

Disclaimer: contents are based on the Alberta curriculum (science, grade 4) from 2015.

LTTA SESSION PLAN | Waste and our World

OVERVIEW

Core curriculum objectives

Topic A: Waste and Our World

Students learn about wastes produced through natural processes and human technology.

1. Identify plant and animal wastes, and describe how they are recycled in nature
2. Identify and classify wastes that result from human activity
3. Describe alternative methods of disposal, and identify possible advantages and disadvantages of each
4. Distinguish between wastes that are readily biodegradable and those that are not
7. Identify kinds of wastes that may be toxic to people and to the environment
8. Identify alternative materials and processes that may decrease the amount of waste produced; e.g., reducing wastage of food, using both sides of a sheet of paper.
9. Identify ways in which materials can be reused or recycled, including examples of things that the student has done.
10. Develop a flow chart for a consumer product that indicates the source materials, final product, its use and method of disposal
11. Identify actions that individuals and groups can take to minimize the production of wastes, to recycle or reuse wastes and to ensure the safe handling and disposal of wastes.

Art objectives

Students use actions to roleplay the flow of waste through natural and human systems. Students use visual art to explore imaginary scenarios and alternatives. Students use rhymes to write and perform a rap which describes ways to reduce, reuse, and responsibly dispose waste.

Keywords include:

- upcycle - reusing something to create another thing of even greater value
- remix - taking parts from a variety of different sources to create something new
- perfect rhyme - a rhyme where two words have the exact same ending sound (hot/shot)
- slant rhyme - a rhyme where two words have similar ending sounds (love/mud)
- multi rhyme - a phrase that contains multiple rhymes (shake it up/make it tough)

SESSION 1

Plan

Students use movement to roleplay the flow of waste through natural and human systems. Students identify the origin, use, and destination of different wastes.

Hook: Hot Potato | 10 min

Development: Machine (Nature) | 15 min

Application: Machine (Human) | 25 min

Closure: 3-Panel Comic (Waste) | 20 min

Outcomes:

1. Identify plant and animal wastes, and describe how they are recycled in nature
2. Identify and classify wastes that result from human activity

10. Develop a flow chart for a consumer product that indicates the source materials, final product, its use and method of disposal

Materials:

recommended: held in a larger space

unlined paper for drawing (teacher)

5-6 “hot potato” objects (artist)

Hot Potato

The artist asks each student to think of their favorite place in the world (a city, park, building, etc.) Students form a circle and the artist passes out several “hot potato” objects which will be “waste”. The artist teaches students a brief song (“Stella Ella Ola”) and students sing it while passing the hot potatoes around the circle. When the song ends, whoever has a hot potato steps out of the circle and names their favorite place - the waste has been “thrown away” to that place. Afterwards, students reflect on whether it is fair to give waste to another place/person to handle.

Machine (Nature)

We will model the treatment of waste in natural processes by roleplaying a machine. The class is divided among the following roles by the artist:

- Abiotic (sun, air, water, soil) - mobile
- Fertilizers (compost, castings) - mobile
- Producers (plants)
- Consumers (animals)
- Decomposers (insects, worms, fungi, bacteria)

Each role comes up with a machine-like action to represent themselves. The artist combines the actions together into a machine. The mobile roles will move through the machine and be transformed at each step. For example, the students representing “air” will go to the “consumers” and change their action to “carbon dioxide”, before going to the “producers” and changing their action to “oxygen”. The artist highlights the difference between “garbage” and “waste” - waste can refer to a broader category of things (including air, water), and also to poor usage (wastefulness).

Machines (Human)

We will then repeat the game for the treatment of human waste with the following roles:

- Resource (renewable, non-renewable) - mobile
- Products and By-products - mobile
- Producer (industry)
- Consumer (people)
- Disposal (recover, reuse, recycle, or waste)

Students will divide into 4 large groups, each of which will create a machine for a different human-made product. Each group decides on the resources they need, the products and by-products produced, and how the products/by-products are disposed. Students representing non-renewable resources do not return to their group’s machine once they are “disposed”. Each group acts out their machine for the class.

- Example products: bread, jeans, plastic bottle, gasoline

Three Panel Comic (waste)

The artist puts up a drawing of several of the above products. Students choose one of the products and imagine what it looked like before, during, and after use. Students copy the drawing into a 3 panel comic, and alter the drawing in each panel to represent the three states.

SESSION 2

Plan

Students classify waste based on its toxicity, biodegradability, and reusability. Students identify different methods of waste disposal.

Hook: Four Corners | 5 min
Development: 3-Panel Comic (Disposal) | 25 min
Application: Scenarios | 40 min
Closure: Value Lines | 5 min

Outcomes:

3. Describe alternative methods of disposal, and identify possible advantages and disadvantages of each
4. Distinguish between wastes that are readily biodegradable and those that are not
7. Identify kinds of wastes that may be toxic to people and to the environment

Materials:

in rap groups of 5-6 students each
chart paper (teacher)
cards listing example products and waste types (artist)
cards listing waste scenarios (artist)
cards listing ways to dispose waste (artist)
sound recording of “What a Wonderful World” (artist)

Four Corners

The artist divides the room into 4 corners - biodegradable, toxic, recyclable, none of the above. Toxic materials include corrosive, and flammable examples. The artist draws cards to name different products, and students move to the corner of the room that they think best represents the product.

Examples: sewage, tissues, lawn clippings, glass bottles, plastic bag, batteries, paint, motor oil, nuclear waste

3-Panel Comic (Disposal)

The artist asks students to identify the keywords litter, dump, landfill (also recycling, recover, reuse, repair, leachate. The artist shows diagrams of each. Students pick a product and draw a 3 panel comic of that product, altering each panel to show what happens to the product if it is disposed as litter, in a dump or landfill, or recycled, recovered, reused, or repaired.

Scenarios

The artist hands out cards containing scenarios involving waste (e.g. “You are walking down the street and you trip over a pop can”). Students find a partner to share their card with and decide on the most responsible action to take.

The artist explains how rappers and songwriters write about their personal experience, and asks students to think of a real or imaginary scenario that involves waste. In their rap groups, students write their own scenarios using the words of “What A Wonderful World” as a guide. The scenario describes one of the following problems: not reusing, not reducing, not disposing properly (“I see _ and _”, “I hear _,” etc.), and a solution to that problem (“I think to myself _”). Groups present, with each member speaking at least one line.

Value Lines

The artist draws cards of different products again, and for each product draws another card that lists one way to dispose waste. Students line up along a value line stretching across the room to show their agreement with the combination, with “strongly agree” on one side and “strongly disagree” on the other.

SESSION 3

Plan

Using the principles of upcycling and remixing, students learn about and think of creative ways to reuse waste.

Hook: Junk Orchestra Video | 10 min
Development: Inside/Outside Circle | 15 min
Application: Collage | 40 min
Closure: Habits, Remix | 30 min

Outcomes:

8. Identify alternative materials and processes that may decrease the amount of waste produced; e.g., reducing wastage of food, using both sides of a sheet of paper.
9. Identify ways in which materials can be reused or recycled, including examples of things that the student has done.

Materials:

in rap groups of 5-6 students each
scrap magazines, flyers, newspapers, other documents and pictures (teacher)
scissors and glue sticks (teacher)
unlined paper for collage backing (teacher)
clips of video from Landfill Harmonic, TED Talk (artist)
images of “Photoshop battles” (artist)
sound recorder (artist)

Junk Orchestra Video

The artist introduces the terms “upcycling” and “remixing” as different ways to think of reuse/recycling, and shows video clips about children in Paraguay and their orchestra of instruments made from trash. The motto of this session is “one person’s trash is another person’s treasure”.

Inside/Outside Circle

Each student thinks of a potential piece of waste. Students form two circles inside one another and facing each other. Each student shares their thing with the person across from them. Together, the two students think of a new use for the two things combined together. The artist rotates one of the circles in order for students to switch partners.

Collage

The artist shows some examples of remixing using images from “Photoshop battles”. Students will upcycle and remix the collected scrap magazines into collages, making a picture of an imaginary invention that helps reduce or reuse waste in some way. Students share the collages by pairing up to different partners, explaining how each part of the invention is reusing waste in some way.

Habits

In their rap groups and using what they have learned so far, students come up with one habit per student that they could change to reduce waste. These habits will be the topic of the next session’s rap.

Remix

If time permits, we will mix a backing beat for the final session’s rap. Students have 1 minute to experiment with sound making objects in the classroom. The artist selects one of each of the following types of sound by popular vote - low percussive sound (bass), high percussive sound, vocabulary word, continuous sound. The artist leads students in remixing and recording a backing beat for the next session, by organizing the selected sounds into a short rhythmic loop.

SESSION 4

Plan

Students write and perform a rap about the actions we can take to reduce, reuse, or remove waste.

Hook: Rhyme Battle (Vocabulary) | 25 min

Development: Rap Writing | 35 min

Application: Performance | 30 min

Closure: Apple/Onion | 10 min

Outcomes:

11. Identify actions that individuals and groups can take to minimize the production of wastes, to recycle or reuse wastes and to ensure the safe handling and disposal of wastes.

Materials:

*recommended: extra adults to help
in rap groups of 5-6 students each
chart paper (teacher)
device such as iPad, Chromebook, for recording audio and optional video (teacher)
backing beats (artist)
custom backing beat from previous session (artist)
rap chorus template (artist)*

Rhyme Battle

The artist introduces perfect, slant, and multi rhymes. Students divide into 6 large groups. Each group is given one “re-” vocabulary word (rethink, recover, resource, regulations, reduce, repair), and have 5 minutes to think of as many different rhyming words or phrases as possible. Each group designates one person or adult to record them on chart paper. The two classes will face off in a “rhyme battle” in which pairs of groups take turns saying their rhymes to a backing beat. The groups with the most rhymes win a point for their class.

Rap Writing

We will write a rap that tells people how to reduce, reuse, and safely get rid of waste. Students work with the artist to finish writing a chorus for the class rap. In their rap groups, each group chooses one habit change from the previous session as the topic of their rap. Students write their rap on chart paper, using rhymes to end each line.

Performance

The artist will start playing the edited backing beat from the previous session for groups to practise their raps with. Once all groups are ready, students perform the rap, starting and ending with the chorus. Students repeat the performance if time permits. Teachers or the artist set up a device to record the performance.

Apple and Onion

In a circle, each student shares one positive experience and one thing that could have been changed in the sessions.