sustainability by not taking more than you need.

Have students read **Traditional Materials and Other Useful Plants (Appendix 2)**

OPTION Students may have more questions about the Mi'kmaw perspective. To dive deeper, watch this video on Netukulimk.

LINK youtu.be/0mYfx5PIo_4 (Elder Albert Marshall)
(02:39 / Source: Unama'ki Institute of Natural Resources)

Students can add to their brainstormed list after considering Mi'kmaw traditional practices.

MATERIALS

Appendix 2
Traditional Materials and Other Useful Plants

Internet access, Chromebooks or Projector/Screen (optional)

TEACHER SUPPORT — GUIDING QUESTIONS IF NEEDED

- Thinking about traditional practices of the Mi'kmaw community, are there ways we can be more creative about repurposing items in our home or schools?
- How does repurposing items align with Mi'kmaw practices and values?
- Considering the Mi'kmaw traditional practices and the repurposing ideas you've brainstormed, how does reuse and upcycling affect our global community?

These questions are meant to address over-consumption and the influence that normalizing a positive behaviour (e.g. repurposing and sharing items) has on addressing this global concern.

Activity

UPCYCLING CHALLENGE

DIRECTIONS

Students remain in groups from the pre-activity and are introduced to the Upcycling Challenge. The guidelines of the challenge are as follows:

- Each group picks one item listed from the pre-activity brainstorm
- In 10 minutes create an exhaustive list of all the possible ways the item could be upcycled

OPTION YouTube has many "Life hack" and "Repurpose/Upcycle" videos that may help with this brainstorm.
For example, Blossom Channel
www.youtube.com/channel/UC2WuPTt0k8yDJpfenggOAVQ

MATERIALS

Chart paper, Markers, pencils

Chromebooks (if available)

DURATION
35 min

(cont'd)

UPCYCLING CHALLENGE (cont'd)

DIRECTIONS

THE PITCH

Each group prepares a short "pitch" to share with the class on the new use(s) for their item. They should include how it is made/used, and how repurposing the item in this way will have a positive impact on the community and the environment.

MATERIALS

Internet access, Chromebooks or Projector/Screen (optional)

OPTION For pointers, students can watch **How to Start a Pitch** youtu.be/P2LwuF7zn9c (02:32)

Once each group has drafted a pitch, they present it to the class. Students vote for best upcycled product/pitch. The group with the most support wins the challenge!

Post-Activity

UPCYCLING: SPREAD THE MESSAGE

DIRECTIONS

Students work with the top one or two products from THE PITCH activity, and spread the upcycling message to the whole school!

Using marketing tools (e.g. video, print ad or poster, display, samples) they will publicize the upcycled item(s) to the student body. Remember to have them include not only why this item works in this new way, but the environmental/community benefit as well.

Students are also encouraged to include Mi'kmaw values in their explanation, based on the concept of **Netukulimk**.

MATERIALS

Supplies to make the marketing tools (will vary for what works best for each school)

Old T-Shirts for the optional activity

OPTIONS Instead of marketing tools, teachers could use one of these ideas:

1) SNOWBALLS – Using scrap paper, have students write down something they learned (or something they found surprising) during a pitch. Ask the students to bunch up their paper like a snowball and stand to form a circle. Each student throws their paper snowball into the middle. Then one by one, have each student pick up one of the "snowballs" and read it aloud. Remember to recycle your paper!

2) T-SHIRT TOTE BAG – Ask students to bring an old T-shirt to class (from home, with permission of their parents, or bought from a second-hand shop). Instructions to turn a T-shirt into a reusable tote bag are found at this link: www.ourpositiveplanet.com/no-sew-t-shirt-tote-bag/

ADDITIONAL MI'KMAW RESOURCES – Visit the Mi'kmawey Debert website or contact: Mi'kmawey Debert 1-877-892-2424, ext. 271
www.mikmaweydebert.ca/home/sharing-our-stories/education-and-outreach/

Assessment

FORMATIVE Evaluate student comprehension of the positive effects of repurposing/upcycling items through class discussions and passively monitoring group conversations.

divertNS.ca

Share on social media!
#NothingWasted

ABOUT DIVERT NS

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divert NS
Nothing Wasted

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1.877.313.7732

info@divertns.ca

APPENDIX 1

THE REDUCE THROUGH UPCYCLING CHALLENGE

Repurposed Household Items

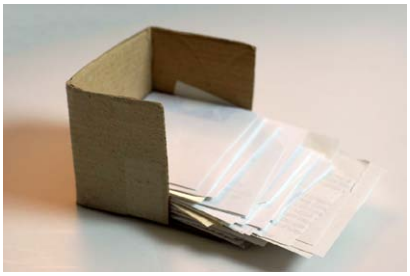
Almost any household item can be repurposed or upcycled to make something new. Even old parts or found items can make interesting pieces of art. Here are a few examples:

Pieces of fabric from old clothes can be used for a quilt — a blanket with memories!

Discarded books (like out-of-date textbooks) can be used for crafts, like these paper roses.

Vorwarts! (Go Forward!), 1897
Art made from discarded objects

A classroom wish tree, complete with magazine paper cranes

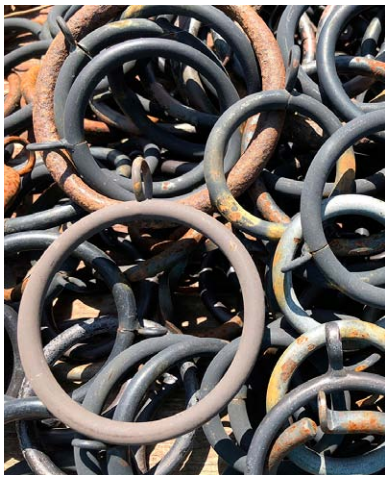


Scrap paper becomes note paper.

Corks and cardboard used for model tower building

Old license plates make a nice roof!

A broken drum sees new life as a planter.



What could you use these metal rings for?

Statues made with plastic bags — art with a message

Seedlings start out in this 2-L pop bottle.

APPENDIX 2

THE REDUCE THROUGH UPCYCLING CHALLENGE

Traditional Materials and Other Useful Plants

"Aside from food and medicines, Mi'kmaw people utilized various natural resources for a wide range of other purposes. Animal, bird and fish skins were tanned using animal materials or smoked, and then used to make clothing, footwear, and baby blankets. Pelts were used to make fur robes. Sinew from animal carcasses served as thread.

A variety of wood types were used in shelter construction. Spruce poles, birch bark sheets, and flexible moosewood (striped maple) saplings were used in the construction of conical dwellings known as "wikuom" or wigwams. Various woods were also used in the construction of devices to aid in transportation, and to create fish traps and weirs.

Other woods were used to make storage containers and vessels. Tools such as axes, adzes and gouges were made from reworking suitable stone and wood materials. Stones such as chalcedony were used to make tools for hunting, cooking, carving, and preparing hides.

Spears were made of bone and wood, while bone was also used to make needles, awls and painting tools. Copper was used to make fish hooks and needles. Teeth from beavers were used for fine carving, while walrus tusks were used for ivory. Bags and mats were made from woven reeds, grasses, cattails, cedar, and basswood bark.

Dwellings and clothing were often decoratively painted using red and yellow ochre, charcoal, and ground eggshell, mixed with fish roe or egg yolks as a binder. Clothing was also decorated with animal bones, teeth, and claws and quills, and sometimes feathers. Bird wings were sometime worn by men. Pipes were made from stone, bone, bark, wood, and lobster claws. After 1600, the Mi'kmaq made decorative porcupine quillwork and shell beadwork for sale to Europeans. Dyes for quills and mats came from a variety of roots, bark, leaves, and flowers."

(Excerpts from Nova Scotia Museum factsheet, ND)

Source: *A Mi'kmaq Historical and Ecological Knowledge Review of the Gaetz Brook Property*. Submitted to: Nova Scotia Department of Natural Resources, Halifax, NS. Submitted by: AMEC Environment & Infrastructure, a division of AMEC Americas Ltd., Dartmouth, Nova Scotia. March 2013. Appendix E, Section 2.2.4

GRADE 6 LEARNING EXPERIENCE

Single-Use Plastic: From Producer to "Pro Reducer"

Summary

Students explore "silly" and "smart" ways to package our everyday items. They have the opportunity to learn about how the Mi'kmaq traditionally transported and stored various foods and everyday items. Students explore the concept of a plastic-free grocery store; think about alternatives to single-use plastic; and make a pledge to refuse plastic.

Objective

Students think critically about food packaging and the plastic epidemic. They learn about how the Mi'kmaq traditionally "packaged" food, which could be applied today, and learn about a new way of packaging from another culture.

Pre-Activity

SILLY VS. SMART PACKAGING

DIRECTIONS

THINK-PAIR-SHARE

Using the Think-Pair-Share method, students will individually study the images found in **Silly Packaging (Appendix 1)**. Students can then pair up and identify areas of concern, and share their findings with the class.

LAUNCHING PAD QUESTIONS FOR INQUIRY BASED LEARNING

- *What do you find concerning about these photos?*
- *Why do you think these items were packaged this way?*
- *Are there other ways you think these items could be packaged to achieve the same goals?*

TEACHER SUPPORT — Have students write down questions they have from looking at the silly packaging, or share any stories they have from their experiences with silly or unnecessary packaging.

MATERIALS

Computer and Projector, Paper, Pens/pencils

Appendix 1
Silly Packaging

DURATION
20 mins

MAIN LEARNING OUTCOME

GRADE: 6

SUBJECTS:

English Language Arts

– Learners demonstrate a variety of ways to select and comprehend from a range of culturally diverse print and digital texts.

Social Studies

– Learners will compare sustainability practices between Canada and a selected country.

SKILLS

Investigate
Ask and revise questions; locate several relevant and dependable details to support an answer; organize and compare details; identify relationships, recognize represented perspectives, and communicate findings.

– Learners will implement age-appropriate actions that demonstrate responsibility as global citizens.

SKILLS

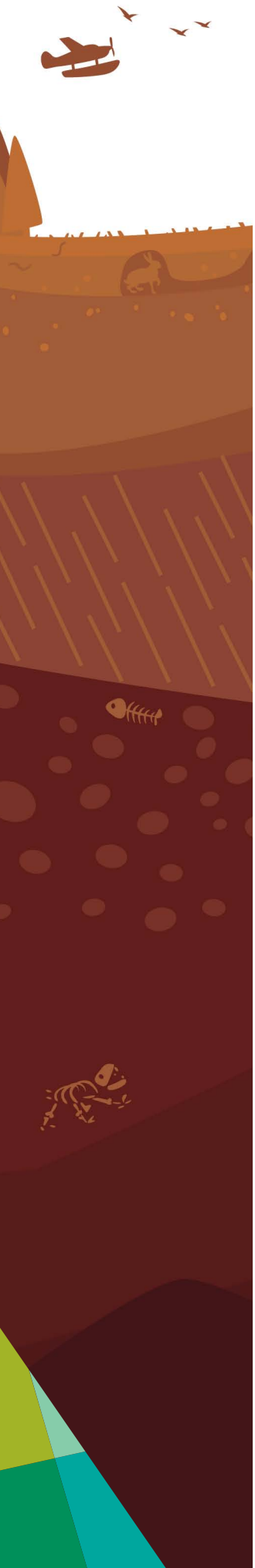
Implement
Select: Locate several relevant and dependable details to support an answer

Plan: Identify steps to solve the problem. Execute the steps, modifying as necessary.

Evaluate: Review steps and results from an investigation or problem solving. Reflect on varying perspectives and alternative solutions or findings. Identify potential new problems and/or issues.

Apply: Carry out or complete a procedure/ technique

Analyse
Gather and select appropriate information. Begin to reflect on accuracy, validity, and importance, of the information. Communicate findings.



SILLY VS. SMART PACKAGING (cont'd)

DIRECTIONS

GETTING TO ZERO-WASTE

Students brainstorm ways to improve packaging from a zero-waste perspective. If needed, provide some examples of natural or reusable containers: baskets, bags, wood, clay, leaves, glass bottles, beeswax cloth.

Students read an article about alternative packaging in Thailand :

Thailand Supermarket Ditches Plastic Packaging For Banana Leaves

www.forbes.com/sites/trevornace/2019/03/25/thailand-supermarket-uses-banana-leaves-instead-of-plastic-packaging/#3b96075a7102
(Forbes Magazine online. Author: Trevor Nace / Mar 25, 2019)

MATERIALS

Internet to access online article and video option

DURATION
30 mins

MI'KMAW PERSPECTIVE

Students read **Kiju—A Story About Netukulimk** by Melody Martin-Googoo

LINK www.mikmaweydebert.ca/home/wp-content/uploads/2015/06/Pg_156_159_DOC_KijuStory.pdf

Have students identify the different types of packaging in the story that are zero-waste. Students can snap fingers each time the package is mentioned (e.g. cloth, jam jar, baskets, moss, bark, oil cloth).

OPTION Students may have more questions about the Mi'kmaw perspective. To dive deeper, watch a video on Netukulimk *(ne-du-gu-limk)*—the concept of respecting all resources and not taking more than you need.

LINK youtu.be/0mYfx5Plo_4 (Elder Albert Marshall)
(02:39 / Source: Unama'ki Institute of Natural Resources)

ENGLISH LANGUAGE ARTS OPPORTUNITY

Students **summarize and synthesize** what they have read and learned about Mi'kmaw perspectives and the supermarket in Thailand. Students reflect on what they learned and write down any questions they still have.

Activity
ZERO-WASTE GROCERY STORE

DIRECTIONS

CLASS DISCUSSION

MI'KMAW PERSPECTIVE

Learners are given a few minutes to study images in **Appendix 2** showing how the Mi'kmaq made and used baskets and other containers to carry and store many day-to-day and food items.

Have a class discussion on why this was more sustainable than methods we typically use today.

Have students think about the elders in their life, and share any ways they might package or store things differently.

MATERIALS

Paper, Markers/ Coloured Pencils
Computer & Projector

Appendix 2
Mi'kmaw Baskets

DURATION
15 min

ZERO-WASTE GROCERY STORE (cont'd)

DIRECTIONS

GROUP WORK

Divide the class into groups of 4 to 6 students. Each group will **choose one section** of a grocery store. They will decide what products they will sell in that section and how the packaging could be zero-waste.

Show students the **Grocery Store Floor Plan (Appendix 3)** for a list of possible store sections to choose from.

Store sections may include but are not limited to:

Produce	Bakery	Seafood	Meats
Cleaning supplies	Baking	Frozen foods	Dairy
Frozen Foods	Pharmacy	Pets Supplies	

Their design should include drawings, and/or written descriptions of what packaging would be used to replace the single-use plastic, bags or containers used today.

TEACHER SUPPORT — For a sample of what their hand-drawn floor plan could look like, see **Household Items (Appendix 4)**.

Encourage students to be creative/innovative, to think of ways that encourage sustainability and reduce waste, in keeping with **Netukulimk** *(say: ne-du-gu-limk)*. Use guiding questions if needed:

- *What items/products are normally found in your section?*
- *What is made of plastic or packaged in plastic in your section?*
- *What alternatives can you think of to replace plastic?*
- *Think creatively. Are there new ways we can shop for groceries?*
- *Are there examples of packaging from the Kiju story that can help you with your design?*

After each section is complete, students fit together the sections like a mosaic floor plan of the first plastic-free grocery store in Nova Scotia.

OPTION Students view images of **The Tare Shop** (Halifax) in **Appendix 4** or online; do a virtual tour of **NU zero-waste grocery store** (Ottawa); or read about other zero-waste grocery stores in Canada (ourpositiveplanet link below).

LINKS

nugrocery.com/home/take-virtual-tour/	NU grocery store
www.instagram.com/thetareshop/	The Tare Shop
ourpositiveplanet.com	OurPositivePlanet.com site search keyword: "grocery"

MATERIALS

Paper, Markers or Coloured pencils

Appendix 3
Grocery Store Floor Plan

Appendix 4
Household Items Sample Plan

Appendix 5
The Tare Shop (option)

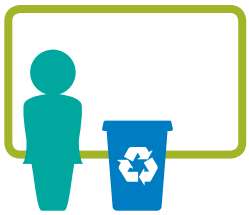
Internet access for on-line resources (option)

DURATION
30 min

ENVIRONMENTAL EVENTS

There are many great opportunities throughout the year to highlight the 3Rs in the classroom. Check out these annual events:

Waste Reduction Week	October (3rd week)	**Compost Awareness Week**	May (1st full week)
Earth Day	April 22	**Environment Week**	June (1st full week)



WASTE REDUCTION EDUCATORS

Divert NS provides funding to municipalities to deliver waste reduction education to schools across the province. Your local waste reduction educator(s) provides the following services, and more, free of charge!

- classroom presentations
- green team set up
- advice on bins and signage
- tours of local waste facilities
- school waste audits

To find out more, visit divertns.ca

Post-Activity

PLASTIC- FREE PLEDGE

DIRECTIONS

REFLECTION

Students individually reflect on situations where they use or are offered plastic. They are then asked to write down ways to refuse or go without plastic bags and packaging. Examples:

- I can bring my lunch in reusable containers
- I can bring my own utensils to school and refuse plastic utensils
- I can bring a reusable bag, or refuse a plastic bag
- I can stop using plastic straws
- I can fill my own drink bottle at home

Students share their reflections and pledge to one or two ways to refuse plastic at school, or when they buy something at a store.

MATERIALS

Paper, Pencils

DURATION

15 min

OPTIONS Share your students' pledges over the school announcements or post them in the hallway. Be creative!

MI'KMAW PERSPECTIVE – Invite a local Mi'kmaw craftperson to visit the class as a follow-up, and teach about traditional basketmaking.

Mi'kmawey Debert Education and Outreach 1-877-892-2424, ext. 271
www.mikmaweydebert.ca/home/sharing-our-stories/education-and-outreach/

Assessment

FORMATIVE Evaluate students by observing their learning during brainstorm, and showing their understanding of reducing plastic waste through their grocery store section design and ideas written down during the reflection.

ABOUT DIVERT NS

Divert NS is a not-for-profit organization championing recycling in Nova Scotia. For over 20 years we've helped build a culture of recycling through environmental stewardship, education, and innovation. Divert NS operates the **Beverage Container Deposit–Refund Program** and the **Used Tire Management Program**. In addition, we work in collaboration with government, industry, and academia to divert waste-resources from landfill. Divert NS, in partnership with municipalities, delivers education and awareness programs to schools, businesses, and community groups. Divert NS also works to develop stewardship agreements and funds innovative research and development initiatives.

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divert NS
Nothing Wasted

APPENDIX 1

SINGLE-USE PLASTIC

Silly Packaging

Discuss these images from "Pointless_Packaging" (Instagram).

Why would these items be packaged this way? Which would you call silly or smart? What are alternatives to the plastic used here?

www.instagram.com/pointless_packaging

Photos courtesy of pointlesspackaginguk@gmail.com October 2019

APPENDIX 1

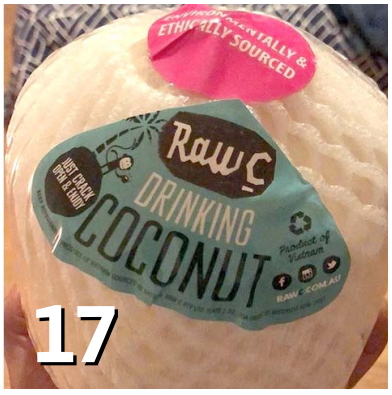
SINGLE-USE PLASTIC

Silly Packaging (additional examples)

Discuss these images from "Pointless_Packaging" (Instagram).

Why would these items be packaged this way? Which would you call silly or smart? What are alternatives to the plastic used here?

www.instagram.com/pointless_packaging/



Photos courtesy of pointlesspackaginguk@gmail.com October 2019

APPENDIX 2

SINGLE-USE PLASTIC

Mi'kmaw Baskets

Well before European contact, the Mi'kmaq used nature's bounty (grasses, roots, reeds, and wood splints) for materials to make baskets. Baskets helped them transport and store many foods and items needed for daily life. After European contact, the Mi'kmaq also made baskets to trade or sell for other goods. Throughout the 20th century, Mi'kmaw baskets were sought after by both farmers and homeowners for uses from the annual apple harvest to family picnics. Today, while the baskets are still made to be used, many are kept and collected for their beauty and craftsmanship.

Below are samples of baskets made from wood splints. Traditionally, the Mi'kmaq used Black Ash for most of their baskets. Because Black Ash is scarce today, basketmakers now use wood species like white ash, sumac, poplar, maple and cherry.

Potato Basket

Utility Basket with Cover

Gathering Basket

Fishing Creel

Hamper

Decorative Baskets with Sweetgrass Rims

Decorative "Porcupine" Basket

Did you know....

The Mi'kmaq also made containers out of other materials —like birchbark. When sewn with skill, a birchbark container could even carry water!

Photos courtesy of the Nova Scotia Museum – Ethnology Collection

Text adapted from Pa'skite'kemk (Mi'kmaw Basketry) 2007 Mi'kmaq History Month Poster. Eastern Woodland Print Communications, Millbrook, NS Mi'kmaq History Month posters: www.mikmaqhistorymonth.ca

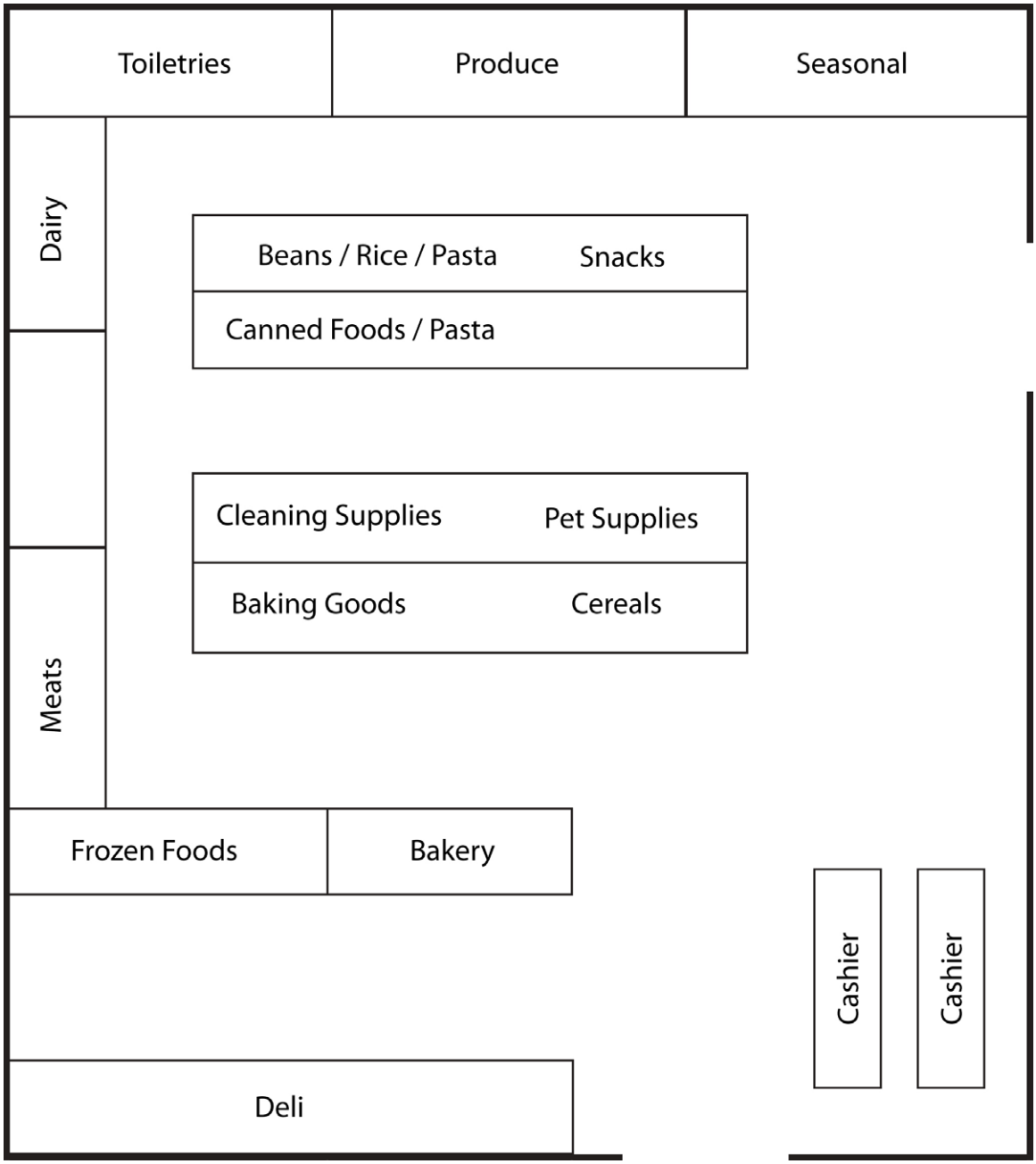
APPENDIX 3

SINGLE-USE PLASTIC

Grocery Store Floor Plans

A typical grocery store has many departments (or sections), like the ones shown here.

Choose one section of the store and draw a floor plan showing what you would sell in that department, and how the packaging could be zero-waste.

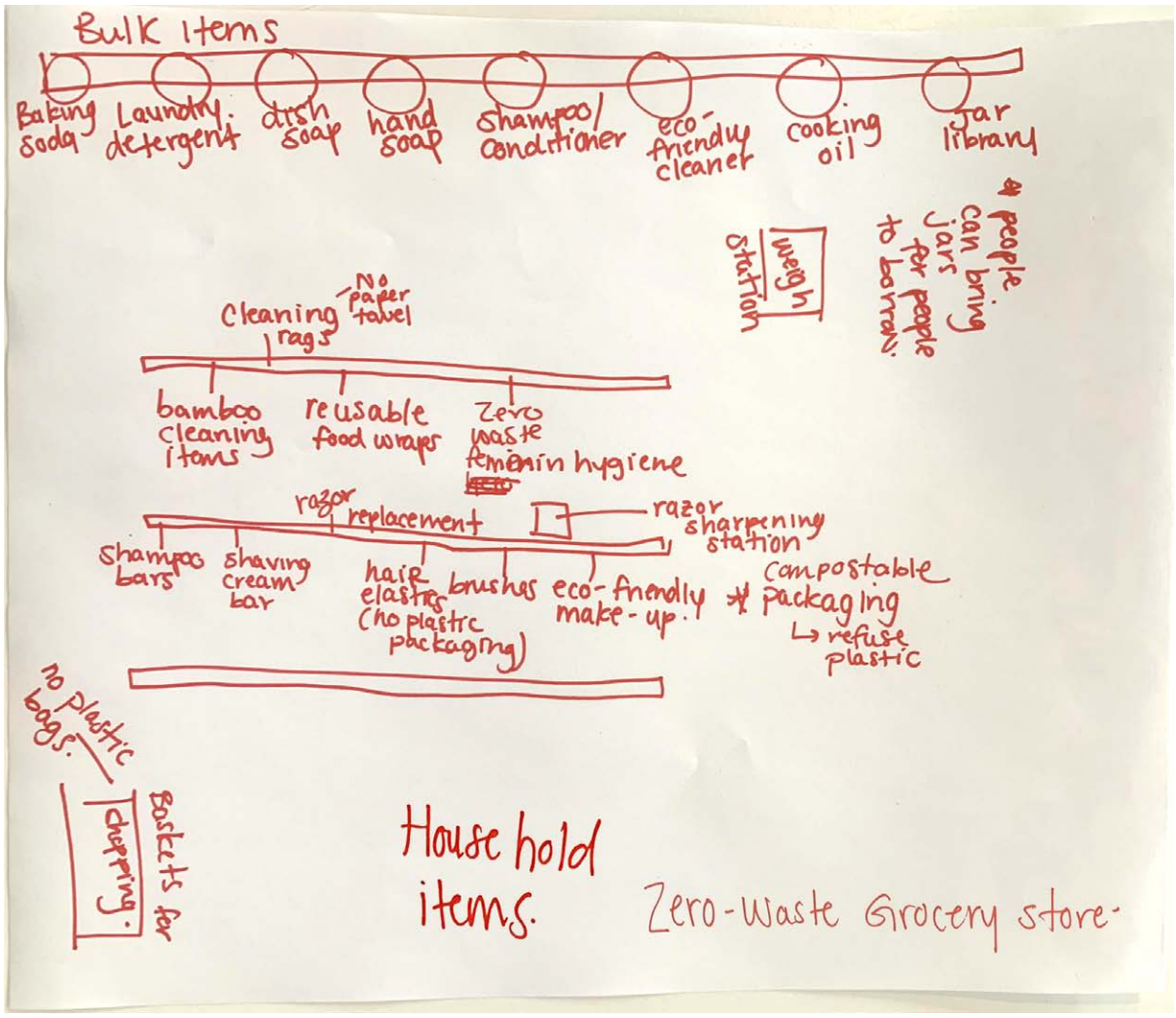


APPENDIX 4

SINGLE-USE PLASTIC

Household Items: Sample Floor Plan

Here is an example of a section in a zero-waste grocery store. It shows what is sold here, how it is packaged, and what containers people use to do their shopping and carry their items home.



APPENDIX 5

SINGLE-USE PLASTIC

The Tare Shop

Halifax, Nova Scotia **"Tare"** [rhymes with "care"] is the weight of a container when it is empty.

Photos used with permission from The Tare Shop (www.instagram.com/thetareshop/)

For news about other zero-waste grocery stores in Canada, visit www.ourpositiveplanet.com/ and search for the keyword **"grocery"**

GRADE 6 LEARNING EXPERIENCE

Solid Waste Surveys

Summary

In this engaging math lesson, students learn about percentages through recycling activities. Students create an online survey to assess their classmates' recycling habits and analyze the data.

Objective

To learn about percentages and how to analyze and present quantitative data.
To learn about and encourage recycling within the school community.

Pre-Activity

WHAT IS PER CENT?

DIRECTIONS

PRESENTATION

Use the **"What is Per Cent?" (Appendix 1)** presentation provided to explain percentages to your class.

COLOUR BY NUMBERS

Have students complete the colour by numbers percentage activity.

NOTE: *By following the directions, the coloring should reveal a dog.*

MATERIALS

Appendix 1
What is per cent? (PDF)

Appendix 2
Colour by numbers

DURATION
30 mins

Activity

SURVEYS

DIRECTIONS

Explain that percentages can be used to express data that shows how many people respond to a question in a certain way.

Write the following question on the board with the these answer options: "Do you like scary movies?"

A) Yes B) No C) Sometimes

By show of hands, tally the total for each response (A, B, C) and record it on the board. Then, show each answer as a fraction (responses/total students). Divide the class total by the response total, then multiply by 100 to get the percentage.

MATERIALS

Whiteboard and markers

DURATION
30 mins

MAIN LEARNING OUTCOME

GRADE: 6

SUBJECT:

Math

Outcome 6
Students will be expected to demonstrate an understanding of per cent (limited to whole numbers) concretely, pictorially, and symbolically.

Indicators

- Explain that "per cent" means "out of 100."
- Explain that per cent is a ratio out of 100.
- Represent a given per cent concretely and pictorially.
- Record the per cent displayed in a given concrete or pictorial representation.
- Express a given per cent as a fraction and a decimal.
- Identify and describe per cent from real-life contexts, and record them symbolically.
- Solve a given per cent problem involving benchmarks of 25%, 50%, 75%, and 100%.

CROSS-CURRICULAR LINKS

IC Technology

Outcome 3: Communication
Students will use digital tools to communicate and work collaboratively, including at a distance, to support individual learning and to contribute to the learning of others.

ABOUT DIVERT NS

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Divert NS, in partnership with municipalities, delivers education and awareness programs to schools, businesses, and community groups. Divert NS also works to develop stewardship agreements and funds innovative research and development initiatives.

We welcome feedback from students and teachers on these lesson plans and resources. Please send your feedback to:

Toll-free
1.877.313.7732

info@divertns.ca

divertNS.ca

STUDENT/CLASS SURVEYS (cont'd)

DIRECTIONS

SURVEY ACTIVITY

Students will create a survey to analyse the recycling habits of the class (or of the school). In groups of 3–5, or as a class, ask students to come up with 5 or more multiple choice questions for the survey.

SAMPLE QUESTIONS:

Do you recycle at home? A) Always B) Mostly C) Sometimes D) Never

If you don't recycle at home, why not? A) We have no recycle bins, B) I am not sure what is recyclable, C) The garbage is easier, D) Other

Do you take your refundable containers back for money? A), B), etc.

Do you recycle more at school, or at home, A), B), etc.

Students can create paper copies of the survey, or use Google forms *(see tutorial link, right)*. When surveys are finished, students can post to Google classroom and have classmates complete the survey.

MATERIALS

Class set of Chromebooks or computer lab

Internet access (if using Google forms or classroom)

DURATION
1 hour

Tutorial on how to use Google forms:
sites.google.com/a/gnspes.ca/provincial/drive/forms

OPTION Surveys could also be shared on the school website or with other classes.

Post-Activity
SURVEY ANALYSIS / GRAPHS AND POSTERS

DIRECTIONS

After survey responses have been collected, students can analyze the data. If using Google forms, they can click on the "responses" tab at the top of their survey.

Have a class discussion about the findings.
- *For example: Why do people recycle? Or why not?*

Using the survey data, have students create graphs for their posters. Ask them how they can encourage more students to recycle. Have them add some of those ideas onto their posters

OPTION Have the graph posters displayed around the school or present results at an assembly.

MATERIALS

Poster paper

Coloured pencils, markers or crayons

Internet access (if using Google forms or classroom)

DURATION
1 hour

Assessment

FORMATIVE Evaluate student understanding of percentages by observing the results of the color by numbers sheet.

SUMMATIVE (OPTIONAL) Evaluate the posters that the students make to represent the data they have collected.

TRY A SIMILAR ACTIVITY **Garbage Collectors** (Grade 6)

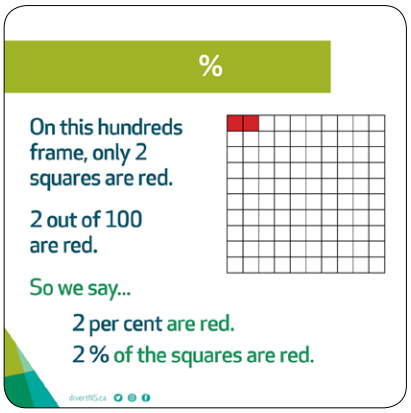
APPENDIX 1

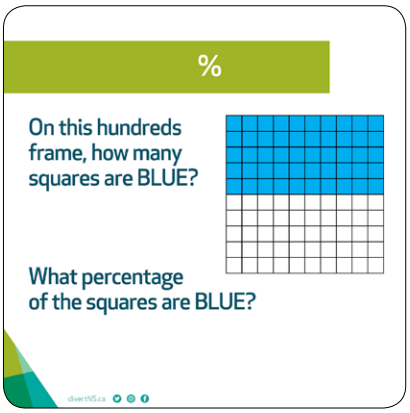
SOLID WASTE SURVEYS

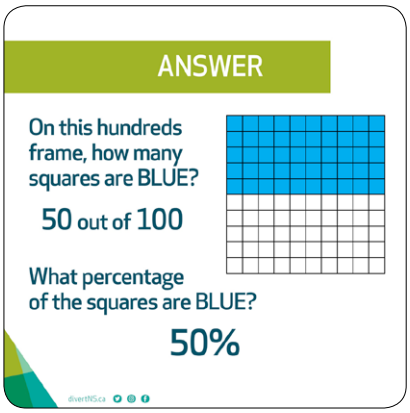
What is "per cent"?

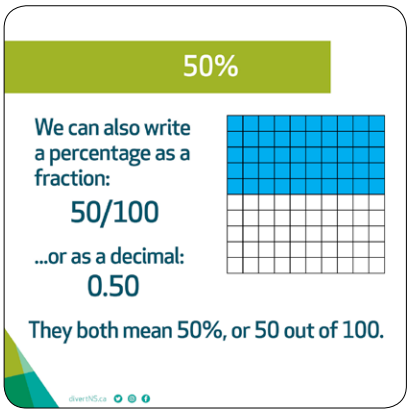
The following is a slide summary for "What is per cent"

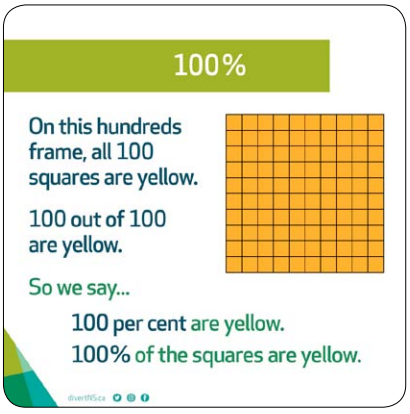
For full-sized slides, see the file:
GR-6-Solid-Waste-Surveys-Appx1-Per-Cent.pdf

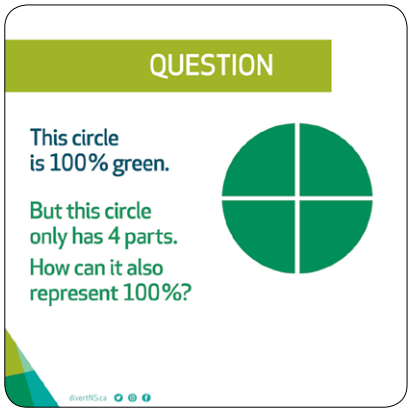


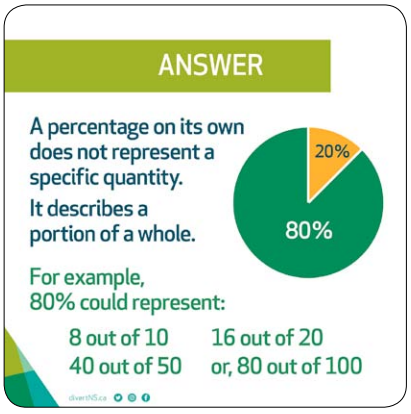












(cont'd)

APPENDIX 1

WHAT IS PER CENT (CONT'D)

QUESTION

If this equals
100% or 4/4

What does this equal?

ANSWER

If this equals
100% or 4/4

What does this equal?

100%
or 4/4

QUESTION

What percentage is yellow?

What percentage is white?

ANSWER

What percentage is yellow?
25%

What percentage is white?
50%

IN REAL LIFE

You can use percentages to find out a sale price:
Reg. Price $60
Sale Price:
__?__

IN REAL LIFE

You can use percentages to find out a sale price:
Reg. Price $60
Sale Price:
$60 x .50 = $30

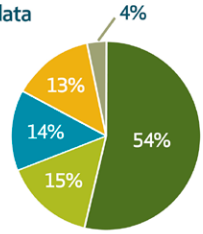
and don't forget to add 15% HST!

IN REAL LIFE

Or to better compare and understand data

How space is used in my neighbourhood

Houses	54%
Apartments	15%
Playground	14%
Roads	13%
Empty lots	4%



YOUR TURN

What percentage of students in your class is wearing a red shirt today?

What percentage of students in your class have a first name that starts with the letter "C"?

APPENDIX 2

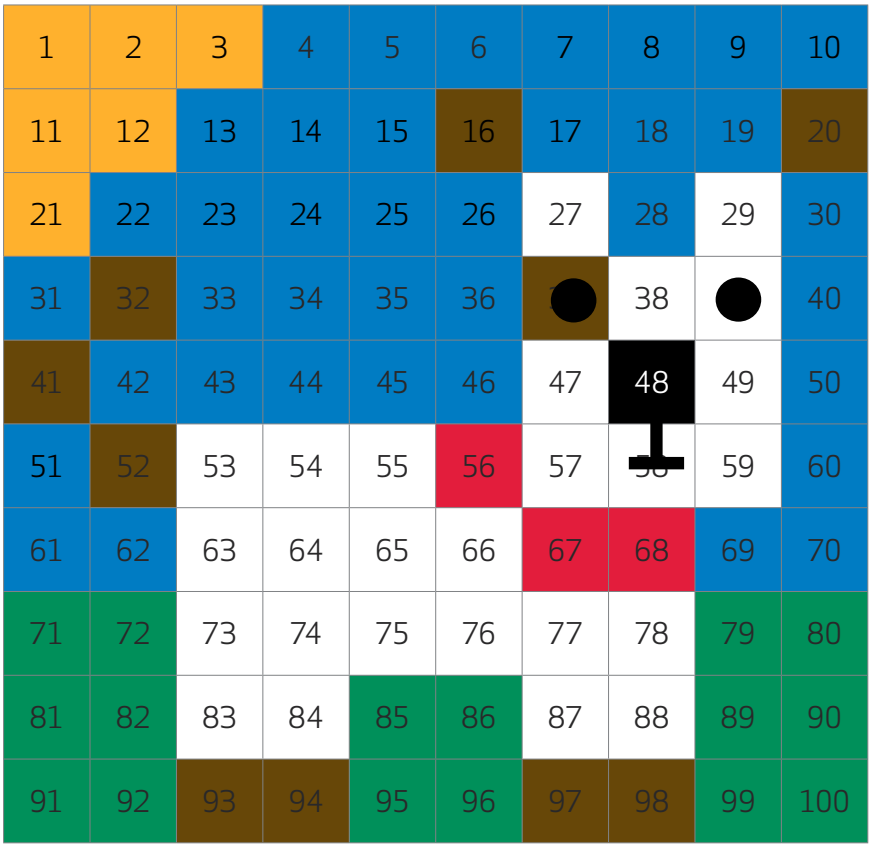
SOLID WASTE SURVEYS

Name Answer key

Colour by Numbers

1. Draw a **black dot** in the centre of square **37** and square **39**.
2. Draw an **upside down capital T** in the upper half of square **58**.
3. Colour the numbered squares in the colours below:

Black	48
Yellow	1 to 3, 11, 12, 21
Blue	4 to 10, 13 to 15, 17 to 19, 22 to 26, 28, 30, 31, 33 to 36, 40, 42 to 46, 50, 51, 60 to 62, 69, 70
Green	71, 72, 79, 80 to 82, 85, 86, 89 to 92, 95, 96, 99, 100
Brown	16, 20, 32, 37, 41, 52, 93, 94, 97, 98
Red	56, 67, 68



4. Count the number of squares for each colour. Express that number as a fraction of 100 and as a percentage.

Colour	Number of blocks of that colour	Fraction	Percentage
Black	1	1/100	1%
Yellow	6	6/100	6%
White *	26	26/100	26%
Green	16	16/100	16%
Brown *	10	10/100	10%
Red	3	3/100	3%

* Since there is black on some "face" squares, **Brown = 9** or **White = 24** is also correct.

APPENDIX 2

SOLID WASTE SURVEYS

Name _____

Colour by Numbers

1. Draw a **black dot** in the centre of square **37** and square **39**.
2. Draw an **upside down capital T** in the upper half of square **58**.
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Green	71, 72, 79, 80 to 82, 85, 86, 89 to 92, 95, 96, 99, 100
Brown	16, 20, 32, 37, 41, 52, 93, 94, 97, 98
Red	56, 67, 68

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

4. Count the number of squares for each colour. Express that number as a fraction of 100 and as a percentage.

Colour	Number of blocks of that colour	Fraction	Percentage
Black	1	1/100	1%
Yellow			
White			
Green			
Brown			
Red			

GRADE 6 LEARNING EXPERIENCE

Trading Textiles

Summary

In this lesson, students will choose a piece of clothing to trace back to its country of origin, hold a clothing swap and Eco-fashion show. Learners use infographics to demonstrate their understanding of how to divert textile waste from landfills.

Objective

Students will learn about the impact of the textile industry on our planet and options for diverting textile waste away from landfills.

Pre-Activity

T-SHIRT TAGS

DIRECTIONS

CLOTHING ORIGIN RESEARCH

Have students pair up with a partner and determine which country their partner's shirt was made in by looking at the tag.

Have students research the country of origin of their T-shirt, then share their findings with the class.

Fill out the **Geography Detective Sheet (Appendix 1)**.

MATERIALS

Appendix 1
Geography Detective Sheet

Internet access for students

DURATION
60-70 mins

SLIDE SHOW

Show and discuss the **Fashion Facts slideshow (Appendix 2: Accompanying PDF file)** from The Story of Stuff Project by Andrea Newell

MATERIALS
Appendix 2
Fashion Facts Slideshow (PDF)

DURATION
10 mins

MAIN LEARNING OUTCOME

GRADE: 6

SUBJECT:

Social Studies

Learners will implement age appropriate actions that demonstrate responsibility as global citizens.

SKILLS

Implement

Select – Locate several relevant and dependable details to support an answer

Plan – Identify steps to solve the problem. Execute the steps, modifying as necessary.

Evaluate – Review steps and results from an investigation or problem solving. Reflect on varying perspectives and alternative solutions or findings. Identify potential new problems and/or issues.

Apply– Carry out or complete a procedure/ technique

CROSS-CURRICULAR LINKS

English Language Arts

Listening & Speaking
Learners will communicate effectively and clearly respecting cultural contexts.

Art

Outcome 1
Students will explore and manipulate a range of materials, demonstrating an ability to express themselves.

divertNS.ca

Share on social media!
#NothingWasted

Activity
ECO-FASHION SHOW

DIRECTIONS

GROUP BRAINSTORMING

In small groups, brainstorm alternatives to putting unwanted textiles in the garbage. Write ideas in the **Graphic Organizer (Appendix 3)**.

Here are some ideas the students might come up with:

REDUCE the number of clothing items purchased.

REUSE by giving them to a friend/family member/second-hand store; using them for rags; or using the fabric for something new.

RECYCLE used clothes by donating them to a charity.
(**Note:** A few municipalities in Nova Scotia collect unwanted clothing at the curb for recycling)

Discuss textile recycling in Nova Scotia by sharing the following facts:

- 37,000 tonnes of textiles are generated in Nova Scotia each year.
- 7,000 tonnes of textiles are recycled annually in Nova Scotia.
- Over 500 clothing donation bins are available across the province.

For more information on textile recycling in Nova Scotia, visit afterwear.ca

MATERIALS

Appendix 3
Brainstorming graphic organizer

DURATION
15–20 mins

CLOTHING SWAP

Explain the concept of a clothing swap to students and send home a **Letter to Parents/Guardians (See Appendix 4)**

Choose a date, and have the students bring in unwanted clothes to participate in a clothing swap.

Choose a student to run the clothing swap. Have the student hold up an article of clothing. Students interested in that article raise their hands. Another student hands out playing cards to the interested students. The student with the highest card receives the piece of clothing.

OPTION During the clothing swap, the student with the highest card is asked to **share one fact they learned about textiles** from the pre-activity to receive the piece of clothing

MATERIALS

Appendix 4
Letter to Parents/ Guardians

Deck of playing cards, shuffled

DURATION
60 mins

ECO-FASHION SHOW

Students will put on an "Eco-Fashion" show using their newly acquired clothes.

Have the students choose their "look" and ask them to create a brief description of their outfit that the emcee of the fashion show will read.

Create a space in the classroom or school to have the fashion show.

Appoint an emcee for the show to narrate the students' new eco-friendly outfits.

OPTION Create the **Eco-Fashion Show** as a video or in the style of a commercial

MATERIALS

Outfit description cards

Decorations for fashion show (optional)

DURATION
60–90 min

Post-Activity
TEXTILE RECYCLING INFOGRAPHIC

DIRECTIONS

Have students create infographics that explain textile recycling in Nova Scotia, as well as other options to divert textile waste from landfills.

Infographics can be put up around the school or in the community.

OPTIONS Create infographics by hand or with technology.

Use Canva for infographics www.canva.com/

MATERIALS

Paper, art supplies (markers, scissors, glue etc.)

Technology (optional)

DURATION

60–90 min

Assessment

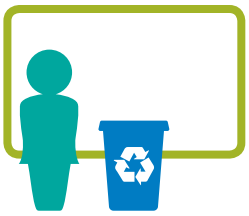
FORMATIVE Evaluate student comprehension of how to divert textile waste from landfills through class discussions and passively monitoring group conversations.

SUMMATIVE (OPTIONAL) Option to evaluate infographics created by students.

ENVIRONMENTAL EVENTS

There are many great opportunities throughout the year to highlight the 3Rs in the classroom. Check out these annual events:

Waste Reduction Week	October (3rd week)
Earth Day	April 22
Compost Awareness Week	May (1st full week)
Environment Week	June (1st full week)



WASTE REDUCTION EDUCATORS

Divert NS provides funding to municipalities to deliver waste reduction education to schools across the province. Your local waste reduction educator(s) provides the following services, and more, free of charge!

- classroom presentations
- green team set up
- advice on bins and signage
- tours of local waste facilities
- school waste audits

To find out more, visit divertns.ca

ABOUT DIVERT NS

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Nothing Wasted

APPENDIX 1

TRADING TEXTILES

Geography Detective

What country was your piece of clothing made in?

Where is this country? Is it close to or far away from Nova Scotia?

Research and list three facts about this country.

How would clothing get from this country to Nova Scotia?
(Example: by truck, by ship, by train)

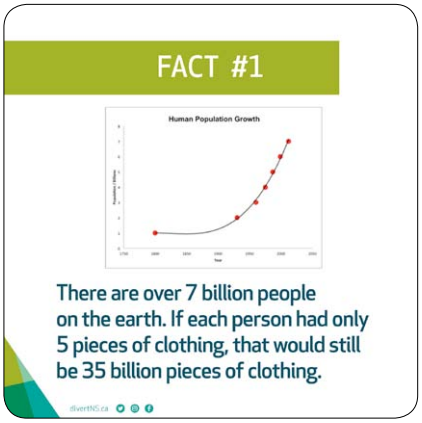
APPENDIX 2

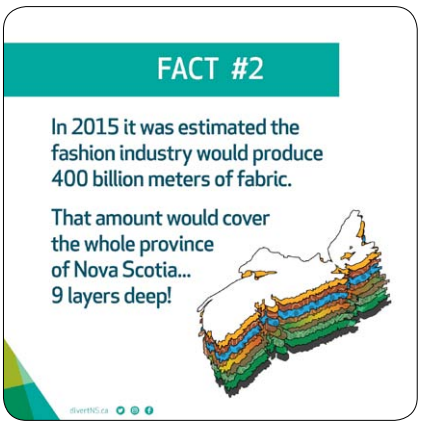
TRADING TEXTILES

Fashion Facts Slide Show
from The Story of Stuff Project

The following is a overview for the separate file entitled:

GR-6-Trading-Textiles-Appx2-Fashion.pdf



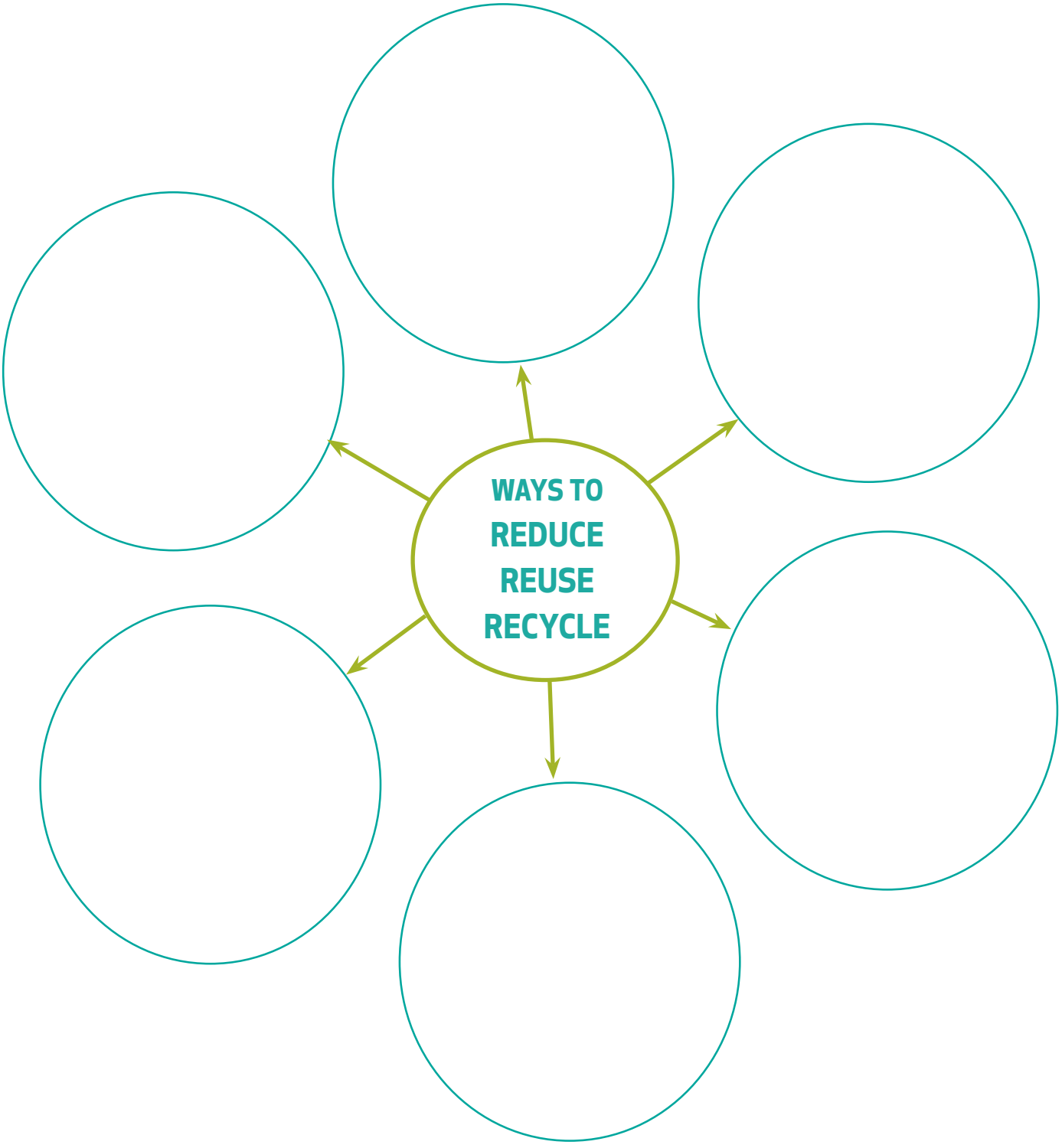


APPENDIX 3

TRADING TEXTILES

Graphic Organizer

In each of the circles, write how you could **Reduce**, **Reuse** or **Recycle** textiles.



APPENDIX 4

TRADING TEXTILES

Dear Parents/Guardians,

In our Grade 6 class we have been learning about where clothes come from and where they go when we no longer want them.

As part of our learning we will be holding a class "clothes-swap" and "eco-fashion" show to learn about options to reuse our textiles instead of sending them to the landfill.

Please send any gently-used clothing to school with your learner on _____ (date).

Any unclaimed clothes will be donated to charity.

Thank you for your support,

_____

Grade 6 Teacher

Dear Parents/Guardians,

In our Grade 6 class we have been learning about where clothes come from and where they go when we no longer want them.

As part of our learning we will be holding a class "clothes-swap" and "eco-fashion" show to learn about options to reuse our textiles instead of sending them to the landfill.

Please send any gently-used clothing to school with your learner on _____ (date).

Any unclaimed clothes will be donated to charity.

Thank you for your support,

_____

Grade 6 Teacher

GRADE 6 LEARNING EXPERIENCE

Why is food lost or wasted on farms?

Summary

In this lesson, students will receive an introduction to the problem of food loss and food waste. They will watch a video about how farms and community groups are tackling food loss in Nova Scotia. Following a group discussion, students will complete research about growing a specific fruit or vegetable and the potential issues that may arise from seed to table that could result in food loss. They will present their research as a creative project that can be shared with the class.

Objective

Students gain a deeper understanding of where their food comes from and what causes food loss on farms. They reflect on the food that they consume and the steps required to avoid food waste and loss.

PRE-ACTIVITY

WASTE NOT NEWS EPISODE 1: FOOD WASTE IN PRODUCTION

Directions: Students watch a video about food waste and loss during the production phase. Before the video, students are introduced to the food waste problem in Canada and discuss the difference between food waste and food loss ***(see Appendix 1)***.

Pre-video sample questions

- What is food waste?
- What is food loss?
- Why is food waste and loss a problem?
- How could food waste and loss occur on the farm?

VIDEO

Waste Not News: Rude to Our Food

Ep.1: Food Waste in Production

Link to Video

MATERIALS

Computer, Projector, Speaker
Duration: 7:26 minutes

After the video ends, begin a group discussion with the class.

MAIN LEARNING OUTCOME

SOCIAL STUDIES

Learners will implement age-appropriate actions that demonstrate responsibility as global citizens.

SKILLS

IMPLEMENT

Select: Locate several relevant and dependable details to support an answer.

Plan: Identify steps to solve the problem. Execute the steps, modifying as necessary.

Evaluate: Review steps and results from an investigation or problem solving. Reflect on varying perspectives and alternative solutions or findings. Identify potential new problems and/or issues.

Apply: Carry out or complete a procedure/technique.

ANALYSE

Gather and select appropriate information. Begin to reflect on accuracy, validity and importance, of the information. Communicate findings.

CROSS-CURRICULAR LINKS

ENGLISH LANGUAGE ARTS

LISTENING AND SPEAKING

Learners will communicate effectively and clearly respecting cultural contexts.

Learners will use writing and other representations to explore, clarify and reflect upon thoughts and experiences.

SCIENCE

Learners will analyse diversity of life in nature and significant relationships within the natural world.

WASTE NOT NEWS

Post-video sample questions

- What did you learn from the video that surprised you?
- What new words did you learn from the video?
- Have you ever visited a farm like TapRoot Farms? Can you share your experience?

Both TapRoot and FOUND spoke a lot about changing our relationship to food production—increasing our awareness of the effort put into growing food, the importance of respecting the land that our food is grown on, etc.—and how that new mindset can help us waste less. How did the video change how you think about where food comes from?

To learn more about food waste, visit our lesson plan **Food Waste: The Journey from Mother Earth to Table.** divertns.ca/assets/files/GR-4-Food-Waste.pdf

DURATION
30–40 minutes

MATERIALS
Computers or Tablets
Art supplies
Paper

ACTIVITY

SEED TO TABLE JOURNEY

Directions: Students each choose their favourite fruit or vegetable. They research how their fruit or vegetable grows—the growing conditions required, and the materials needed.

Sample questions

- Can it be grown in Nova Scotia?
- How is it transported?
- How is it stored?

Students then create a timeline that charts the journey from seed to table. For each step, students can brainstorm what challenges might occur that would result in food waste or loss, and what could be done to prevent it. After conducting the research, students share their findings with the class in the form of a creative project: a comic, a story, a play, etc.

The project could be expanded to a larger, more long-term assignment, depending on how much student-driven research is completed.

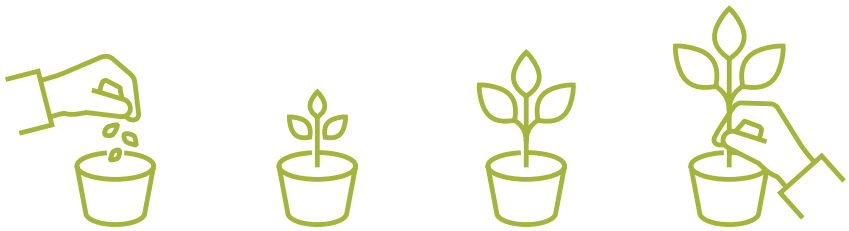
DURATION
10–15 minutes

MATERIALS
Appendix 2
Pens or pencils

POST ACTIVITY

FOOD WASTE MATCHING WORKSHEET

Directions: Students complete a word-to-definition matching worksheet and word search ***(see Appendix 2)*** that include "weird word alert" words from the **Rude to Our Food** video series.



Optional/extended learning activity

CLASSROOM COMMUNITY GARDEN

Note: This is a longer-term activity, meant to take place over several weeks, with options for scaling the activity to make it more or less complex.

Directions: Students plant their own seeds and care for them as they germinate and grow into plants. Students are responsible for labelling different plants and keeping a journal to determine how long it takes each seed to germinate and troubleshooting any growing issues (to replicate the process farmers experience as they troubleshoot growing and climatic conditions). Students could track how much energy (or resources, time, etc.) is used to show the work involved in food production.

In the late spring/early summer, students can plant their seedlings at home or in their school's community garden and continue to care for them as they begin to produce food. Entrepreneurially-minded students could even harvest their crops and set up a school farmers' market at the end of the year.

Additional activities

Students conduct computer research to find additional organizations in Nova Scotia who are fighting food loss or waste. Their findings can be presented to the class.

Assessment

Formative

Evaluate student comprehension of the positive effects of preventing food loss and waste through class discussions and passively monitoring group conversations.

Summative

Option to collect and correct the Food Waste Matching Worksheet.

DURATION

1–2 months
(from seed to harvest)

MATERIALS

Seeds
Soil
Trays for seed-starting
(can be recycled materials, such as egg cartons or toilet paper rolls)
Water
Sunlight
Writing tools
Paper

RESOURCES

Visit Nourish Nova Scotia for great tips on how to start a classroom community garden.

www.nourishns.ca/grow-eat-learn

Divert NS is a not-for-profit organization championing recycling in Nova Scotia. For over 25 years, we've helped build a culture of recycling through environmental stewardship, education, and innovation. We work in collaboration with government, industry, and academia to divert waste-resources from landfill, and we partner with municipalities to deliver education and awareness programs to schools, businesses, and community groups. Divert NS also works to develop stewardship agreements and funds innovative research and development initiatives.

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Appendix 1

AN OVERVIEW OF THE FOOD WASTE PROBLEM IN CANADA

Source

wrwcanada.com/en/get-involved/resources/food-waste-themed-resources/food-waste-canada-facts

Food Loss

Happens during production or processing. This can be caused by inadequate refrigeration, lack of resources to harvest food before it spoils or damage from pests or extreme weather.

Food Waste

Happens in stores, restaurants, homes, schools and communities because of our decisions, behaviors and actions.

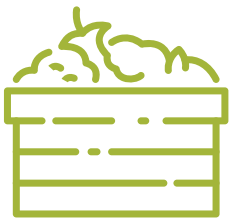
Appendix 2

FOOD WASTE MATCHING WORKSHEET

Match the food waste terms to their definition.
Can you spot all 14 in the word search on the reverse side?

Name: _____

Word	Definition
1. ___Food Security	A. Happens during production or processing. This can be caused by inadequate refrigeration, lack of resources to harvest food before it spoils or damage from pests or extreme weather.
2. ___Upcycle	B. Happens in stores, restaurants, homes, schools and communities because of our decisions, behaviors and actions.
3. ___Microorganisms	C. A type of farming that treats the entire farm as one interconnected natural system, increasing biodiversity, improving soil and water health, and reducing unnecessary waste.
4. ___Methane Gas	D. The act of handpicking totally edible fresh fruits and vegetables left behind after the traditional harvest, including some that may be a little funky-looking.
5. ___Food Bank	E. Making sure that all people can access and afford a constant supply of safe and nutritious food.
6. ___Landfill	F. When you take something unwanted or discarded and turn it into something awesome.
7. ___Compost	G. When customers sign up and buy a share in the farm's harvest at the beginning of the season and generally receive a weekly basket of food from the farm. This helps farmers plan better during production.
8. ___Harvest	H. Type of harmful pollution that can come from food waste that ends up in landfills.
9. ___Regenerative Farming	I. A system of garbage disposal in which waste is buried between layers of earth.
10. ___Food Loss	J. Another word for farming. It includes both growing and harvesting crops and raising animals, or livestock.
11. ___Gleaning	K. The process of gathering a ripe crop from the field. It is usually done by farmers, and in the fall season.
12. ___Agriculture	L. Living things that are too small to be seen by the naked eye that break down food and yard waste into compost.
13. ___Food Waste	M. Decayed organic material, such as plants, food and animal manure. It is often used as plant fertilizer because it is rich in plant nutrients and beneficial organisms and microorganisms.
14. ___Community-Supported Agriculture	N. Provide food and other assistance to those needing help. They often collect donated food to help provide this service.



Appendix 2

FOOD WASTE MATCHING WORD SEARCH

Name: _____

Find the food waste words from the list below in the word search puzzle.

R B T F I F C Z R E G E N E R A T I V E F A R M I N G C P
K X L O L E M D U R C N A T V O M U G O H G N Z T I S H M
A E R O B A C D B G E S C I O N C O M W O S T I O G O W T
B L E D D S X B R J K X B V E J U Y V L N R S W U S L R R
F S X W D G O K Q E S R N I T B H H Z M O C E W N Y A P I
W E M A W X L F T H Y P H A H A R V E S T G Z L G A N B A
N A W S M H J E H T A T A D E A T T U Q C L I V A U D E P
U F I T Q E Z L A B A A P M R X H B G X P N B S C T F R S
G R L E C M K P H N R C U O O A C O B M B A Y P F P I I R
M C Z P D F W M V V I I N A N B G S E B I Z L I A G L K B
Q I O C C C X W M K T N I E A U G L Q I O C F W S E L L O
X N C V Y Z N S X X N L G Z O N G F O O D S E C U R I T Y
V A X R G Y B I Q T B A S V A E D K J E I K O A L U K H D
U S C J O E U W O R S Y B U R S E A Y M F S D T T T W B H
Y B L D W O A E E F S A T D E J F O E W E F L T L L V M M
M N T U R W R B H F E H M W O U O B D X R M I G M U C M D
V Z E F P L Z G T D J I B L V O M A E U S U T B E C D G P
H C Y O N D J D A H W H L D T T F Y V B P S E O Y I O A A
J O Q E E U J X Y N A E K R U X O K O I T L R J M R N S U
Q M I P O Z S U W U I A S T E D S U P C Y C L E B G P A S
T P N I G A G N A C R S Y B H I E X F G F G C I D A L O K
F O O D L O S S P H J L M T Y L C F H K K F Y R C H E K G
C S R L R Q S O N Q S I I S W N U T K I T I N N I D O C E
H T G E T C K P Q W D O O C I R B E Q K G O T T L N H I T
C O M M U N I T Y S U P P O R T E D A G R I C U L T U R E

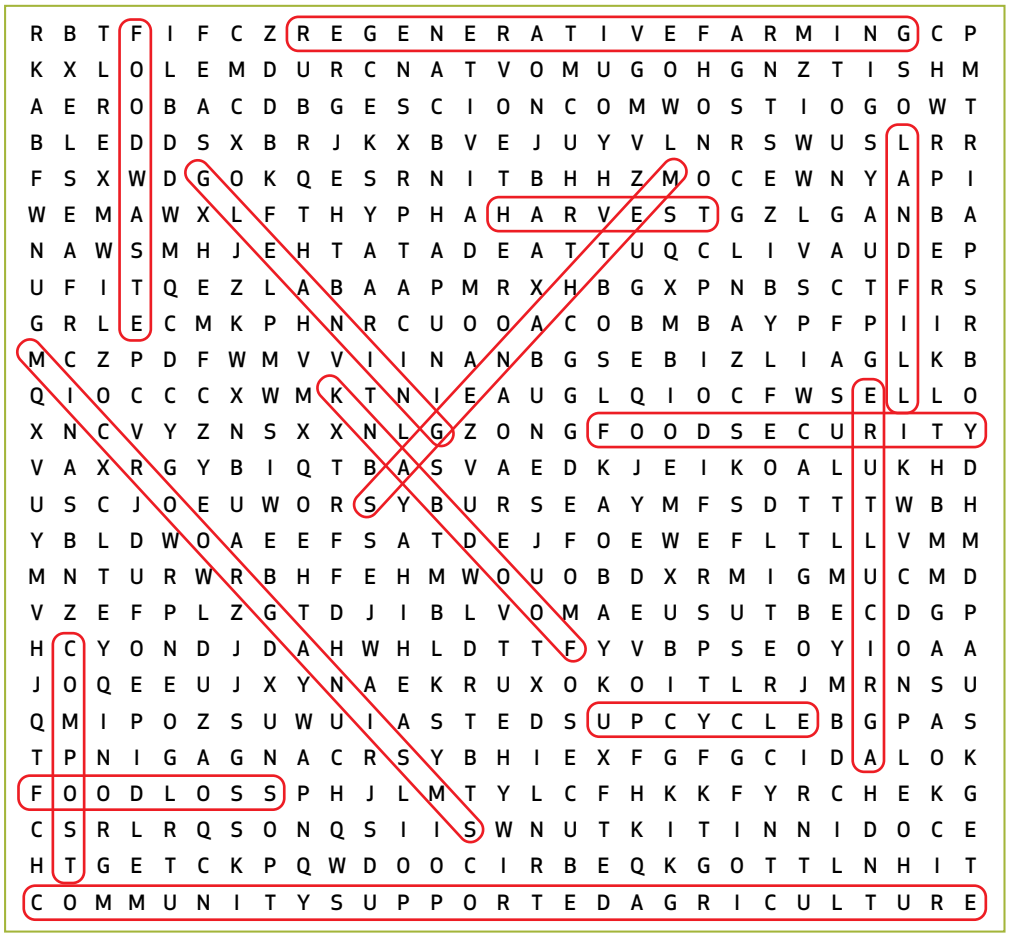
FOOD SECURITY
FOOD BANK
REGENERATIVE FARMING
AGRICULTURE
UPCYCLE
LANDFILL
FOOD LOSS
FOOD WASTE
MICROORGANISMS
COMPOST
GLEANING
COMMUNITY-SUPPORTED AGRICULTURE
METHANE GAS
HARVEST



Appendix 2

FOOD WASTE MATCHING ANSWER KEYS

1. **E** Food Security
2. **F** Upcycle
3. **L** Microorganisms
4. **H** Methane Gas
5. **N** Food Bank
6. **I** Landfill
7. **M** Compost
8. **K** Harvest
9. **C** Regenerative Farming
10. **A** Food Loss
11. **D** Gleaning
12. **J** Agriculture
13. **B** Food Waste
14. **G** Community-Supported Agriculture



GRADE 6 LEARNING EXPERIENCE

Food for thought: finding creative solutions for food waste

Summary

In this lesson, students are introduced to the problem of food waste at the retail level. They will watch a video about how local stores and food banks are tackling food waste in Nova Scotia. Following a group discussion, students will develop questions to interview a "top chef" in their life about strategies for reducing food waste. Students will also create a wasteless menu, brainstorming ways to make tasty meals with minimal to no waste.

Objective

Students gain a deeper understanding of what causes food waste at the retail level. They learn about tactics and strategies that stores and food banks use to reduce food waste and what consumers can do to help.

PRE-ACTIVITY

WASTE NOT NEWS EPISODE 2: FOOD WASTE AT THE RETAIL LEVEL

Directions: Students watch a video about food waste at the retail level. Before the video, students can discuss how food may be wasted in stores using the sample questions below. ***Appendix 1***, which shows the percentage of food waste along the food chain, can also be shared for discussion purposes.

Pre-video sample questions

- What types of food do you think are most commonly wasted in grocery stores?
- What do you think are some of the challenges for stores when it comes to food waste?
- Do you know of any strategies a grocery store may have to reduce food waste? *(Teacher support: marking down produce, arranging products by expiry dates on store shelves, donating product to food banks)*

VIDEO

Waste Not News: Rude to Our Food

Ep.2: Food Waste at the Retail Level

Link to Video

MATERIALS

Computer, Projector, Speaker
Duration: 6:38 minutes

After the video ends, begin a group discussion with the class.

MAIN LEARNING OUTCOME

SOCIAL STUDIES

Learners will implement age-appropriate actions that demonstrate responsibility as global citizens.

SKILLS

IMPLEMENT

Select: Locate several relevant and dependable details to support an answer.

Plan: Identify steps to solve the problem. Execute the steps, modifying as necessary.

Evaluate: Review steps and results from an investigation or problem solving. Reflect on varying perspectives and alternative solutions or findings. Identify potential new problems and/or issues.

Apply: Carry out or complete a procedure/technique.

ANALYSE

Gather and select appropriate information. Begin to reflect on accuracy, validity and importance, of the information. Communicate findings.

CROSS-CURRICULAR LINKS

ENGLISH LANGUAGE ARTS

LISTENING AND SPEAKING

Learners will communicate effectively and clearly respecting cultural contexts.

Learners will use writing and other representations to explore, clarify and reflect upon thoughts and experiences.

WASTE NOT NEWS

Post-video sample questions

- How does Local Source strive to reduce food waste?
- Did the video change the way you think about the food waste in stores? If so, how?
- Can you think of ways to reduce food waste when planning meals?
- Does the person who provides the food in your home use a grocery list?
- What are some barriers to using a list? How can we reduce those barriers?
- What can you do to prevent food waste?

DURATION
30–60 minutes

MATERIALS
Writing tools
Art supplies
Paper
Computer (Optional)

ACTIVITY

INTERVIEW A "TOP CHEF"

Directions: Students interview an adult in their life who makes food for them (example: a grandparent, parent, older sibling, breakfast program volunteer, cafeteria worker, etc.) The students begin by writing their own interview questions, which they then use to conduct interviews.

Sample questions

- What types of food go to waste most often in your kitchen? Why?
- What types of food never go to waste? Why?
- Do you have any strategies to keep food from going to waste?
- What is your favourite way to use leftovers?

After the interviews are complete, students can present their findings to the class. If certain types of food are commonly wasted, students can research and discuss possible solutions and publish their tips as a poster that can be shared within the school community or brought home.

DURATION
20–30 minutes

MATERIALS
Art supplies
Paper

POST ACTIVITY

CREATE A WASTELESS MENU

Directions: Can you eat for a day without creating any food waste? Students create a dream menu for the day (breakfast, lunch and dinner) using only 10 grocery items.

Sample questions

- What items on your grocery list will expire quickly?
- What will need to be repurposed later?
- What additional meals can be made from your leftover food or groceries? Be creative with any items that you would normally compost (can you find a use for apple peels, cores or banana peels?)

Optional/extended learning activity

BE A DATE LABEL DETECTIVE

Directions: Research the different date labelling that is commonly used for food in Canada, including 'best before', 'packaged on', 'use by' and 'sell by'.

Sample questions

- What surprised you about the different label definitions and their uses?
- How can confusion around this terminology lead to food waste?
- Can you come up with less confusing terminology or improve the current labelling to help solve this problem?

See **Appendix 2** for a helpful resource on understanding food date labels.

RESOURCES

Visit the Government of Canada website.

inspection.canada.ca/food-label-requirements/labelling/consumers/eng/1400426541985/1400455563893

Assessment

Formative

Evaluate student comprehension of the positive effects of reducing food waste through class discussions and passively monitoring group conversations.

Divert NS is a not-for-profit organization championing recycling in Nova Scotia. For over 25 years, we've helped build a culture of recycling through environmental stewardship, education, and innovation. We work in collaboration with government, industry, and academia to divert waste-resources from landfill, and we partner with municipalities to deliver education and awareness programs to schools, businesses, and community groups. Divert NS also works to develop stewardship agreements and funds innovative research and development initiatives.

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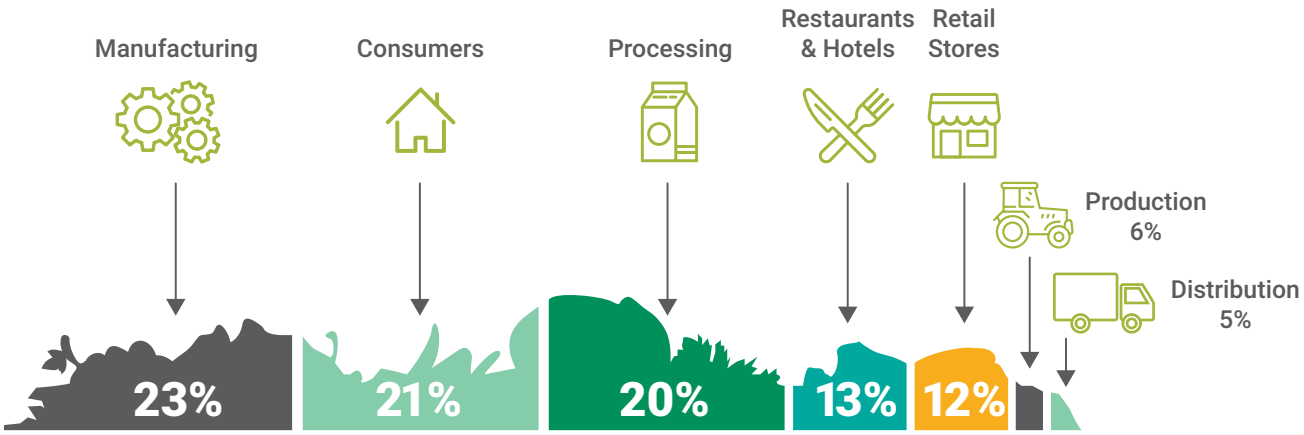
Appendix 1

NATIONAL ZERO WASTE COUNCIL: FOOD WASTE GRAPHIC



Source: The Avoidable Crisis of Food Waste, Value Chain Management International, 2019.

Source

www.nzwc.ca/focus-areas/food/issue/Pages/default.aspx

Appendix 2

BEST BEFORE AND EXPIRY DATES

What's the deal with best before dates?

- Manufacturers can put unrealistic dates
- There are no strong government guidelines
- Many of us think best before dates are the same as expiration dates

What is a Best Before Date?

- Estimate of the best quality or freshness of a food item
- Best Before dates don't tell us when the food is spoiled

Did you know that once the package is opened, the best before date is no longer useful?

What is an Expiry Date?

Only 5 food items have an expiry date in Canada

Formulated liquid diets | Nutritional supplements | Low energy food from the Pharmacist | Baby formula | Meal replacements

For additional information about Canadian food labels, please visit secondharvest.ca.

Appendix 2

FOOD CONSUMPTION TIMETABLE

In Canada, only 5 foods have an expiry date—meal replacements, nutritional suppliments, infant formula, liquid diets and physician prescribed low-energy diets. All other foods display a best before date. Best before dates are an indicator of food quality, not food safety, meaning that food can be consumed past the best before date. This confusion continues to be a major source of avoidable food waste in Canada. This guide helps you clarify when food can be consumed past the best before date. Always use your senses to evaluate food quality if food is past the best before date. Food must be stored properly and unopened for the recommendations below to apply.

BB = Best Before Date

FOOD CATEGORY	ITEMS	CONSUME BY
PRODUCE 	Perishable fresh fruits and vegetables	No visible rot, mold, or bio-degrading smell
	Shelf stable canned fruits and vegetables, pickles, sauces, or pastes	1 year past BB
DAIRY 	Perishable milk (including dairy alternatives), butter, yogurt, cheese, eggs, ice cream, sour cream	2 weeks past BB IF FROZEN 2-3 months past BB
	Shelf stable evaporated, powdered, or milk alternatives	1 year past BB
	Shelf stable baby formula, supplemental beverages (i.e.: Ensure)	Expiry date
MEAT & FISH / EGGS & SOY / LEGUMES / NUT PRODUCTS & NUTS 	Raw meat and fish	BB or IF FROZEN: Beef, lamb, pork, whole poultry: 1 year past BB Poultry pieces: 6 months past BB Ground meat: 2-3 months past BB Fish: 2-6 months past BB
	Cooked luncheon meats, tofu, eggs	1 week past BB
	Shelf stable canned meat, fish, beans, chickpeas, nuts, nut butter, peanut butter, seeds, spam	1 year past BB
BREAD / CRACKERS & CEREAL / GRAIN 	Perishable bread, buns, bagels, pitas, tortillas, flat bread, na'an, matzah	No visible rot, mold, or bio-degrading smell
	Dry, shelf stable cereal, crackers, flour, oats, pasta, rice, quinoa, meals or sides, energy bars	1 year past BB
	Meal replacement or supplement bars	Expiry date
BAKED GOODS / SNACKS / DESSERTS 	Perishable cakes, cookies, pies, danishes, chocolate, pudding	72 hours past BB IF FROZEN 1 month past BB
	Shelf stable cookies, chips, popcorn, bagged snacks, snack cakes, granola bars	1 year past BB
PREPARED 	Pre-cooked or ready-to-eat meals; deli salads, pizza, sandwiches	72 hours past BB IF FROZEN 1 month past BB
	Frozen dinners, microwavable meals	1 year past BB
	Shelf stable canned soups, stews, meals	1 year past BB
	Shelf stable baby food	1 year past BB
CONDIMENTS 	Frozen sauces, gravies	3 months past BB
	Shelf stable mustard, relish, ketchup, jam, margarine, mayonnaise, oil, salad dressing, vinegars, spices, sauces, toppings	1 year past BB
BEVERAGES 	Juice, water, coconut water	3-6 months past BB
	Other drinks; coffee, tea, sport or energy drinks, crystals	3-6 months past BB

Sources: Canadian Food Inspection Agency (CFIA) and Toronto Public Health.

GRADE 6 LEARNING EXPERIENCE

Taking action on food waste at home and in school

Summary

In this lesson, students are introduced to the problem of food waste at home and at school. They will watch a video about how to reduce food waste, featuring interviews with a community-focused food organization and a waste reduction educator. Following a group discussion, students will brainstorm creative ways to waste less food at school and at home, and then work together on a food waste awareness campaign.

Objective

Students gain a deeper understanding of what causes food waste at home and at school. They reflect on the food that they consume and the steps they can take to avoid food waste.

PRE-ACTIVITY

WASTE NOT NEWS EPISODE 3: FOOD WASTE AT HOME

Directions: Students watch a video about food waste at home. Before the video, the class can have a discussion about how food may be wasted at home, using the sample questions below. ***Appendix 1*** can be shared for discussion purposes *(includes an infographic showcasing how much food is wasted at home and how much of that waste is avoidable).*

Pre-video sample questions

- Why is food waste at home a problem?
- What are some of the ways that food is wasted at home and at school?
- Can you think of any creative ideas to reduce food waste at home and school?

VIDEO

Waste Not News: Rude to Our Food

Ep.3: Food Waste at Home

Link to Video

MATERIALS

Computer, Projector, Speaker
Duration: 6:48 minutes

After the video ends, begin a group discussion with the class.

MAIN LEARNING OUTCOME

SOCIAL STUDIES

Learners will implement age-appropriate actions that demonstrate responsibility as global citizens.

SKILLS

IMPLEMENT

Select: Locate several relevant and dependable details to support an answer.

Plan: Identify steps to solve the problem. Execute the steps, modifying as necessary.

Evaluate: Review steps and results from an investigation or problem solving. Reflect on varying perspectives and alternative solutions or findings. Identify potential new problems and/or issues.

Apply: Carry out or complete a procedure/technique.

ANALYSE

Gather and select appropriate information. Begin to reflect on accuracy, validity and importance, of the information. Communicate findings.

CROSS-CURRICULAR LINKS

ENGLISH LANGUAGE ARTS

LISTENING AND SPEAKING

Learners will communicate effectively and clearly respecting cultural contexts.

Learners will use writing and other representations to explore, clarify and reflect upon thoughts and experiences.

WASTE NOT NEWS

Post-video sample questions

- Was upcycling a new word for you?
- Does anyone ever upcycle items in their kitchen?
- Why is it better to reduce food waste rather than just composting it?

DURATION
1-2 days

MATERIALS
Art supplies
Paper or Bristol board
Computers or Tablets (Optional)
AV equipment (Optional)

ACTIVITY

FOOD WASTE AWARENESS CAMPAIGN

Directions: Break the students into small groups and have them brainstorm how they can minimize food waste at school and think about ways they can spread the word about reducing food waste

Teacher support: students could take their food waste home for their parents to see, leftover cafeteria food could be donated to a local food bank, organize a soup day to use up leftovers in cafeteria.

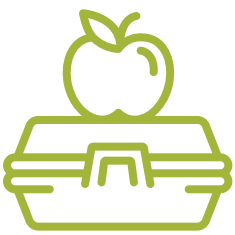
In the same small groups, students work together to create an awareness campaign to encourage their community to waste less food—both at home and at school. Possible executions might include posters, brochures, presentations, radio commercials, school announcements, etc.

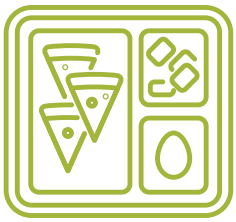
With student and teacher consent, outputs from the food waste awareness campaigns can be sent to Divert NS via email at info@divertNS.ca, where they may be shared at divertNS.ca and/or on Divert NS' social media channels.

POST ACTIVITY

FOOD WASTE FRIDAY

Directions: Have your school or class create and participate in Food Waste Friday. Use this day to bring awareness to ways you can take action to reduce food waste. Food Waste Friday is celebrated each year during Waste Reduction Week—a special week in October—but you can celebrate it any Friday throughout the year. In preparation for your day, explore Waste Reduction Week (WRW) Canada's website and take the WRW Canada food waste pledge for kids. wrwcanada.com/en/food-waste-pledge-kids



Optional/extended learning activity

Directions: Isha is the regional Waste Reduction Educator for Colchester County who was featured in the Waste Not News video. Who's your local waste reduction educator? Find yours at divertns.ca/education/tools-downloads/waste-educators and schedule a workshop with them to discuss food waste in your area. Or contact them with any additional questions you may have about food waste.

Assessment

Formative

Evaluate student comprehension of the positive effects of reducing food waste through class discussions and passively monitoring group conversations.

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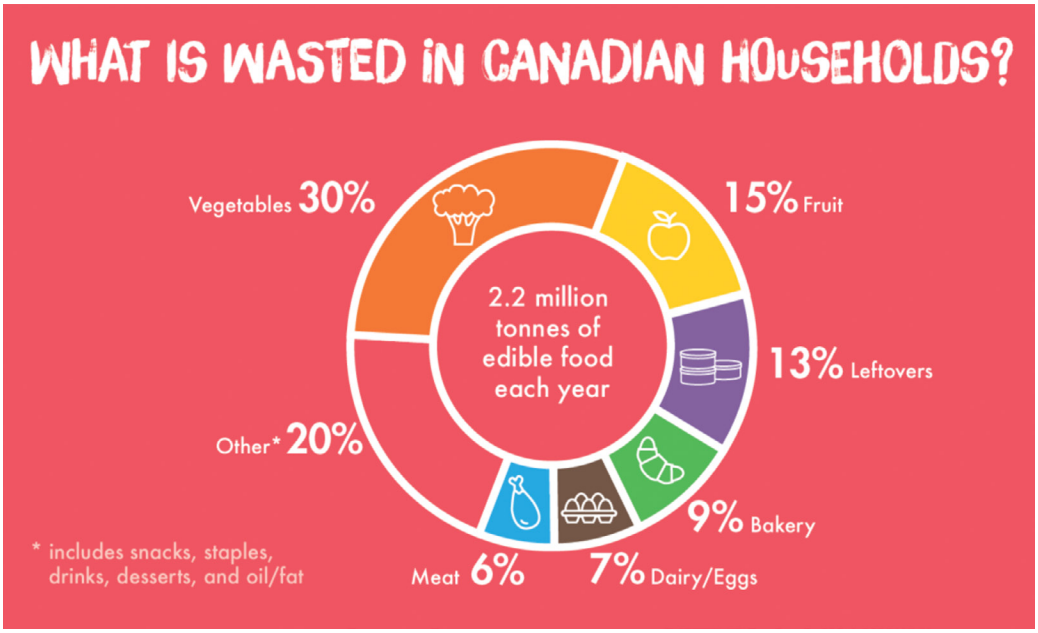
Appendix 1

LOVE FOOD HATE WASTE:

Avoidable household food waste

LOVE FOOD HATE WASTE:

What food is wasted in Canadian households



Source

lovefoodhatewaste.ca/about/food-waste/