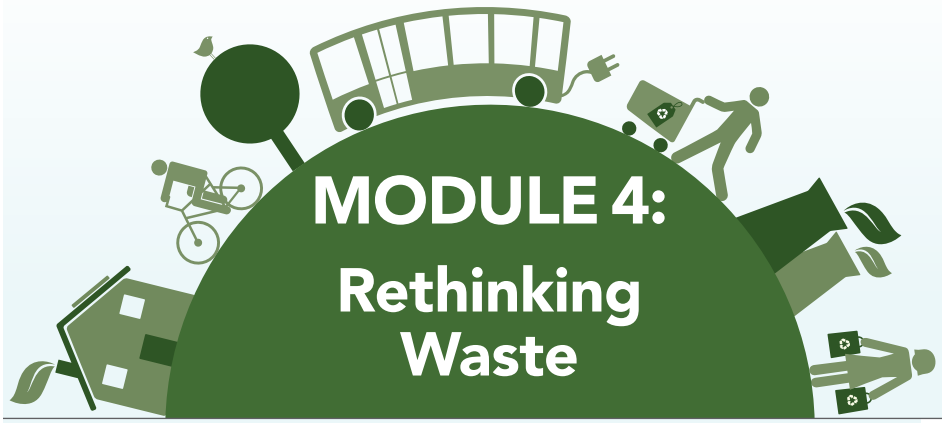


# MODULE 4: Rethinking Waste

4

We live in a culture of consumption that is wasteful in its use of resources, which in turn feeds growth of solid waste and greenhouse gas emissions. The phrase "reduce-reuse-recycle" is common, but too often we focus on recycling of materials and we neglect to reduce our consumption or reuse products. Zero waste policies aim to dramatically reduce the volume of materials that flow through the economy, leading to better environmental outcomes and new green jobs in BC.

This module draws on the Climate Justice Project report, *Closing the Loop: Reducing Greenhouse Gas Emissions Through Zero Waste in BC*
www.policyalternatives.ca/publications/reports/closing-loop

## OBJECTIVES

- Students will connect the concept of waste to consumption actions.
- Students will understand the difference between open and closed loop systems.
- Students will use the "eliminate-reduce-reuse-recycle" frame to redesign or replace wasteful products..
- Students will rethink how their school and community could deal with waste.

## COMPONENTS

1. Looking at our garbage
2. Closed loop systems and the three Rs
3. Rethinking waste

## CURRICULUM CONNECTIONS

Science 8, 9, 10
Science and Technology 11
Social Studies 8, 9, 10, 11
Civic Studies 11
Geography 12
English Language Arts 8, 9, 10, 11, 12
Communications 11, 12
Applied Skills 11
Business Education 9, 10
Economics 12
Home Economics:
Family Studies 10, 11, 12
Technology Education:
Drafting and Design 11, 12
Technology Education:
Industrial Design 11, 12

*Visit http://teachclimatejustice.ca/the-lessons/PLOs to download a comprehensive list of BC Ministry of Education prescribed learning outcomes (PLOs) that may be addressed with this resource package.*

## TOTAL SUGGESTED TIME

2 hours

## RESOURCES REQUIRED

- Digital projector and computer
- Whiteboard/chalkboard and markers/chalk
- Paper and pens/pencils
- PowerPoint: *Rethinking Waste* [Download at www.teachclimatejustice.ca]

## 30 minutes Part 1 – Looking at our garbage

**Read aloud:**
Today's topic is rethinking waste.

**Activity option 1:** In groups of four, ask students to create a list of items they throw out (whether in garbage or in recycling/composting) on a regular basis.

**Activity option 2:** Ask students to keep a diary of everything they throw out (whether in garbage or in recycling/composting) over a 24-hour period.

Then, as a class, make a master list, grouping items into categories (e.g. organic matter, plastic, etc.). Note: you will need to keep the master list for an activity in Part 3.

**Questions:**

- How many of these items were purposely designed by humans to be thrown away (e.g. packaging, paper cups, etc.)? What else in our home or school is "designed for the dump"?
- What items do we recycle? How long are these items used before they are recycled?
  *Note: Students may also notice that some recyclable items end up in the garbage. For example, only a small percentage of plastics are actually recycled – the rest goes into landfills or is incinerated.*
- What happens to our stuff after we throw it away?
  - Traditional "solutions" include landfills or incineration. Also, recycling and composting programs have become widespread over the past few decades.
  - Some governments are proposing increased incineration instead of landfilling. However, incineration does not make trash disappear – it releases toxic chemicals and GHGs into the air, and produces toxic ash, which must be landfilled.
  - Important note: the energy that went into extracting materials and transforming them into a product is lost when that product becomes waste.
  - Organic materials that go to landfill do not decompose in the same way as if they were composted, and they release methane, a very powerful greenhouse gas.
  - About 40% of food in Canada is wasted. About 25% is thrown out at home, and the rest is lost in production or transport.
- Reflect on who makes the products we consume. Are they Canadian or overseas workers? How do their wages and working conditions affect the price of goods we consume?

## 30 minutes Part 2 – Closed loop systems and the three Rs

**Show PowerPoint slide:**
"Zero waste policies"

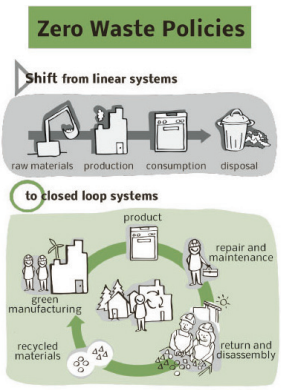


Illustration by Sam Bradd

**Question:** What is a closed loop? Is nature a closed loop? Explain.

**Read aloud:** BC has a resource-based economy: we extract and export resources to the rest of the world, while importing many manufactured goods, and we also export a lot of the materials we collect through recycling programs. Shifting to an economy that recovers and reuses resources can create new economic opportunities.

**Questions:**

- By adopting closed loop systems, what kind of green jobs could be created in BC?
  *Green manufacturing, repair and maintenance, return and disassembly, recycling, etc.*
- What factors are required to ensure that these green jobs would be good jobs?
  *Well-paid work; decent working conditions; health and safety on the job. Unionization has traditionally helped to raise standards on all of these fronts.*

**Show PowerPoint slide:** "Zero waste emphasizes upstream, proactive solutions"

Ask students to discuss the "eliminate-reduce-reuse-recycle" image in partners, then debrief as a class.

Illustration by Sam Bradd

**Questions:**

- What do you see? What do these images mean?
- How would some of these actions make things better for both people and the environment?
- Why is recycling the least important of the three Rs?
  *The recycling process requires a lot of energy and we often don't get back what we put in. For example, a recycled plastic bottle is actually "downcycled" – it is melted down using energy, and turned into lower-quality products. Did you know… a beer bottle is reused up to 15 times before it is recycled!*
- Looking at this image, what do you already do? Is there anything here you would like to start doing?
- How can we implement these changes at our school? In our community?

**Action example:** Youth4Tap – high school students take action to eliminate plastic water bottles at their schools. See Module 8: Challenges to Change for more information.

## 60 minutes Part 3 – Rethinking waste

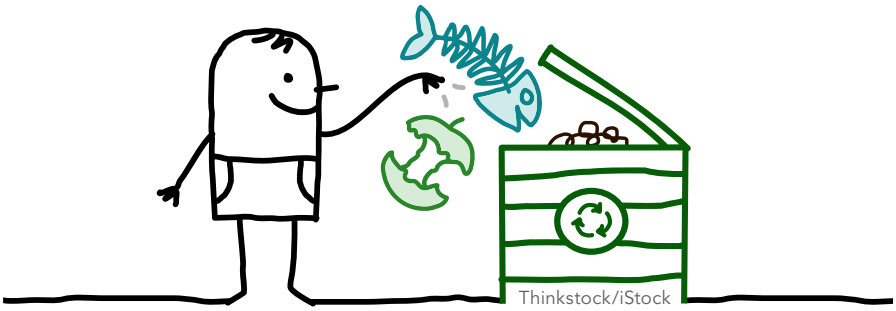
**Read aloud:** Let's look back at what we put in the garbage, and see how we can reimagine our waste systems.

**Activity:** Redesign challenge

- Break into groups of four. Ask each group to choose four human-made waste products from the garbage list (created in Part 1).
- A question for each group to consider: How would you redesign each product so the waste is eliminated? This could involve changing the materials in the product, creating a way for the product to be reused, or changing the broader systems involved.
- Ask each group to report back to the class.

**Questions:**

- What were the easiest waste products to eliminate?
- Were there some items that could not be eliminated?
- How challenging would it be to implement your redesign ideas? Why?



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### QUESTIONS AND ACTIVITIES FOR FURTHER EXPLORATION

1. Do governments or other groups have a role to play in getting people to reduce waste, or should it be left to individual choice? Why?
2. Create an initiative at your school or in your community to reduce or eliminate waste.
3. Research how to create a home compost system, and make one.

## ADDITIONAL RESOURCES

**General Resources**

- **Story of Stuff Project**
  http://storyofstuff.org
- **Zero Waste Canada**
  www.zerowastecanada.ca
- **What is Zero Waste?**
  www.rcbc.ca/resources/zero-waste
- **City Farmer stories**
  www.youtube.com/user/pakuataichi
- **E-Waste**
  www.youtube.com/watch?v=sl2j83LCHss
- **Backyard composting**
  English: www.youtube.com/watch?v=fH8Lk0GRQtk
  Cantonese: www.youtube.com/watch?v=T5awCEfyyzk
  Mandarin: www.youtube.com/watch?v=RoWyNueAuG0
  Punjabi: www.youtube.com/watch?v=C_tNZ8O3y5Y
- **Models of Sustainability: Sweden Runs Out of Garbage**
  www.pachamama.org/blog/models-of-sustainability-sweden-runs-out-of-garbage
- **Freecycle**
  http://my.freecycle.org/

**Lower Mainland**

- **City of Vancouver: Toward zero waste**
  www.vancouver.ca/home-property-development/waste-disposal-and-recycling.aspx
- **City of Surrey: Rethink Waste**
  www.surrey.ca/rethinkwaste/

**Interior**

- **Central Okanagan Waste Reduction**
  www.regionaldistrict.com/services/regional-waste-reduction-office.aspx
- **City of Kamloops: Composting at Home**
  www.city.kamloops.bc.ca/garbage/homecomposting.shtml
- **Recycling and Environmental Action Planning Society**
  www.reaps.org/

**Vancouver Island**

- **Greater Victoria Compost Education Centre**
  www.compost.bc.ca/

## ABOUT THE PROJECT

*Climate Justice in BC: Lessons for Transformation* was designed to provide teachers with classroom-ready materials to engage their students with how climate action intersects with social justice ("climate justice"). The curriculum features eight modules designed for grade 8-12 students to explore climate justice within the context of BC's communities, history, economy and ecology. These lessons tie into subject matter and prescribed learning outcomes (PLOs) already in BC's curriculum (complete list at teachclimatejustice.ca/the-lessons/PLOs), while providing a framework to unpack modern social and environmental issues.

The topics are based on reports from the Canadian Centre for Policy Alternatives' Climate Justice Project – a research project that looks at the two great inconvenient truths of our time: climate change and rising inequality. (Climate Justice reports, shorter pieces and videos available at www.climatejustice.ca.)

**Visit teachclimatejustice.ca for downloadable and online components of this curriculum, including PowerPoint files, links to videos and resources, and individual lesson PDFs.**

Teachers are encouraged to adapt these lessons to their particular classroom needs, or pull out specific activities as appropriate. Times allocated for each module are approximate and will vary greatly depending on the grade and composition of the class. While these lessons were designed for secondary students, most modules and activities are easily adaptable for upper intermediate students. Feedback is welcome and will help us refine these modules for subsequent editions.

## MODULE SUMMARIES

**Module 1:** Introduction to Climate Justice
Causes and effects of climate change through a fairness and equity lens.

**Module 2:** Reimagining our Food System
Climate change and our food systems, how climate change may affect food production in BC and elsewhere, and social justice issues, such as vulnerability to hunger and migrant farm labour.

**Module 3:** Transportation Transformation
How community design encourages or discourages car use, and what we can to do to better facilitate walking, biking and public transit options, create more complete communities and improve quality of life.

**Module 4:** Rethinking Waste
Moves beyond recycling and composting and looks at our culture of consumption and how it produces waste, both solid waste and airborne emissions like greenhouse gases.

**Module 5:** Fracking Town Hall
Uses a town hall simulation to explore the challenges of fossil fuel extraction and the bigger picture context of the push for a BC-based liquefied natural gas (LNG) industry.

**Module 6:** Green Industrial Revolution
Uses the mini-documentary *Town At The End of the Road*, to consider how resource sectors can be re-imagined as part of a green economy.

**Module 7:** Imagining the Future We Want
Uses a storytelling exercise and themes of intergenerational justice to discuss the challenges we face today and imagine how we can move towards a better future.

**Module 8:** Challenges to Change
Explores the essential elements of successful social change movements.

## GLOSSARY

**2°C** – The amount of global warming above pre-industrial levels (200 years ago), which could lead to catastrophic outcomes for human populations (and countless other animal and plant species). The Earth has already warmed by 0.8°C above pre-industrial levels.

**Carbon dioxide ($CO_2$)** – A heat-trapping molecule, and the principal greenhouse gas of concern to climate scientists. A growing concentration of $CO_2$ from burning fossil fuels is warming the Earth.

**Carbon tax** – A tax applied to the combustion of fossil fuels. BC currently has a carbon tax that amounts to about 7 cents per litre at the gas pump.

**Climate change** – The altering of climate patterns (e.g. more precipitation, more intense storms, floods or droughts) on Earth caused by the burning of fossil fuels.

**Climate justice** – A term for viewing climate change as an ethical issue and considering how its causes and effects relate to concepts of justice, particularly social justice and environmental justice. This can mean examining issues such as equality, human rights, collective rights and historical responsibility in relation to climate change.

**Fossil fuels** – Fossil fuels are the underground remains of plants and animals that lived millions of years ago, which can be processed and combusted for energy use. Examples include oil, bitumen, coal and natural gas.

**Global carbon budget** – An estimated maximum amount of carbon dioxide and other greenhouse gases we can emit into the atmosphere before passing the 2°C critical threshold of warming.

**Global warming** – The heating up of the Earth caused primarily by the burning of fossil fuels (oil, coal and natural gas), which releases heat-trapping carbon dioxide into the atmosphere.

**Greenhouse gas (GHG)** – A gas that traps heat and contributes to global climate change.

**Liquefied Natural Gas (LNG)** – Natural gas that has been converted into liquid for ease of storage and transportation.

**Methane ($CH_4$)** – A potent greenhouse gas, and the principal ingredient in "natural gas."

**Renewable energy** – Energy that comes from resources that are continually replenished, such as sunlight, wind, rain, tides, waves and geothermal heat.

## PUBLICATION INFORMATION

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Complete project credits, biographies and acknowledgements at teachclimatejustice.ca/about

CCPA
CANADIAN CENTRE
for POLICY ALTERNATIVES
BC Office

**Canadian Centre for Policy Alternatives – BC Office**

The CCPA is an independent, non-partisan research institute concerned with issues of social, economic and environmental justice. www.policyalternatives.ca

**British Columbia Teachers' Federation**

The British Columbia Teachers' Federation (BCTF), established in 1917, is a social justice union of professionals representing public school teachers in BC, Canada. www.bctf.ca

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