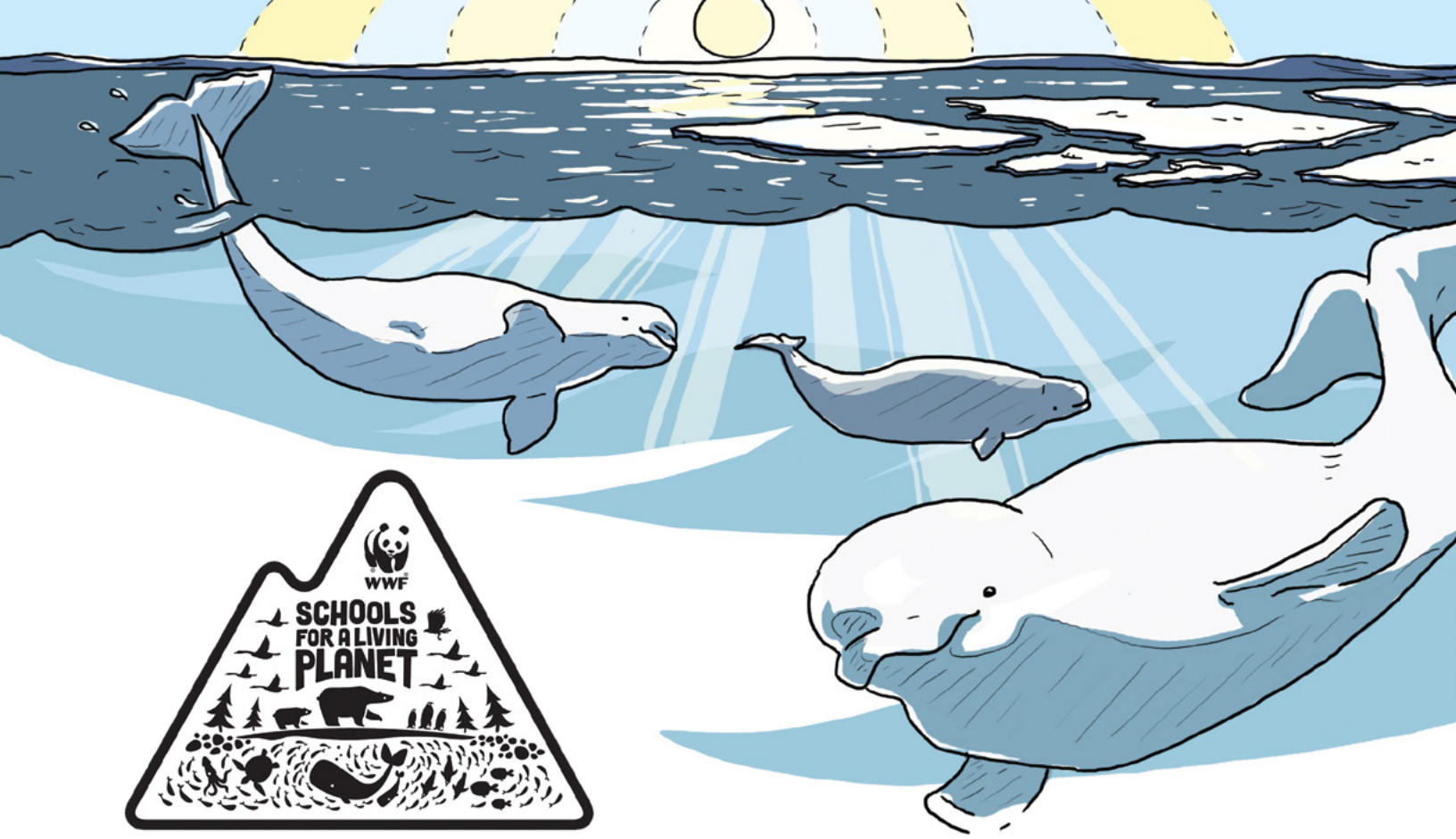


Beluga Whale

Garbage Talk Inspiration

Beluga whales are an important part of the health, culture and economy of Nunavut. Beluga meat and blubber (muktuk) is part of the traditional diet of Inuit. Like many whales in the ocean, the beluga whale is sensitive to garbage and contaminants that enter our waterways. Keeping litter out of the environment will make your community look clean and healthy and it will also keep the beluga whales safe! In an effort to protect our oceans WWF has developed a Clean Camps, Clean Coast program.

SMART Board / Promixa Ready

Northern Resources

Gr.7 Rethinking Waste

GARBAGE TALK

OBJECTIVE : Students will learn about different types of waste and how waste is being managed in Nunavut.

How much waste do you produce? What kind of waste? Is there a way to waste less? Garbage has a big impact on the planet, but once you start paying attention to how much you throw away, you can make a big impact, too - for the better! There are many hands-on activities that can help students learn how to make a difference in their community and improve their knowledge of waste, including why waste needs to be properly managed.

Pg 2 Curriculum Links
Pg 3 Teacher's Resources
Pg 4 Lesson Plans
Pg 10 Wild Ideas
Pg 11 Glossary
Pg 15 URL's

CURRICULUM Links

Grade 7 Science

Part A: Interactions and Ecosystems: Outcomes 1,2,3,4

Part B: Plants for Food and Life: Outcomes 1,2,3,4

Grade 7 Social Studies

Attitudes (embedded throughout), Geography of the Circumpolar World, Changes in the Circumpolar World, Current Events

Grade 7 English Language Arts

General Outcome #1: Specific Outcomes: 2.2, 2.4

General Outcome #2: Specific Outcomes: 1.1, 1.2, 2.2

General Outcome #3: Specific Outcomes: 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4

General Outcome #4: Specific Outcomes: 4.3

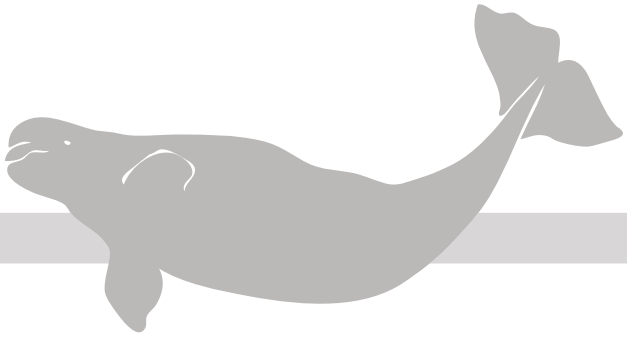
General Outcome #5: Specific Outcomes: 2.3

Innuqatigiit

Relationship to the Environment Themes:

Land, Water, Whales

TEACHER'S Resources



Videos

Wake-up Call (6:00)
www.gaiafoundation.org/wakeupcall/

The Story of Stuff (21:30)
www.storyofstuff.org/movies/story-of-stuff

Loop Scoops - Garbage (2:00)
www.youtube.com/watch?v=tEdoDMTT5jM

An Introduction to the Waste-Free Lunch Challenge (3:00)
www.wastefreelunch.com/videos

The Landfill Harmonic (3:30)
www.vimeo.com/52711779

So You Want to Start a Beverage Container Depot? (9:00)
www.icarenwt.ca/beverage-container-program/interested-becoming-depot-operator/instructional-videos

Change the World in 5 Minutes (4:30)
www.youtube.com/watch?v=oROsbaxWH0M

Handouts and Websites

Waste Quiz
www.cf.ecokids.ca/pub/games_activities/waste/wastebusters/quiz_1.cfm

Beverage Container Program Info Poster
www.icarenwt.ca/beverage-container-program/promotional-materials

Waste Reduction Week Canada
www.wrwcanada.com/

Composting in Iqaluit
www.findingtruenorth.ca/composting-in-iqaluit/

Iqaluit Community Greenhouse
www.iqaluitgreenhouse.com

Rethinking Waste Journal
http://schools.wwf.ca/Lessons/Grade/7

Books

Our Earth: How Kids are saving the Planet
Janet Wilson
Second Story Press, 2010
ISBN 978-1897187845

The Big Green book of Recycled crafts: over 100 earth-friendly projects
Susan White Sullivan
Leisure Arts, INC, 2009
ISBN 978-1601401472

Recycle: the essential guide
Lucy Siegle
Black Dog Publishing, 2006
ISBN 1904772366

David Suzuki: doing battle with climate change
Suzy Gazlay
Crabtree Publishing Company, 2009
ISBN 978-0778746652

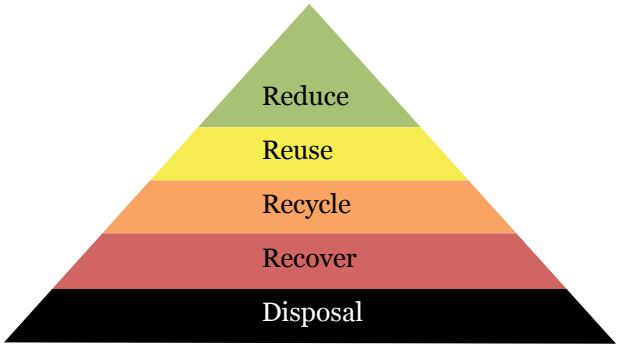
LESSON Plans

Lesson 1: What is Waste?

45 minutes.

In their **Rethinking Waste Journals** (**see Teacher's Resources**), have students make a mind map detailing what waste is to them. To stimulate discussion, ask: *what did Inuit create as waste 250 years ago?* Then ask, *what is waste to a bear?* In nature, there is no such thing as "waste" because materials that die decompose. In nature, waste = food. Traditional Inuit culture created very little waste, and anything that was unused was able to breakdown naturally back into the environment. The traditional culture also focused on using only what was needed, so there wasn't a culture of overconsumption. If there is no such thing as waste in nature, *why do humans have garbage collection, landfills and hazardous waste?* Garbage is something that humans have created by producing products that are made of components that are not reusable or do not biodegrade. Waste is also a cultural conception - what is waste or garbage to you may not be to someone else.

In Canada, almost 35 million tonnes of waste is produced per year, which comes out to 835 kg per person per year (Stats Canada, 2006). In Nunavut, each person creates approximately 8.5 cubic metres of garbage per year (Arktis Solutions, 2011). Write these statistics on the board to help with the discussion.



- *Do students remember The Three R's?* Reduce, reuse and recycle! Waste is managed through the waste hierarchy, with the best thing to do at the top and the last resort at the bottom.

Draw the waste hierarchy on the board or chart paper and have students call out examples for each category. Here are some examples they might come up with:

1. Reduce: bring a reusable bag to the store so you don't have to use a throw-away one. Ask yourself if you really need something before buying it.
2. Reuse: wash out an old yogurt container and use it for leftovers. Re-purpose items in arts and crafts projects.
3. Recycle: bring your beverage containers to the depot. If your community does not have a depot, approach the manager of the Northern store to see if a sea can container can be set up to collect recycling.
4. Recover: pick up litter or clean up old garbage from your camp or a community dump. Collect electronic waste and gather it in a new location so that it is not burned in the landfill.
5. Disposal: plastic packaging usually has to be thrown in the garbage, but if you've followed Step 1, you should have less plastic to dispose.

LESSON Plans

Lesson 2: Litter on our Land!

30 - 90 minutes, depending on where your litter location is. This activity is best done in the autumn or spring.

Before we can learn more about ways to reduce and divert our waste, we need to understand what our waste is composed of. Ask students what types of waste they think are the biggest parts of their garbage. Following the brainstorming activity - show the students the results of the 2014 Nunavut Shoreline Clean-Up.

Next - display the Waste Stream Composition pie chart on the following page, read the introduction text out loud and go over what categories make up the biggest part of our waste. Have students fill out question 6 in their Rethinking Waste Journal. *Did any of the categories on the Nunavut Shoreline Clean Up or the Arviat Waste Stream Composition surprise them? Do they think this will match the types of garbage the school produces? What about on a litter pick-up around the community?*

Do a waste composition study of the litter in your community and investigate what people are throwing away.

You'll need

- Garbage bags, recycling bags and a pair of gloves for every student. You can contact the hamlet and see if they will help support a litter collection event and pay for the materials.
- Scale for weighing items
- **Litter on our Land** audit (see page 5 in **Rethinking Waste Journal**).

Steps

1. Choose a place you know needs some cleaning up. Tell students that we are conducting a composition study of the litter in our community, so they should try and pick up everything they can so long as it's safe to do so (no needles or sharp objects).
2. Distribute cleanup materials and spend a set amount of time (e.g., 30 minutes) picking up litter.
3. Back at school, count how many bags you filled and inspect one of the bags by dumping its contents out onto a tarp.
4. Have students sort the materials into categories (organics, paper products, plastics, cigarettes, Styrofoam, other) and then record the weights for each category.

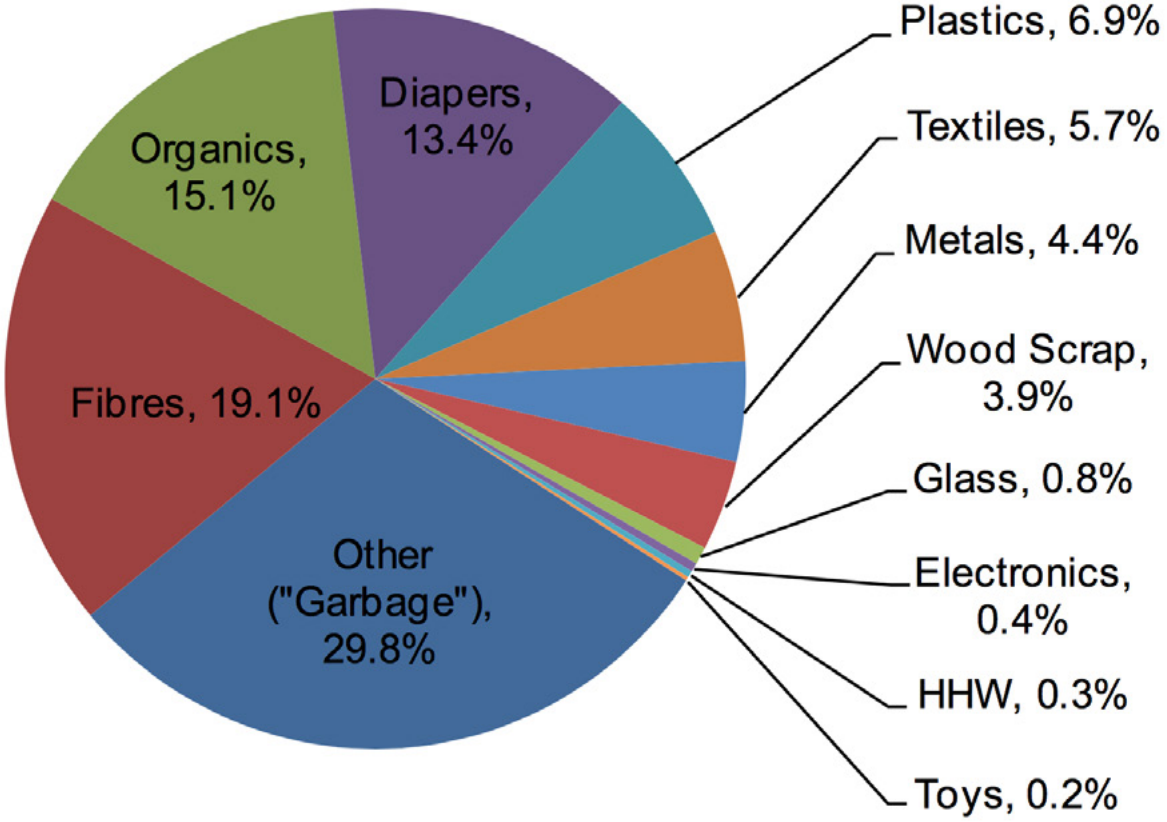
Communicate the Results

Have students make individual posters or a class mural that communicates the ratio of materials they picked up. They can take bits of waste from each category and paste it on their poster. Display in the school hallway or somewhere in the community.

What are some of the ways that the litter documented in your class posters or mural could have been avoided? Add informative labels to the posters or mural. For example, a glass jar could have an arrow pointing to it saying "I could have been reused to store jam" and a piece of paper could have a sign saying, "I could have been used on both sides."

Before we can learn more about ways to reduce and divert our waste, we need to understand what our waste is composed of. Ask students what types of waste they think are the biggest parts of their garbage. Display the **Waste Composition** pie chart below and discuss the categories. *Does this match the types of garbage the school produces? What about on a litter pick-up around the community?*

WASTE Stream Composition



Composition of Residential Solid Waste (by category) for Arviat, Nunavut (exp Services Inc. 2013).

The Hamlet of Arviat completed a Solid Waste Audit in 2013 (exp Services Inc). The audit determined that the four largest categories of sorted residential waste (including 5 businesses/institutions) were:

- Other waste (i.e. “garbage” - 29.8%)
- Fibres - 19.1%
- Organics - 15.1%
- Diapers - 13.4%.

Combined, these categories made up about 77.4% of the total waste stream sampled. The study also found that garbage trucks dumped approximately 936 loads of garbage per year, which amounts to 9,304 cubic meters of waste in a community of about 2, 320 people. This amounts to about 4 cubic metres of garbage per person each year! Your community may have a slightly different *waste stream composition* depending on the size of the community, demographics and diversion opportunities. Many northern communities have a lot of cardboard and plastic waste from packaging for materials that have to be shipped long distances. In addition, shipping containers used on sea lifts do not get shipped back down south.

RETHINKING our Waste!

One class period.

RETHINKING Waste Journal

Provide each student with a copy of this **Journal**, which when you sign in can be downloaded from the Schools for a Living Planet website.

Ask your class, *does anyone know what "waste diversion" means?* In Canada, 7.75 million tonnes of waste is diverted from landfills, a 22% diversion rate. This means that the waste is being recycled rather than ending up in a landfill. Nunavut doesn't have a calculated diversion rate because we have fewer opportunities for recycling. But together, we are changing this! Let's learn more.

Investigating Waste Diversion online

In a computer lab, have students explore waste diversion through online activities.

Garbology

An interactive introduction to garbage and waste diversion opportunities

Waste Eco-Quiz

Test your knowledge on waste diversion

Wake up Call

A video about the ugly truth of cell phones

Not all the waste diversion options that are available to people in the larger cities are available in Nunavut. *Can students think of opportunities to divert waste in their community?* Write them on the board. The Government of Nunavut completed a pilot project in 2010 and determined the cost of establishing recycling programs in the communities would be around 18 million dollars per community. Therefore they are not proceeding with hamlet-based recycling at this time (Source: Government of Nunavut).

Iqaluit Community Greenhouse Society

Here you can learn about the composting initiative in Iqaluit and about the local greenhouse that is open during the summer months.

Composting in Iqaluit

This blog shares information about the first composting program in Iqaluit that fell under the non-profit organization, the Bill Mackenzie Humanitarian Society back in 2004. For the nine years that followed, Jim Little organized weekly compost pick-ups from 100 households and dropped the compost off at his composting site near the landfill.

Plastic water bottle and aluminum drinking cans, Canada.

Explore Nunavut Waste Diversion Opportunities

This activity will require some teacher preparation - review the props on each Station Manager's card and have them ready to hand out or set up at spots in the room. For this activity, nominate three students to be Program Managers. Assign each student a station with materials and information cards. While they are learning about their station, have the other students review question 8 in their **Rethinking Waste Journals**; they will use this activity to complete it. Divide students into three groups. Once the program managers are ready, let the other students cycle through their stations to answer their questions.

Reducing waste in Nunavut

Cut out the following cards and photos to give to your station managers:

Station 1. Lunch Box Investigator

You are the Lunch Box Investigator in your community!

Props you should have at your station: Station Number 1 sign, rubber gloves, magnifying glasses, bins for organization, recycle bin and garbage bin

Tell this to classmates who visit your station:

Every day that we eat lunch we are creating waste and adding to the landfill. Let's look at the food and drinks we bring to school and think of ways we can reduce waste in our classroom.

Type of food and lunch items:	Where it goes:	How we can reduce waste:
Fruits and vegetables	Garbage	Start a classroom reuse center for rinsed containers
Sandwiches	Rinsed down the sink	Use brown paper bags and compost them
Snacks	Reuse center or classroom recycling bin	Use reusable lunch bags rather than Ziploc bags
Beverages	In our stomachs	Use a classroom set of dishes
Wrappers		Bring reusable water bottles to school
Containers		Make your own snacks at home and use reusable containers

Reducing Waste in Nunavut

Station 2: Composting Facility Operator

You are the Compost Facility Operator in your community!

Props you should have at your station: Photo of Nunavut compost center, overalls, rubber gloves, shovel, compost bin, compost information handouts and examples of materials you can compost.

© Mike Linksvayer

Example of a vericomposting bin.

Tell this to classmates who visit your station:

The composting program in Iqaluit began in 2004 when Jim Little started a non-profit organization called the Bill MacKenzie Humanitartian Society. For nine years Jim would pick up compost from 100 households and drop it off at a composting site near the landfill. People can compost almost all of their food waste (except for meat and dairy) as well as tea bags, napkins, paper and coffee grinds! Composting reduces a majority of your waste in the kitchen and can be done in buckets or with worms.

Station 3. Single-Use Retail Bag Program Manager

You are the Single-Use Retail Bag Program Manager in your community!

"Start a Bag Habit" poster, plastic bags, grocery store employee tag and reusable bags.

Tell this to classmates who visit your station:

The Northwest Territories Single-Use Retail Bag program began in 2011 has prevented the use of almost 18 million plastic bags. If these were laid in a line, the line would stretch from Cambridge Bay to South America! *Did you know that plastic bags are the number one shoreline litter item?*

Our class can help to reduce the number of plastic bags that pollute our Nunavut land and water! We can do it!

Understand why using reusable shopping bags would have benefits in Nunavut
Go to www.icarenwt.ca/single-use-retail-bags

WILD Ideas

The Story of Stuff (21:30)

Today, a lot of waste is a result of consumerism. We are encouraged to buy a lot of stuff, throw it away and buy more stuff, so that companies can make more money.

Discussion Questions

- *Did the **Story of Stuff** video surprise anyone?*
- *What is wrong with waste?*
- *Why would we want to reduce how much we waste in our community?* Protect our environment, preserve resources so we can use them again, reduce energy use for producing new products...

Recycling Relay!

Divide the class into two teams. Arrange posters, sheets or bins with the category name on them along one wall. Collect two bags of mixed "garbage" and empty one bag in front of each team. Categories of garbage can include: paper, glass, cans, electronic waste, plastic, mixed paper and cardboard.

Rules: Every person on each team takes their turn as the "runner." The "runners" can only take one item at a time and must run to the blue boxes or bins, put the garbage in the right spot, run back and slap the hand of the next player before that player can go. The team that makes it through their pile first wins. Then, all players have to look through the bins and make sure all the recyclables have been sorted correctly.

Freecycle Event

Organize a weekend-long event in your community (with the approval of your town or hamlet council), where the entire community is encouraged to put gently used items on the curb. One person's trash is another person's treasure!

Tour the Landfill

Take a field trip to your local dump or landfill. Before you go, contact the landfill operator to ask permission and organize a time for a tour. As a class, brainstorm some questions to ask the landfill staff. After your visit, discuss ways you can help reduce the amount of material going to the landfill.

Some questions to consider: *Does your community encourage backyard composting? Do you collect hazardous waste and e-waste? What can be done within your school, home and community?*

Reuse Center

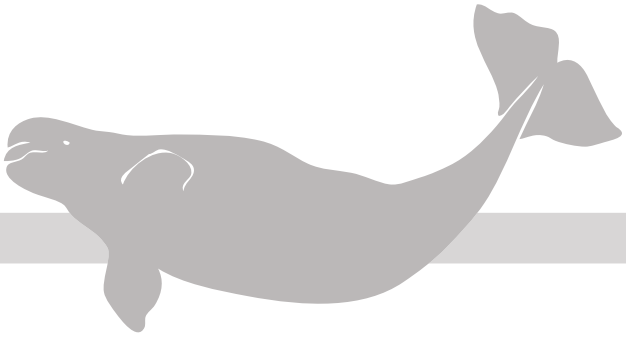
Create a small-scale reuse center in your classroom where you can collect items like jars, paper towel rolls, tissue boxes, etc. Use these items for classroom activities, arts and crafts.

Organize a Great Canadian Shoreline Cleanup event

Help make our aquatic ecosystems cleaner, healthier and safer for all living things by organizing a cleanup in your local community.

Great Canadian Shoreline Cleanup in Pond Inlet, NU.

Glossary



Nunavut has two official languages: Inuktitut and Inuinnaqtun. Inuvialuktun is used in some parts of western Nunavut. Languages develop over thousands of years and they tell us a lot about the people who speak them and the environment that they live in. You've probably heard that Inuit have many different words for snow. This is because there are many different types of snow in the Arctic and knowing the difference between them and what they can be used for at one point in time would have meant the difference between life and death. We asked speakers of some of these languages to translate some of the key words in these resources and provide literal back translations. You'll see that some words translate easily while some require very long explanations. The same is true when trying to translate from Aboriginal languages into English and French. There are many words that have no translation. Try using these translations to have a conversation with your students about the differences between languages and how they reflect different ways of life and ways of thinking. This would be a great opportunity to invite a native language speaker into the classroom too.

Beluga Whale

A small white whale that lives in Arctic and sub-Arctic seas

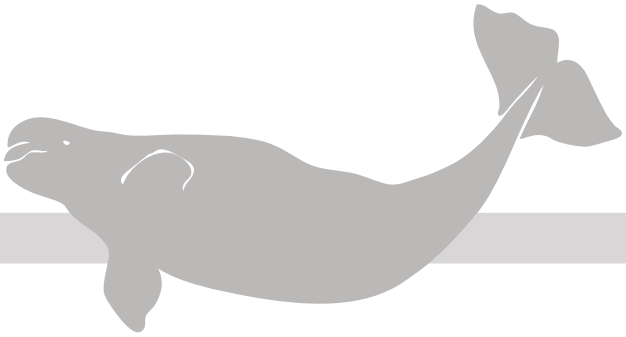
Inuktitut	1. Qinalugaq 2. Qilalugaq / Beluga
Inuvialuktun	qilalugak
Inuinnaqtun	qilalugaq

Waste

A by-product of a process that is not useable or is undesirable

Inuktitut	Aktakut / Garbage
Inuvialuktun	Asiuyiyaa

Glossary



Garbage

Waste that is produced by households and people in general

Inuktitut	**Aktakut** / Garbage
Inuvialuktun	**aktat**
Inuinnaqtun	**iqqakuuq**

Biodegrade

A word used to describe the chemical dissolution of material as a result of the action of bacteria or other biological means.

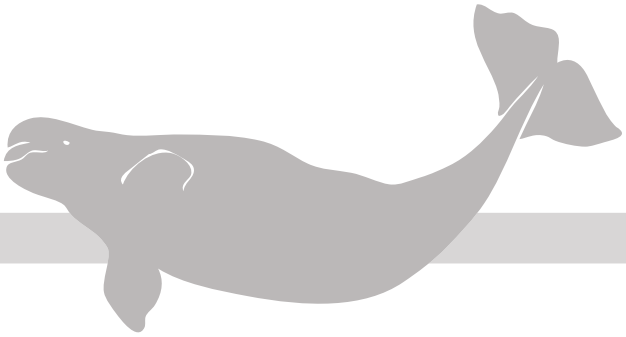
Inuvialuktun	**Aktat qakigaa** / Garbage that is spoiled from being in the sun

Diversion Rate

The percentage of garbage that is diverted from landfill sites to either be recycled or composted

Inuktitut	**Atuqtaukaniqtuksait** / Things to be recycled, reused
Inuvialuktun	**Aktat atugaa** / Garbage that is used / re-used

Glossary



Reduce

Use fewer things that produce garbage, produce less garbage.

Inuktitut	**Mikiqliriniq** / Using less
Inuvialuktun	**Mikliyuaq**
Inuinnaqtun	**ikililaangniq**

Re-use

A way of reducing waste by finding new uses for things that would otherwise be thrown out.

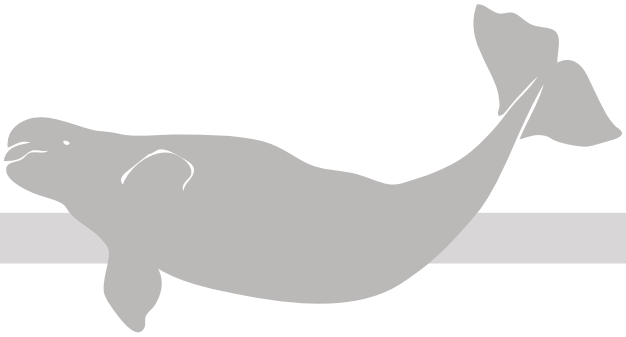
Inuktitut	**Atukkanirniq** / Reusing
Inuvialuktun	**Atugaa**
Inuinnaqtun	**Atuffaaqtaaqtuq** / Re-usable

Recycle

The process whereby certain garbage items are broken down into their component minerals/ compounds so they can be made into new things.

Inuktitut	**Atukkanigaksait**
Inuvialuktun	**Atugaa aktat nutaaqlu suaryun**
Inuinnaqtun	**Iqqakuuqatuqtauffaaniqaqtuq** / Re-usable garbage

Glossary

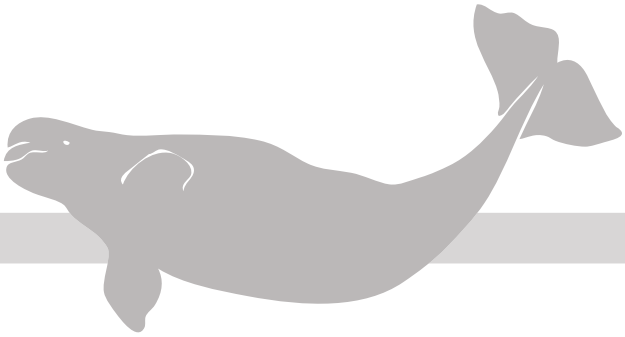


Waste Stream Composition

A concept used to describe the kinds of waste produced. For example – 30 percent organic material, 30 percent paper and cardboard, 40 percent plastic.

Inuktitut **Aktakunik sanajaksait** / Items from garbage set aside for different uses

URLs



Some hyperlinks have been embedded throughout the **Rethinking Waste** resource. If a link appears to be broken, try visiting the homepage or keying in the URL as it's written below.

WWF Clean Camps, Clean Coasts Blog
http://blog.wwf.ca/blog/2013/10/28/partnering-clean-camps-clean-coasts-arctic/

Shoreline Clean Up Nunavut
http://www.shorelinecleanup.ca/sites/default/files/gcscstaff/2014%20Facts%20%20Figures%20-%20Nunavut%20-%20FINAL.pdf

Innuqatigiit curriculum
http://www.ece.gov.nt.ca/early-childhood-and-school-services/school-services/curriculum-k-12/aboriginal-languages#inuuqatigiit

The Story of Stuff
http://storyofstuff.org/movies/story-of-stuff/

Garbology quiz
http://www.naturebridge.org/garbology.php

Waste eco-quiz
http://cf.ecokids.ca/pub/eco_info/topics/waste/quiz/play_wastequiz.cfm

Wake-up Call video
http://www.gaiafoundation.org/wakeupcall/

Great Canadian Shoreline Cleanup
http://schools.wwf.ca/Lessons/Grade/7/97

Composting in Iqaluit
http://findingtruenorth.ca/composting-in-iqaluit/

Fact sheet on Waste Management in Nunavut
http://gov.nu.ca/sites/default/files/Solid%20Waste%20Management%20in%20Nunavut.pdf

From plastic to fantastic
http://www.northwest.ca/content/in_the_news/From_plastic_to_fantastic_-_Apr_29.pdf

Solid Waste Management in Nunavut: A Backgrounder
http://gov.nu.ca/sites/default/files/Solid%20Waste%20Management%20in%20Nunavut.pdf

WWF is working to build a future where people live in harmony with nature. The Schools for a Living Planet program empowers educators and students of all ages with the tools they need to lead us into a sustainable future. Schools for a Living Planet is grounded in the principles that make WWF a global success - including strong science and a focus on solutions.

Ecology North is a charitable, non-profit organization that has engaged Northerners in hands-on learning opportunities in the Northwest Territories since 1971. Our mission is to bring people and knowledge together for a healthy Northern environment. Education, public engagement and youth involvement are integral to all of our program streams that include climate change adaptation, watershed protection planning, waste reduction, food sustainability and alternative energy promotion.

This project was made possible with the financial support of CIBC. For more information, visit www.cibc.com.

WWF-Canada and Ecology North would like to thank the classroom teachers across Nunavut and the Northwest Territories who contributed many of the ideas presented here, especially Paul Strome, Charla Martinuk, Shawn Mosey and Holly Norris. Guidance was also provided by Ecology North Education Committee member Tasha Stephenson. This resource is available as a free download from WWF-Canada Schools for a Living Planet. Visit schools.wwf.ca.