



# Climate Justice in BC

LESSONS FOR TRANSFORMATION



CCPA  
CANADIAN CENTRE  
for POLICY ALTERNATIVES  
BC Office



BC Teachers'  
Federation

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THE UNIVERSITY OF BRITISH COLUMBIA

## CLIMATE JUSTICE PROJECT



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Marc Lee is Senior Economist with the BC office of the Canadian Centre for Policy Alternatives and is the Co-Director of the Climate Justice Project. Marc is the author of many CCPA and Climate Justice publications, including *Path to Prosperity: A Closer Look at British Columbia's Natural Gas Royalties and Proposed LNG Income Tax*; *Climate Justice*, *Green Jobs and Sustainable Production in BC*, with Kenneth Carlaw; *Fair and Effective Carbon Pricing: Lessons from BC*; and *Enbridge Pipe Dreams and Nightmares: The Economic Costs and Benefits of the Proposed Northern Gateway Pipeline*.



**CCPA**  
CANADIAN CENTRE  
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BC Office

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

The Canadian Centre for Policy Alternatives is an independent, non-partisan research institute concerned with issues of social, economic and environmental justice. Founded in 1980, it is one of Canada’s leading progressive voices in public policy debates. The CCPA is a registered non-profit charity and depends on the support of its more than 10,000 members across Canada.

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### **British Columbia Teachers' Federation**

The British Columbia Teachers' Federation (BCTF), established in 1917, is the union of professionals representing 41,000 public school teachers in the province of British Columbia, Canada. All public school teachers belong to the BCTF and their local teachers' association. The BCTF is proud of its history as a social justice union. As an organization of professionals, we accept and act on our broad responsibility to be involved in the social development of the communities and the province we live in, and we do this in the interests of the children we teach. As a social justice union we advocate for social change that will enhance equity, security and safety, sustainability of communities, participation of citizens in social change, and access to opportunities for personal growth and development.

100-550 West 6th Ave., Vancouver, BC V5Z 4P2  
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bctf.ca



# ABOUT THE PROJECT

## Climate Justice in BC: Lessons for Transformation

Since 2007, the Canadian Centre for Policy Alternatives' Climate Justice Project (CJP) has been researching the two great inconvenient truths of our time: climate change and rising inequality. The CJP has investigated British Columbia's carbon crossroads – climate action on the one hand, and digging deeper into fossil fuel development on the other – and has published on a wide range of solutions and alternatives for a more just and sustainable province. [Climate Justice reports, shorter pieces and videos available at [www.climatejustice.ca](http://www.climatejustice.ca)]

This Climate Justice in BC resource package was designed to provide teachers with classroom-ready materials to engage their students with how climate action intersects with social justice. The curriculum features eight modules designed for students in Grades 8 to 12 that 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, while providing a framework with which to unpack modern social and environmental issues, such as our industrial food system, consumerism and waste, transportation, and the development of a green economy.

The topics are based on CJP research reports. We have worked to ground each module in students' own understanding of the issues being addressed. Schools and communities can also be used as labs where students go beyond the "personal choice" model of social change to reimagine the systems that surround them.

Visit [teachclimatejustice.ca](http://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.

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[www.teachclimatejustice.ca](http://www.teachclimatejustice.ca)

### Prescribed learning outcomes

For a comprehensive list of BC Ministry of Education prescribed learning outcomes (PLOs) that may be addressed with this resource package, visit [www.teachclimatejustice.ca/the-lessons/PLOs](http://www.teachclimatejustice.ca/the-lessons/PLOs).

## MODULE SUMMARIES

### Module 1: Introduction to Climate Justice

This lesson introduces students to the concept of climate justice in the context of global climate change. Students will consider both the causes and effects of climate change through a fairness and equity lens. Using figures, quotes and videos, this lesson invites students to discuss and act on how BC can reduce its carbon emissions while becoming more socially just.

### Module 2: Reimagining our Food System

This lesson explores 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. Students will consider actions that individuals, schools and governments can take to make BC's food systems more fair, sustainable and resilient to climate change.

### Module 3: Transportation Transformation

Students will unpack the advantages and disadvantages of owning a car and how it relates to both greenhouse gas emissions and social equity. They will reflect on how community design encourages or discourages car use, and imagine what we can do to better facilitate walking, biking and public transit options, create more complete communities and improve quality of life.

### Module 4: Rethinking Waste

This lesson explores our culture of consumption and how it produces waste – both solid waste and airborne emissions like greenhouse gases. Students will reflect on what gets thrown away over the course of a day and what items in their lives are “designed for the dump.” Students will consider how to move beyond recycling and composting to reducing and eliminating wasteful consumption, and how their school can take action.

### Module 5: Fracking Town Hall

This lesson wrestles with the challenges of fossil fuel extraction and the bigger picture context of the push for a BC-based liquefied natural gas (LNG) industry. Students will use video resources and graphics to learn about the fracking process, then explore why fracking is a contentious issue in BC. Through a town hall simulation, students will take on the roles of key stakeholders surrounding a proposed fracking operation in the fictional town of Mountainhead. Looking at the issue through the lenses of the economy, environment and human health, students will deepen their understanding of different sides of the debate.

### Module 6: Green Industrial Revolution

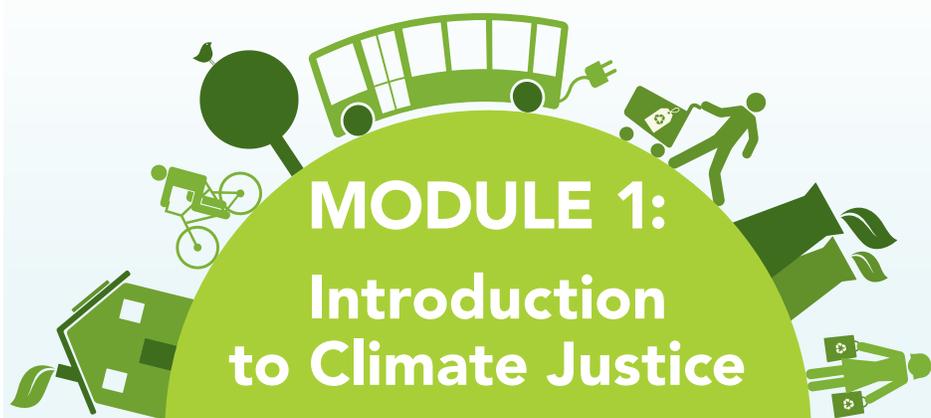
Students will explore the history of resource development in BC and BC's current carbon crossroads. Using the Climate Justice Project mini-documentary *Town at the End of the Road*, students will reflect on the decline of forestry in Mackenzie, BC, and consider how the sector can be re-imagined as part of a green economy. Using highly engaging infographics, students will explore the possibilities and advantages of investing in green buildings and energy efficiency retrofits, new transportation infrastructure, and clean energy and conservation initiatives.

### Module 7: Imagining the Future We Want

Students will reflect on our current time of ecological crisis and social inequity. Then, using a storytelling exercise, students will talk to their descendants seven generations in the future and discuss the challenges we face today and imagine how we can move towards a better future. Through these exercises, students will explore themes of intergenerational justice and cultivate stories of action and hope.

### Module 8: Challenges to Change

This lesson explores the essential elements of successful social change movements. Drawing from the Story of Stuff's *The Story of Change* video, students will contemplate what is holding us back from achieving climate justice in BC and what can move us forward. The lesson ends by looking at “Youth4Tap,” a BC student-driven initiative aimed at eliminating the sale of bottled water from their school and installing new water refill stations on campus.



The Climate Justice Project (CJP) asks how we can tackle global warming with fairness and equity. Our challenge is to build a zero-carbon society that also enhances our quality of life. This module explores the concept of climate justice, linking global climate change to local actions, and looking at who benefits and who pays the costs from burning fossil fuels. This section also asks students to reflect on their feelings about climate change, which may be dismissive, despairing, angry or hopeful. Climate change is a heavy topic – being able to discuss emotional responses openly and honestly is important.

The following CJP publications provide background and deeper context for this module. Links to additional resources, including videos, can be found at the end.

*By Our Own Emissions: The Distribution of GHGs in BC*  
[www.policyalternatives.ca/publications/reports/our-own-emissions](http://www.policyalternatives.ca/publications/reports/our-own-emissions)

*Searching for the Good Life in a Carbon Neutral BC: Meeting BC's Greenhouse Gas Reduction Targets with Fairness and Equity*  
[www.policyalternatives.ca/publications/reports/searching-good-life-carbon-neutral-bc](http://www.policyalternatives.ca/publications/reports/searching-good-life-carbon-neutral-bc)

## OBJECTIVES

- Students will review what climate change is, and then develop an understanding of the concept of climate justice.
- Students will consider who benefits from using fossil fuels and who pays the costs of climate change.
- Students will consider what climate justice means in the BC context.

## COMPONENTS

1. Climate change reflections
2. What is climate justice: Thinking globally
3. Climate justice in BC: Acting locally

## CURRICULUM CONNECTIONS

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

1.5 hours

## RESOURCES REQUIRED

- Digital projector and computer with internet access
- PowerPoint: *Climate Justice Quotes and Introduction to Climate Justice* [Download at [www.teachclimatejustice.ca](http://www.teachclimatejustice.ca)]
- Paper and pens/pencils



## Part 1 – Climate change reflections



**Show video:** *Climate Change 101 with Bill Nye the Science Guy*,  
[www.youtube.com/watch?v=3v-w8Cyfoq8](http://www.youtube.com/watch?v=3v-w8Cyfoq8)



### Questions:

- What is the difference between global warming and climate change?
- What are fossil fuels and how do they cause climate change?
- Is climate change something that will happen far in the future or are we seeing it now? Explain your reasoning.
- Name some examples of changes in climate or extreme weather. What are some recent extreme weather events that have happened around the world?



**Key terms** (these can be reviewed if students require additional background information):

- **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.
- **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.
- **Carbon dioxide (CO<sub>2</sub>):** a heat-trapping molecule, and the principal greenhouse gas of concern to climate scientists. A growing concentration of CO<sub>2</sub> from burning fossil fuels is warming the Earth.
- **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.



**Show PowerPoint slideshow:** *Climate Justice Quotes*

Ask students to write or draw any thoughts, feelings, questions or ideas that stand out to them from the slideshow. Allow time for students to write both during and after the slideshow.

Ask students to share their thoughts with a partner, then debrief as a class.



**Discuss:** How might climate change affect people in different circumstances differently?



## Part 2 – What is climate justice: Thinking globally



**Read aloud:** Climate justice means recognizing that climate change has negative effects on most people in the world, but impacts the poor and vulnerable the most – those who have done the least to contribute to the problem. Climate justice says that we in wealthy countries – and the wealthier among us – who have benefitted the most from using fossil fuels, must do more of the heavy lifting to reduce our greenhouse gas (or carbon) emissions. As well, actions to address climate change and reduce our greenhouse gas emissions must be implemented in a way that is fair and just.



**Show video:** *Introduction to Climate Justice*

[www.youtube.com/watch?v=5PQKYt6H4Fw](http://www.youtube.com/watch?v=5PQKYt6H4Fw)

Let students know this video was created by the Canadian Youth Climate Coalition, which is made up of young people like them!



### Questions:

- Which countries have benefitted the most from using fossil fuels? Are these the same countries that will be most impacted by climate change?
- What are some examples of places and populations that are the most vulnerable to climate change?
- Does BC or Canada have a moral obligation to reduce our emissions, or should we only be concerned with our own economic interests? Why?



## Part 3 – Climate justice in BC: Acting locally



**Read aloud:** In BC, most people seem to understand that the concrete effects of climate change are already upon us, with profound consequences for our economy, society and environment. To rise to the challenge of climate change, our province needs to dramatically reduce its greenhouse gas (GHG) emissions.

The good news: BC has legislated greenhouse gas reduction targets (30% below 2007 levels by 2020, and 80% by 2050), and brought in a modest tax on carbon.

The bad news: BC has no concrete plan to fully achieve its legislated greenhouse gas reduction targets. Instead, the province's economic focus has shifted to ramping up the extraction and export of fossil fuels – in particular, natural gas in the form of liquefied natural gas (LNG) as well as coal.

Companies are also seeking to build pipelines across BC from Alberta's tar sands (which yield a substance called bitumen that can be refined into oil) to the coast.



### Questions:

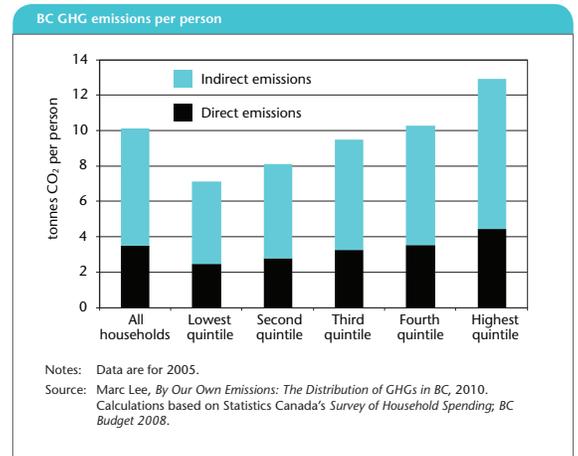
- Does it make sense for BC to try to reduce its GHG emissions while at the same time expanding exports of fossil fuels? Why or why not?
- Should BC aspire to be a leader in reducing its emissions or wait for others to act first? Why?
- What are some things we could do in our city or province that would reduce our GHG emissions?



In the **Introduction to Climate Justice PowerPoint**, show the slide titled “BC greenhouse gas emissions per person”

**Explain graphic:**

- A quintile is one-fifth of households. In this graph, quintiles are ranked from lowest income (i.e. the bottom 20% of households) to highest income (i.e. the top 20%).
- Just as we saw at the global level, there are differences within BC in terms of who benefits most from using fossil fuels.



**Question to the class:**

- What do you notice about this graph?  
*The higher a person's income, the more GHGs they tend to emit.*



**Activity:** In pairs or small groups, discuss the following questions, then debrief as a class.

- Why might people with higher incomes be responsible for more emissions?  
*Possible responses: increased ability to consume products and use resources; personal benefits that come with using energy or burning carbon, e.g. access to cars, planes, etc.*
- What are other reasons why some people may have higher emissions than others? What are some barriers people face in reducing their emissions?  
*Possible responses: they may not be able to change the fuel used for home heating (e.g. rentals, multi-family housing, unaffordable); they may live in an area without public transit alternatives; they may need a vehicle for work, etc.*
- If British Columbians need to reduce their GHG emissions, should some people reduce theirs more than others? Why or why not?  
*Possible considerations: low income households already have lower emissions so wealthier households should do more; transition may be easier for people in urban areas than for those in rural areas; children, seniors or people with disabilities will likely have challenges in areas like transportation.*



**Activity:** As a class, brainstorm and mind map on the board: What are some things we can do as a province to pursue climate justice in BC?



**Question:**

- BC has one of the highest poverty rates in Canada. How might the pursuit of climate action help or hinder action to address this important issue for our province?

### **Closing thoughts:**

- A commitment to climate justice is a way to ensure fairness for young people today and into the future, both here in BC and around the world.
- Climate change is a big global problem, but there are lots of solutions. The key is getting people to work together to make change.
- Climate action is often local. Young people in BC are concerned about climate change and are already advocating for climate justice. A couple of examples are below. What can you do to help make a difference?

### **Kids for Climate Action**

[www.kidsforclimateaction.ca/](http://www.kidsforclimateaction.ca/)

*Kids for Climate Action is a Vancouver-based youth group advocating stronger political action on climate change, founded in 2010 to organize a rally prior to the UN Climate Change Summit in Cancun. Since then, K4CA has organized bike rides, rallies, marches, petitions, letter writing campaigns, elementary school presentations, volunteer canvassing, and most recently, a campaign during the 2013 BC election and a campaign against coal export expansion. During the election campaign, high school students engaged in door knocking in key neighbourhoods, distributed almost 200 "I'm voting for climate action!" lawn signs, and fundraised and bought advertising in key transit hubs around Metro Vancouver with similar messages.*

### **Youth for Climate Justice Now**

[www.facebook.com/pages/Youth-For-Climate-Justice-Now/130358507036206](https://www.facebook.com/pages/Youth-For-Climate-Justice-Now/130358507036206)

*Youth For Climate Justice Now is a group of Vancouver youth who organize events such as the Vancouver Earth Day Parade, and an annual Climate Change Conference held at Windermere Secondary. Their goal is to give students a real life opportunity to explore, improve and use their individual and combined agency to make their schools and communities more environmentally just. Their goals involve exploring ideas and planning events that seek to mentor, educate and unite youth in common cause.*

## **ADDITIONAL RESOURCES**

- **The Cartoon Introduction to Climate Change**  
[www.islandpress.org/ip/books/book/islandpress/C/bo9140597.html](http://www.islandpress.org/ip/books/book/islandpress/C/bo9140597.html)
- **To understand climate change, understand these three numbers: 350.org**  
[www.youtube.com/watch?v=5KtGg-Lvxso](http://www.youtube.com/watch?v=5KtGg-Lvxso)
- **BC in 2040: A Story by Marc Lee**  
[www.policyalternatives.ca/multimedia/bc-2040-story-marc-lee](http://www.policyalternatives.ca/multimedia/bc-2040-story-marc-lee)
- **Severn Suzuki Speaking at the Earth Summit in Rio 1992**  
[www.youtube.com/watch?v=F\\_O1Au8vZLA](http://www.youtube.com/watch?v=F_O1Au8vZLA)
- **Government of British Columbia, Climate Action Policies and Programs**  
[www2.gov.bc.ca/gov/topic.page?id=9DF88AF901A14DE59BF3CF4B8A6B17EB](http://www2.gov.bc.ca/gov/topic.page?id=9DF88AF901A14DE59BF3CF4B8A6B17EB)
- **City of Vancouver, Greenest City Action Plan**  
[www.vancouver.ca/green-vancouver/greenest-city-2020-action-plan.aspx](http://www.vancouver.ca/green-vancouver/greenest-city-2020-action-plan.aspx)
- **Years of Living Dangerously**  
[www.climateclassroom.org/](http://www.climateclassroom.org/)

The opinions and recommendations made in these lesson plans and the linked reports and resources, and any errors, are those of the authors, and do not necessarily reflect the views of the CCPA, BCTF or funders of the Climate Justice Project.





Food is an excellent starting point for thinking about social justice and climate change. We all eat, and many of us are aware of trends in food production and distribution, such as organic produce and farmers' markets. Climate change challenges how we access food, in particular the food we import – currently about half of our food in BC. Food production can also be very intensive in greenhouse gas emissions. Issues of food democracy, such as working conditions for migrant farm workers and hunger, must also be included when rethinking our food supplies.

This module is based on the Climate Justice Project report, *Every Bite Counts: Climate Justice and BC's Food System* [www.policyalternatives.ca/everybitecounts](http://www.policyalternatives.ca/everybitecounts)

### OBJECTIVES

- Students will connect their lived experience to the concept of a food system.
- Students will understand the concept of food democracy and its connection to poverty and inequality in BC.
- Students will understand that food justice includes farmers and farmworkers (especially temporary migrant workers) who do not always receive fair incomes.
- Student will explore how they can apply the principles of food democracy to their school.

### COMPONENTS

1. Introduction to food systems
2. Opinion-o-metre: Food thoughts, equity and access
3. Ideas for action: Food democracy in BC schools

### CURRICULUM CONNECTIONS

Science and Technology 11  
Sustainable Resources 12  
Social Studies 8, 9, 10, 11  
Civic Studies 11  
Comparative Civilizations 12  
Geography 12  
Social Justice 12,  
English Language Arts 8, 9, 10, 11, 12  
Communications 11, 12  
Applied Skills 11  
Business Education 8, 9, 10  
Economics 12  
Home Economics:  
Family Studies 10, 11, 12  
Home Economics:  
Foods and Nutrition 8, 9, 10, 11, 12  
Planning 10

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
- Large pieces of paper and markers
- PowerPoint *Reimagining our Food System* [Download at [www.teachclimatejustice.ca](http://www.teachclimatejustice.ca)]



## Part 1 – Introduction to food systems



**Read aloud:** Today’s topic is “reimagining our food system.” A food system is comprised of all elements of food production and distribution from farm to fork, including farmers, other workers and consumers.



**Activity:** Mind mapping the concept of “food systems”

- **Question:** Based on your own experience with food, what words come to mind when you hear the phrase “food system”?
- As a class, create a mind map on the board, making connections as they arise. This could include: organic farming, farmers’ markets, community-shared agriculture, junk food, compost, 100 mile diet, food banks, soup kitchens, cafeterias, community gardens, etc.



## Part 2 – Opinion-o-metre: Food thoughts, equity and access



**Activity:** Opinion-o-metre

An imaginary curved line is drawn across the floor; one end is designated as ‘strongly agree’ and the other as ‘strongly disagree’. Students listen to statements about food issues and place themselves along the line according to their position or reaction to each statement. For each statement, ask a variety of students across the spectrum of agreement/ disagreement to share their thoughts. Make sure to hear from a range of opinions/voices. Allow 4-6 minutes per statement (or more if necessary). Over the course of the discussion, if their opinion on a statement changes, students are free to change their location along the continuum. You can share the information that follows each statement after students have voiced their thoughts. Feel free to select or omit statements as appropriate.

### Opinion-o-metre statements:

Test statement: **“Dogs are much better pets than cats.”**

**“People’s access to healthy food in BC is something we should all be concerned about.”**

- Food bank use in Canada increased 2.1% in 2011, and was 31% higher than 2008.
- The use of meal programs (soup kitchens, shelters, school initiatives) increased 23% percent between 2011 and 2012.
- People need to earn a living wage so they can purchase the food they need.

**“Food production doesn’t contribute that much greenhouse gas in the big scheme of things.”**

- A report from Greenpeace International estimated GHGs from agriculture at between 17% and 32% of global emissions, when land use changes are included.

BC AGRICULTURAL GHG EMISSIONS, 2007		
BC production	GHG emissions (kt-CO <sub>2</sub> e)	Percent
Livestock emissions	1,517	37.1%
Fertilizers/land use	826	20.2%
Energy use on farms	855	20.9%
Production and transport of agricultural chemicals	824	20.1%
Net imports of animal feed	69	1.7%
<b>Total estimate</b>	<b>4,091</b>	<b>100.0%</b>

Source: Ministry of Environment, BC Greenhouse Gas Inventory; Authors’ calculations based on Statistics Canada data on energy use, agricultural chemicals, and animal feed.

**“My family would be willing to pay a little more for food if it meant we were supporting local farmers and businesses.”**

- Supporting local food producers keeps money in the local economy.
- BC has lots of small farms – about 20,000 in all.
- Buying locally reduces the need to transport food long distances.

**“Organic produce is better for both you and the environment, even if it costs more.”**

- The high cost of buying organic food is challenging for low-income families.
- Building stronger networks for small organic farmers to distribute their produce would lower costs (e.g. selling in bulk to schools).
- Because organic foods do not use fertilizers made from fossil fuels, they have a lower GHG footprint.

**“BC should produce more of the food British Columbians eat.”**

- BC imports about half of its food, mainly from California, a region already experiencing drought due to climate change. California may not be able to produce as much food for export to BC in the future.
- Climate change disruptions in the future may affect our access to food, in terms of supply and price. Risk factors include things like droughts, floods, insect infestations, excessive heat or extreme weather events like hail storms – all things farmers have always contended with that may occur more frequently due to global warming.
- BC has an extensive Agricultural Land Reserve – this is land set aside for farming, although not all of it is under cultivation.
- On the other hand, relying 100% on BC food production could increase the province’s vulnerability in the case of natural disasters on the home front (e.g. a big hail storm in the Fraser Valley at harvest time).

**“BC farmers and farm workers make decent incomes.”**

- In supply-managed parts of the food system, where there are restrictions on the amount of food produced (dairy, eggs and poultry), consumers pay higher prices, but this means farmers can make a good living. In other areas of the food system this is not the case, and farm incomes are generally quite low.
- BC has an increasing number of temporary migrant farm workers – about 5,000 in 2013. These workers are often paid poorly, are forced to put up with difficult working and living conditions and don’t have the same employment standards as other industries, leaving them vulnerable to exploitation.



## Part 3 – Ideas for action: Food democracy in BC schools



### Quick pair-share question:

For whom is access to good quality food particularly difficult? Why?

- Low-income earners and others who experience poverty. Some groups are disproportionately affected by poverty, such as single-parent households, recent immigrants and refugees, First Nations peoples, people with disabilities and elderly people. BC has the highest child poverty rate in Canada.
  - Important note: Most people who live in poverty in BC have jobs, but their jobs don't pay enough to cover the cost of living.
- Good quality, healthy food (especially organic food) is often more expensive than other options. People with higher incomes don't experience the same financial pressure as people living in poverty, and their food costs are a smaller part of their overall income.



**Read aloud:** "Food democracy" has emerged as a concept in response to unequal access to healthy food, as well as to the contrast between people working in the food industry and the people who benefit from it.

The CCPA report *Every Bite Counts* defines food democracy as "ensur[ing] that all have access to affordable, decent, health-enhancing food." In this way, food democracy:

- Challenges the corporate structure and control of food, and advocates for grassroots and community control of food systems.
- Stresses "decency and social justice in the food system's wages, and working conditions."
- Recognizes environmental sustainability as an aspect of food democracy.



### Activity: Mapping your school's food system

Students sit in small groups with a large piece of paper and some markers.

First, ask each group to describe and draw a representation of their school's food system – all the points where students come into contact with food at school (refer back to the mind map in part 1 if necessary). This could include cafeterias, hot lunch programs, school garden, composting, food classes, vending machines, student fundraisers, etc.

Next, ask students to describe how these food contact points within the school could be reimagined with food democracy in mind.

Ask each group to report back to the class about their discussions. This might include: expanding or starting school gardens to feed into the cafeteria and food lessons, including composting of organic materials; buying food sold at the school from local farms and asking the farmers to come speak to students about it; etc. Keep track of students' ideas for enhancing food democracy within the school's food system – you may want to return to them at the end of the unit.





## ACTIVITIES FOR FURTHER EXPLORATION

1. Take a field trip to a local farm or farmers' market.
2. Have a local farmer come in and speak to the class.
3. Do a project on how to make balcony/backyard gardens.
4. Create or expand a school or community garden.
5. Create a poster to inform the community about food democracy.

## ADDITIONAL RESOURCES

- **Every Bite Counts: Climate Justice and BC's Food System**  
[www.policyalternatives.ca/everybitecounts](http://www.policyalternatives.ca/everybitecounts)
- **Cultivating Farmworker Rights: Ending the Exploitation of Immigrant and Migrant Farmworkers in BC**  
[www.policyalternatives.ca/publications/reports/cultivating-farmworker-rights](http://www.policyalternatives.ca/publications/reports/cultivating-farmworker-rights)
- **Cool Farming: Climate impacts of agriculture and mitigation potential**  
[www.greenpeace.org/international/Global/international/planet-2/report/2008/1/cool-farming-full-report.pdf](http://www.greenpeace.org/international/Global/international/planet-2/report/2008/1/cool-farming-full-report.pdf)

## LOCAL FOOD

### BC/Canada

- **Farm Folk City Folk**  
[www.farmfolkcityfolk.ca](http://www.farmfolkcityfolk.ca)
- **BC Association of Farmers' Markets**  
[www.bcfarmersmarket.org/](http://www.bcfarmersmarket.org/)
- **Earthsav Canada**  
<http://earthsavcanada.wildapricot.org/>
- **Get Local BC**  
[www.getlocalbc.org/](http://www.getlocalbc.org/)
- **Land Food People Foundation**  
<http://landfoodpeople.ca/>

### Interior/Northern BC

- **UNBC Farmers' Market**  
[www.unbc.ca/university-farmers-market](http://www.unbc.ca/university-farmers-market)

### Vancouver Island

- **Island Farm Fresh**  
[www.islandfarmfresh.com](http://www.islandfarmfresh.com)

### Lower Mainland

- **Burnaby Food First**  
<http://burnabyfoodfirst.blogspot.ca/>
- **Fresh Roots Urban Food Society**  
<http://freshrootsurbancsa.wordpress.com/>
- **Sustainable SFU**  
<http://sustainablesfu.org/>
- **Vancouver Community Food Assets Data**  
<http://vancouver.ca/your-government/community-food-assets-datasets.aspx>
- **Vancouver Farmers Markets**  
[www.eatlocal.org/](http://www.eatlocal.org/)
- **Vancouver Food Pedalers Cooperative**  
[www.foodpedalers.ca/](http://www.foodpedalers.ca/)

## SCHOOL AND COMMUNITY GARDENS

- **Think and Eat Green at School**  
<http://thinkeatgreen.ca/>
- **Environmental Youth Alliance**  
[www.eya.ca/](http://www.eya.ca/)
- **Intergenerational Landed Learning on the Farm for the Environment (UBC)**  
<http://m2.edcp.educ.ubc.ca/landedlearning/>



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The opinions and recommendations made in these lesson plans and the linked reports and resources, and any errors, are those of the authors, and do not necessarily reflect the views of the CCPA, BCTF or funders of the Climate Justice Project.





Transportation accounts for 40% of BC’s greenhouse gas emissions. This means we need to be rethinking our reliance on cars and trucks that burn fossil fuels. A central justice issue for transportation, which students understand well, is having access to a car. While electric vehicles are coming to the marketplace they are, at best, only part of the solution. Developing more complete communities – where people live closer to where they work, shop, access public services and play – is necessary if we want to see more walking, biking, public transit and car-sharing as alternative transportation modes.

This module draws on the Climate Justice Project report, *Transportation Transformation: Building Complete Communities and a Zero-Emission Transportation System in BC* [www.policyalternatives.ca/transportationtransformation](http://www.policyalternatives.ca/transportationtransformation)

### OBJECTIVES

- Students will recognize how inequality affects access to transportation.
- Students will understand how urban and suburban design and infrastructure influences transportation choices and mobility.
- Students will explore low-carbon transportation alternatives, and ways in which we can change our systems and surroundings to make these alternatives more accessible.

### COMPONENTS

1. Connecting transportation to community design
2. Considering transportation challenges and creating solutions
3. Transforming transportation: A path to a better and more equitable BC

### CURRICULUM CONNECTIONS

- Science and Technology 11
- Social Studies 8, 9, 10, 11
- Civic Studies 11
- Social Justice 12
- English Language Arts 8, 9, 10, 11, 12
- Communications 11, 12
- Applied Skills 11
- Business Education 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

1 hour 20 minutes

### RESOURCES REQUIRED

- Digital projector and computer with internet access
- Whiteboard/chalkboard and markers/chalk
- Paper and pens/pencils
- PowerPoint: *Transportation Transformation* [Download at [www.teachclimatejustice.ca](http://www.teachclimatejustice.ca)]



## Part 1 – Connecting transportation to community design

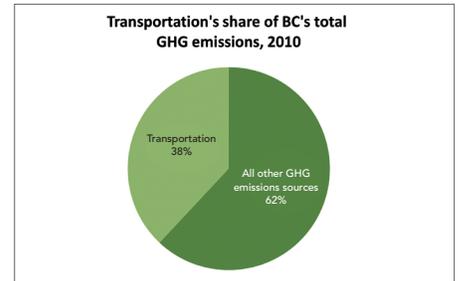


**Read aloud:** In BC, 40% of the province’s greenhouse gas emissions come from transportation – cars and trucks that burn fossil fuels to move people and goods around.



**Show PowerPoint slide:** “Transportation’s share of BC’s total GHG emissions”

Today we are going to be looking at how transportation works and how it can be re-imagined for a zero-carbon province. When we think about transportation, we often think of cars, which is a great place to start.



Source: BC Ministry of Environment, 2012



### Brainstorm as a class:

- What are the advantages of owning or having access to a car?  
*Possible responses: saves time; provides access to more activities or social opportunities; easier to do basic day-to-day things (e.g. errands); access to a wider range of job opportunities.*
- What are the disadvantages of owning or having access to a car?  
*Possible responses: cost (gas, insurance, maintenance); parking in busy places; traffic congestion; greenhouse gas emissions.*



### Questions:

- Is having access to a car an advantage where we live? What is it about how our community is set up that makes owning a car an advantage? What about other communities? (Consider the differences in urban, suburban and rural communities.)  
*Possible responses: things are far away/spread out/non-centralized; people live far from where they work/play/access amenities and services; transportation systems (buses, trains, bicycle paths, etc.) may be underdeveloped or underfunded, so service is inadequate; getting around in rain, snow or cold conditions.*
- Who has access to cars and their advantages, and who does not?  
*Possible responses: people who cannot afford to own a car; people who are unable to drive (e.g. youth, some people who are elderly or have disabilities).*
  - Dilemma: Low-income households may need access to a car if they live far from work. Housing farther from the city core is often more affordable.
- What are some of the impacts of not having access to a car?  
*Possible responses: reduced access to work, services, or other amenities; exclusion from social activities; isolation; etc.*



## Part 2 – Considering transportation challenges and creating solutions



### Brainstorm as a class:

What are some other transportation options or methods of low or zero carbon travel?

Record responses on the board. Students will probably come up with a list that looks like this (if they miss any, add them to the list):

- Bike/other person-powered transport, e.g. skateboard
- Walk
- Public transit (bus, train, etc.)
- Carpool
- Car share/co-op
- Hybrid or electric cars



**Activity:** Separate the class into small groups attached to each of the ideas generated above. Ask students to brainstorm and write down their thoughts on:

- What things might discourage people from utilizing this low carbon alternative? Be sure to include both personal and systemic factors.
- How could we change our cities or systems so people could more easily access this transportation option and more equitably reap the benefits?

Ask groups to report back to the class. Some elements to tease out during the debrief:

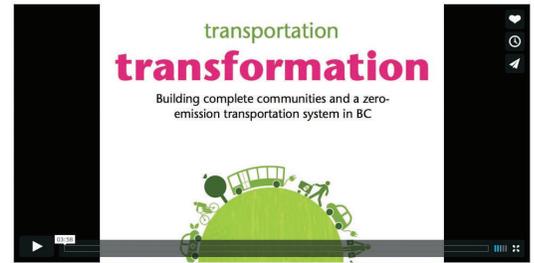
- Distance to work/play/amenities really affects a person's carbon footprint and their ability to choose alternatives like walking, biking or transit. Positive solutions include:
  - Providing people with a range of low or zero carbon options, including affordable, accessible and flexible public transit. People may choose differently depending on the weather, how rushed they are, whether they have items to transport, etc.
  - Developing "complete communities" so more people live closer to where they work, play, shop and access public services. Complete communities reduce transportation costs and level the playing field for those who don't drive their own car.
  - Rethinking how we design communities, e.g. turning suburban malls into town centres, building new housing and commercial space instead of parking lots.
  - Note: studies have shown that longer commute times negatively impact life satisfaction ([www.statcan.gc.ca/pub/11-008-x/2011002/article/11531-eng.htm](http://www.statcan.gc.ca/pub/11-008-x/2011002/article/11531-eng.htm))
- Physical systems matter:
  - Improving public transit infrastructure and services (including affordability, accessibility, and frequency) would greatly encourage low carbon transportation use.
  - Metro Vancouver is making a point of building high-density areas around Skytrain stations, creating community hubs around mass public transit.
  - Having dedicated (safe) bike lanes greatly increases their use.
  - Car sharing programs are a great option when other low carbon transportation alternatives are not realistic – many people will use these programs if the infrastructure is there to support them.
  - Widespread internet access has made working from home a possibility for some people, which reduces their need to travel to and from work.



# Part 3 – Transforming transportation: A path to a better and more equitable BC



**Show video:** *Transportation Transformation*  
<http://vimeo.com/22916607>



**Read aloud:** Thoughts to travel with:

- Improving public transportation, bike paths, density and community design will improve mobility and lower costs for all British Columbians.
- It is essential that we reduce our GHG emissions and redesign our cities for the realities of climate change.
- Building public transit lines and transportation infrastructure, and designing spaces for density and accessibility, require labour and vision and will create good paying jobs.

“A zero emissions transportation system by 2040 is both desirable and achievable.” – CJP report, *Transportation Transformation: Building Complete Communities and a Zero-Emission Transportation System in BC*



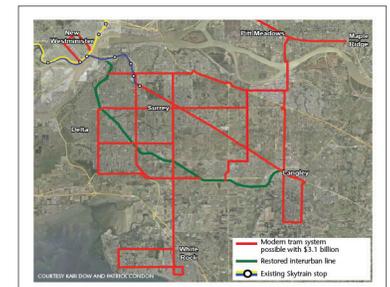
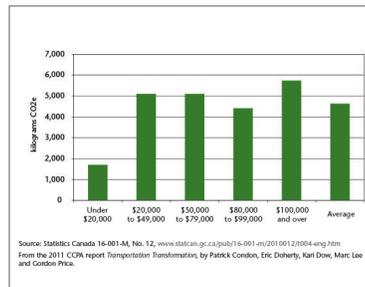
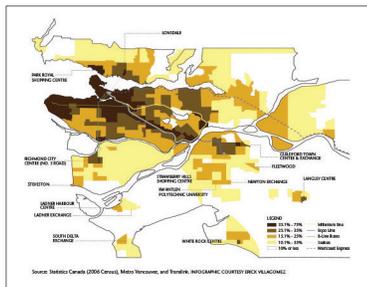
**Pair-share:** What are some things we can do to make low carbon transportation options more accessible for our school and community, and move towards creating a more complete community?



## QUESTIONS AND ACTIVITIES FOR FURTHER EXPLORATION

1. Choose one of the graphs or charts listed below (located in the PowerPoint slides for this module, available at [www.teachclimatejustice.ca](http://www.teachclimatejustice.ca)). Write about the implications of the information in this graph/chart. What changes to policy would you recommend based on this information?

- Getting to Work In Metro Vancouver: Commuting by Transit, Walking and Biking, 2006
- GHG Emissions from Private Vehicle Operation, by Income Group, 2007
- Port Mann Bridge vs. light rail transit infrastructure



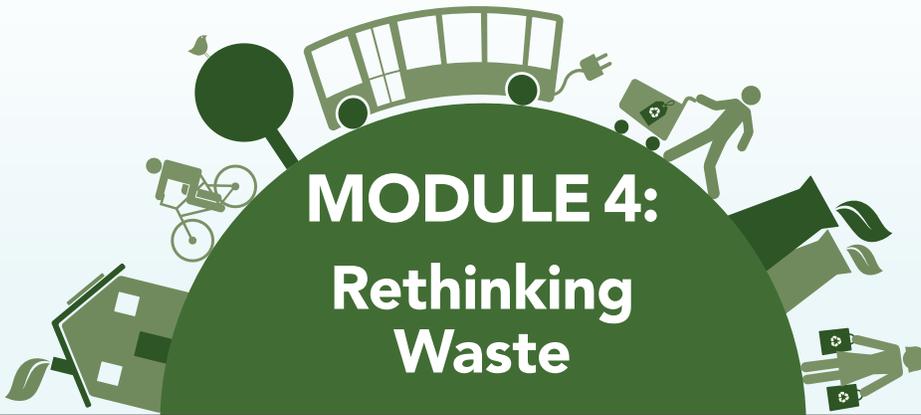
2. Visit Mapnificent: [www.mapnificent.net/](http://www.mapnificent.net/) [Lower mainland only as of July 2014]. Mapnificent is a website that shows you the areas that can be reached from any given destination, using public transit, in any given time. Move the flag to different parts of the lower mainland and notice how your mobility by public transit changes. How is access to amenities, work and cultural centres affected by geography? How is this tied to socio-economic status?
3. Using artwork and images, show how you would redesign your community for smarter, fairer, low-carbon transportation.
4. Create a video blog or map outlining or highlighting the low carbon transportation alternatives and infrastructure in your community (e.g. where are bike lanes, bus routes? Are there well-marked walking routes or crossing guards? Are there great walking routes that everyone should know about?).
5. Call your municipal or regional government office and find out about the transportation development plan in your community over the next few years.

### ADDITIONAL RESOURCES

- **Affordable EcoDensity: Making Affordable Housing a Core Principle of Vancouver's EcoDensity Charter**  
[www.policyalternatives.ca/publications/reports/affordable-ecodensity](http://www.policyalternatives.ca/publications/reports/affordable-ecodensity)
- **Seven Rules for Sustainable Communities: Design Strategies for the Post Carbon World**  
[www.sxd.sala.ubc.ca/10\\_publications.htm](http://www.sxd.sala.ubc.ca/10_publications.htm)
- **Cycling Metro Vancouver Route Planner**  
[www.cyclevancouver.ubc.ca/cv.aspx](http://www.cyclevancouver.ubc.ca/cv.aspx)

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# 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](http://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](http://www.teachclimatejustice.ca)]



## 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?



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



Show PowerPoint slide:  
“Zero waste policies”



**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.



**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.

### Zero Waste Policies

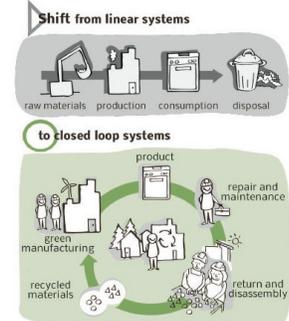


Illustration by Sam Bradd

### Zero Waste emphasizes upstream, proactive SOLUTIONS



Illustration by Sam Bradd



## 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.



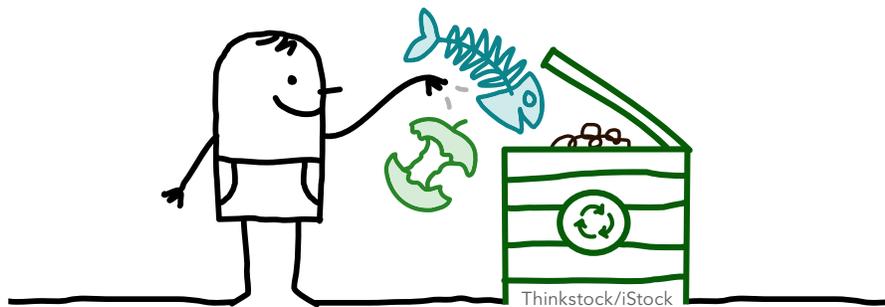
**Activity:** Redesign challenge

- 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?



### 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](http://www.zerowastecanada.ca)
- **What is Zero Waste?**  
[www.rcbc.ca/resources/zero-waste](http://www.rcbc.ca/resources/zero-waste)
- **City Farmer stories**  
[www.youtube.com/user/pakuataichi](http://www.youtube.com/user/pakuataichi)
- **E-Waste**  
[www.youtube.com/watch?v=sl2j83LCHss](http://www.youtube.com/watch?v=sl2j83LCHss)
- **Backyard composting**  
English: [www.youtube.com/watch?v=fH8Lk0GRQtk](http://www.youtube.com/watch?v=fH8Lk0GRQtk)  
Cantonese: [www.youtube.com/watch?v=T5awCEfyyzk](http://www.youtube.com/watch?v=T5awCEfyyzk)  
Mandarin: [www.youtube.com/watch?v=RoWyNueAuG0](http://www.youtube.com/watch?v=RoWyNueAuG0)  
Punjabi: [www.youtube.com/watch?v=C\\_tNZ8O3y5Y](http://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](http://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](http://www.vancouver.ca/home-property-development/waste-disposal-and-recycling.aspx)
- **City of Surrey: Rethink Waste**  
[www.surrey.ca/rethinkwaste/](http://www.surrey.ca/rethinkwaste/)

### Interior

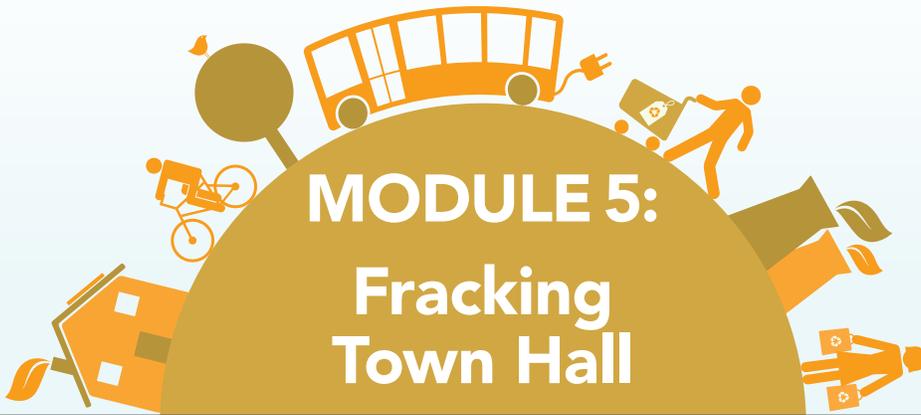
- **Central Okanagan Waste Reduction**  
[www.regionaldistrict.com/services/regional-waste-reduction-office.aspx](http://www.regionaldistrict.com/services/regional-waste-reduction-office.aspx)
- **City of Kamloops: Composting at Home**  
[www.city.kamloops.bc.ca/garbage/homecomposting.shtml](http://www.city.kamloops.bc.ca/garbage/homecomposting.shtml)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

### Vancouver Island

- **Greater Victoria Compost Education Centre**  
[www.compost.bc.ca/](http://www.compost.bc.ca/)

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# 5

The top economic priority of BC's provincial government is to launch a new liquefied natural gas (LNG) industry. This would require doubling to tripling natural gas production in BC's Northeast, building pipelines to the coast, and building new terminals to super-cool gas to liquid form before shipping to Asia. Sourcing natural gas through hydraulic fracturing (or "fracking") as an extraction method has become controversial around the world. Concerns include small earthquakes, water contamination, air pollution and the contribution of emissions to climate change. Some jurisdictions have banned the practice; others are seeking to realize economic benefits in the form of jobs and government revenues.

This module draws on Climate Justice Project research including:

*Fracking Up Our Water, Hydro Power and Climate: BC's reckless pursuit of shale gas*, [www.policyalternatives.ca/fracking](http://www.policyalternatives.ca/fracking)

*LNG's threat to water sustainability*

[www.policynote.ca/lngs-threat-to-water-sustainability](http://www.policynote.ca/lngs-threat-to-water-sustainability)

*BC's Legislated Greenhouse Gas Targets vs. Natural Gas Development: The good, the bad and the ugly*

[www.policyalternatives.ca/natural-gas-ghgs](http://www.policyalternatives.ca/natural-gas-ghgs)

## OBJECTIVES

- Students will understand the basic processes and issues associated with fracking.
- Students will understand the connections between fracking and proposed LNG development.
- Students will identify and reflect on the various stakeholders involved in fracking operations in BC and their respective viewpoints.
- Students will consider whether or not they would vote to approve a fracking operation in their community.

## COMPONENTS

1. Fracking and the BC context
2. Introduction to the Town Hall meeting simulation
3. Research and preparation for the Town Hall meeting simulation
4. Town Hall meeting simulation
5. Town Hall debrief and discussion

## CURRICULUM CONNECTIONS

Science 8, 9, 10  
Science and Technology 11  
Social Studies 8, 9, 10, 11  
Civic Studies 11  
Comparative Civilizations 12  
BC First Nations Studies 12  
Geography 12; Social Justice 12  
Sustainable Resources 11, 12  
English Language Arts 8, 9, 10  
Communications 11, 12  
Applied Skills 11  
Business Education 8, 9, 10  
Economics 12  
Home Economics:  
Family Studies 10, 11, 12

Visit <http://teachclimatejustice.ca/the-lessons/POs> 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

3 – 3.5 hours

## RESOURCES REQUIRED

- Digital projector and computer with internet access
- Student access to computers with internet access
- Whiteboard/chalkboard and markers/chalk
- Paper and pens/pencils
- PowerPoint: *Fracking: The BC context* [Download at [www.teachclimatejustice.ca](http://www.teachclimatejustice.ca)]
- Copies of character profiles and Town Hall meeting questions



## Part 1 – Fracking and the BC context



**Read aloud:** Over the next few classes, we will explore the issues and debates around hydraulic fracturing (or “fracking”). In BC, most of the natural gas we produce involves fracking, and there are proposals to double or triple natural gas production for export to Asia as liquefied natural gas (LNG). The government and related industries see this as a huge economic opportunity; others are concerned that lofty economic promises may not materialize, and that key environmental issues are being ignored.



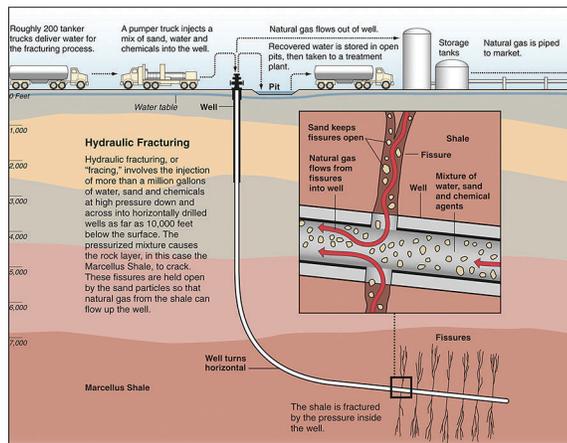
**Question:**  
What do you know, or what have you heard, about fracking?



**Show video:** *Fracking Explained: Opportunity or Danger?*  
<http://youtu.be/Uti2niW2BRA?t=1m23s>



**Show PowerPoint slide:** “Fracking process”



Credit: Al Granberg/ProPublica



**Brainstorm as a class:** Knowing that natural gas production in BC involves fracking, why might increasing production be contentious?

Ensure the following points are addressed:

- Fracking produces greenhouse gases, including methane, which contribute to global climate change.
- Fracking requires huge amounts of water resources.
- First Nations treaties in BC are unresolved, and they have claims and rights to much of the land where fracking operations occur.
- Some argue that natural gas production is a route towards more jobs and economic development, while others argue that the money spent on a green economy could create more long-term jobs. Natural gas production employs about 4,000 British Columbians.
- British Columbians subsidize fracking through tax dollars: public roads, corporate tax breaks, and cheap water and electricity all underwrite resource extraction.
- Only about 15% of the gas produced in BC is consumed here. The rest is transported to the United States and Alberta (to help power tar sands extraction).



## Part 2 – Introduction to the Town Hall meeting simulation



### Read aloud:

#### Scenario

Surveyors have discovered shale rock deposits and natural gas near the fictional town of Mountainhead, a small community in northern BC. The natural gas company FrackCo has put in an application to the BC government to begin fracking in the area. FrackCo is also seeking additional assistance and resources for the project, such as electricity, access to local water sources and new roads. The company is promising local jobs, payment of local taxes, and funding for various local amenities, such as a new community centre. The project has met with resistance from some groups and support from others. Some people are undecided as to whether they support the project. The town has hired a moderator to run a Town Hall meeting and encourage dialogue with all of the different groups.

#### Context

Fracking in BC is a multifaceted issue with many different perspectives. Over the next few days, we will take on the roles of different groups with different perspectives, and reflect on how we feel about the issues. After all is said and done, we will hopefully be able to answer the question: would we support a natural gas fracking project in our community?

As we take on different personas for the sake of the simulation, it is important to ask ourselves:

- How does this role or perspective resonate or not resonate with my own values?
- Do the goals of this group fit with the kind of world I want to live in?

While local benefits and costs are central to the discussion of fracking and fossil fuel development in BC, we also need to consider this topic within the context of human-made climate change, something that affects the lives and livelihoods of people both locally and around the world.

Also, the issue of fracking is closely intertwined with the issue of liquefied natural gas (LNG). The provincial government wants to build new LNG plants on the coast, which will turn natural gas into liquid form to ship to Asia. But the gas to be liquefied comes mostly from northeastern BC, and almost all of that gas is now extracted using the fracking process.



### Instructions for groups

There are various stakeholders or people with different interests or perspectives on this issue.

They might include:

- Oil and gas company representatives
- The provincial government
- Resource workers (both local and within the province) hoping to gain employment on these projects
- Members of First Nations communities in and around Mountainhead
- Other community members who live in Mountainhead (this could include farmers whose land and access to clean water may be threatened by the project, and local businesses who rely on expenditures made by local gas industry workers and families)
- Environmental advocates from across the province

In groups of four, students will take on one of these stakeholder personas. All members of the group will be responsible for answering a series of questions and doing research together for the Town Hall simulation. Two students from each group will represent their group in the Town Hall simulation. Other group members will act as observers, taking notes on how they personally respond to the issues that arise, and giving feedback after the activity.

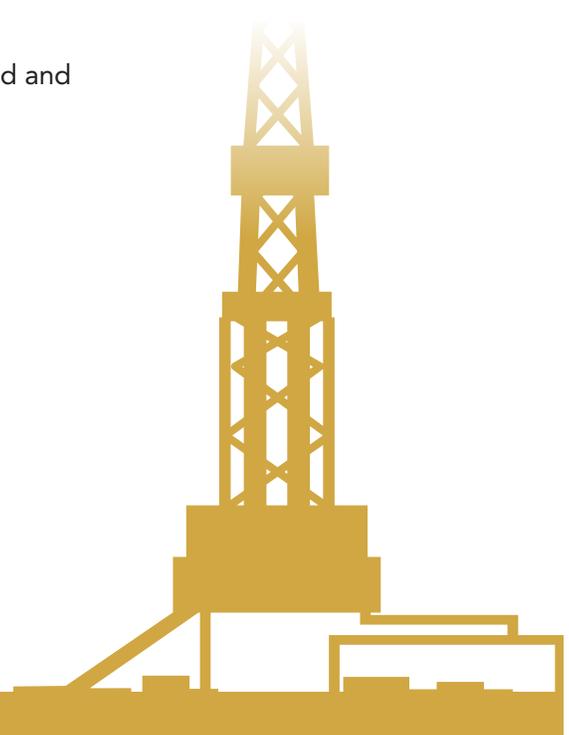
The student handout lists suggestions for what each stakeholder group might focus on. This is by no means meant to be an answer key to the questions above, as how a person might respond is far more complicated and nuanced than what is suggested, but it can be used as a resource. It is highly recommended that students use the internet to seek out information and to guide group discussions to determine what they think their characters might say.



The following two pages should be photocopied and distributed to each student.

### NOTE TO TEACHERS:

Please ensure that students understand the sensitivity and respect required when representing a cultural identity that is not their own. While the dramatic potential of this activity is part of its appeal, care should be taken to ensure students focus on respectful sharing of researched opinions, and do not “perform” their personas (e.g. by using accents, wearing costumes, acting out stereotypes).



# Fracking Town Hall – student handout



## Questions for each group to consider:

- Who are you? Do you support a fracking project in Mountainhead? (Yes/No/Undecided)
- Tell us briefly why you do or do not support this project.
- What is your perspective on the environmental risks and concerns that come with the project? Be sure to consider both local and global environmental issues.
- What are your thoughts on the best way to ensure the economic health and viability of BC and/or your community? How can local jobs be supported and encouraged?
- What is your response to the concerns about the impact of fracking on the health of people in the surrounding community?

## Gas company representatives

Gas company representatives have a vested interest (making a profitable investment) in having the project go forward. They are ultimately accountable to their shareholders, not people in local communities. Although they acknowledge that there are some environmental and health risks associated with fracking, they want to minimize any additional costs and taxes that might be imposed on them. But they must address local concerns if the project is to proceed.

## BC government

The BC government supports the fracking project in Mountainhead. Their main focus is on economic growth for the province and they feel that fracking and LNG have the potential to bring a massive amount of money to the BC economy. They are somewhat concerned with the environmental and health issues raised, but feel that the established procedures and regulations are enough to ensure safety. However, they do care about public opinion on the matter and won't move ahead without popular public support.

## Resource workers seeking employment on the project

Resource workers (both local and within the province) hoping to gain employment on the project acknowledge that there are concerns about fracking, but generally support the project because they believe it will bring jobs to the community and will boost the local economy. They are concerned about the environmental and health risks, as well as safety issues at fracking worksites, and want all of these issues addressed if the project is going to move forward. At the end of the day, they would support any initiative that brings the most jobs and long-term economic security to themselves and their families.

**Members of local First Nations communities**

Members of the First Nations communities in the area are open-minded about new economic development possibilities, but generally do not support the fracking project. They are very concerned about the health and environmental impacts, particularly with regard to water contamination. They are also concerned that their way of life (which includes hunting and fishing) and the potential for economic development in local eco-tourism could be compromised. They want to ensure that any profits or opportunities for local development are shared with local First Nations communities. Legally, they must be consulted and give consent before any fracking operations take place on their land because of unresolved land treaties.

**Other community members who live in Mountainhead**

Other community members who live in Mountainhead are undecided about whether they support the project or not. They are concerned about risks to their water supplies, health impacts for their families, and impacts on local industries, like farming and eco-tourism. But they are attracted to the idea of new economic development and high-paying jobs. Some are worried that the jobs brought to town might only be for the short term. They are also concerned about the effect a fracking worksite might have on their community.

**Environmental advocates from across the province**

Environmental advocates from across the province are opposed to the project. They are very concerned about the health and environmental risks, specifically how fracking contributes to climate change, contaminates water supplies and causes other pollution. They argue that BC can create more well-paying, long-term jobs by investing in a green economy instead of fossil fuels.

60  
minutes

## Part 3 – Research and preparation for the Town Hall meeting simulation



Be sure to give groups enough time to answer the questions on the previous pages, and to develop their understanding of their personas and the issues, in preparation for the Town Hall meeting simulation.

45  
minutes

## Part 4 – Fracking and the BC context



### Instructions for the moderator:

- Two representatives from each group sit together in the middle of the room, preferably in a circle.
- Observers (those not actively speaking for the group) sit surrounding the stakeholders. They are responsible for taking rough notes of their observations during the simulation.
- Read aloud the Scenario and Context sections from Part 2.
- At your discretion, choose questions to ask the stakeholders, allowing two minutes for each group to respond.



### Moderator's questions:

- Who are you? Do you support a fracking project in Mountainhead? (Yes/No/Undecided)
- Tell us briefly why you do or do not support this project.
- What is your perspective on the environmental risks and concerns that come with the project? Be sure to consider both local and global environmental issues.
- What are your thoughts on the best way to ensure the economic health and viability of BC and/or your community? How can local jobs be supported and encouraged?
- What is your response to the concerns about the impact of fracking on the health of people in the surrounding community?



## Part 5 – Town Hall debrief and discussion



### Reflection and debrief questions:

- How was this Town Hall like real life? How was it not?
- For the two active speakers from each group (non-observers), how did you feel acting in your role?
- For observers, which group(s) did you most strongly resonate with? Why? Did your opinions change over the course of the Town Hall? Why or why not?
- Who stands to benefit if the fracking proposal is accepted? Who is unlikely to benefit, and what are some of the potential losses they may face?
- Does the fracking proposal promote fairness and justice in BC? Why or why not?
- What effects could a fracking project have on global climate change and local climate justice?
- Would you support a fracking project in your community?

### Possible follow-up questions:

- How does your group's role or perspective resonate with your own values?
- How does what your character was advocating for fit in with the kind of world you personally want to live in?
- How does climate justice fit into the discussion about fracking and LNG in BC?

### ADDITIONAL RESOURCES

- **Path to Prosperity? A Closer Look at British Columbia's Natural Gas Royalties and Proposed LNG Income Tax**  
[www.policyalternatives.ca/publications/reports/path-prosperity](http://www.policyalternatives.ca/publications/reports/path-prosperity)
- **From Stream to Steam: Emerging Challenges for BC's Interlinked Water and Energy Resources**  
[www.policyalternatives.ca/water-energy](http://www.policyalternatives.ca/water-energy)
- **Will LNG development blow BC's carbon budget?**  
[www.policyalternatives.ca/publications/commentary/will-lng-development-blow-bcs-carbon-budget](http://www.policyalternatives.ca/publications/commentary/will-lng-development-blow-bcs-carbon-budget)
- **Don't Frack the Law! Why BC's natural gas plans will kill our climate action targets**  
[www.policyalternatives.ca/node/11497](http://www.policyalternatives.ca/node/11497)
- **Troubled Waters: BC's Gas Boom**  
<http://vimeo.com/74859770>
- **Fractured Land**  
[www.fracturedland.com](http://www.fracturedland.com)
- **Gasland**  
[www.gaslandthemovie.com](http://www.gaslandthemovie.com)

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To fight against catastrophic climate change, BC needs to reduce greenhouse gas (GHG) emissions to near zero before 2050. The Climate Justice Project (CJP) calls this a “green industrial revolution” that will have transformative impacts on the economy and society. Past industrial revolutions, however, have caused great upheaval and hardship, with some sectors of society bearing a terrible burden. This module starts with BC’s economic history of resource extraction, then shifts to ideas for creating new green jobs to achieve climate justice.

A key resource for this lesson is the CJP publication, *A Green Industrial Revolution: Climate Justice, Green Jobs and Sustainable Production in Canada*, [www.policyalternatives.ca/publications/reports/green-industrial-revolution](http://www.policyalternatives.ca/publications/reports/green-industrial-revolution)

There is a slightly older BC version of this paper, *Climate Justice, Green Jobs and Sustainable Production in BC* [www.policyalternatives.ca/greenjobs](http://www.policyalternatives.ca/greenjobs)

*Managing BC’s Forests for a Cooler Planet: Carbon Storage, Sustainable Jobs and Conservation* [www.policyalternatives.ca/coolforests](http://www.policyalternatives.ca/coolforests)

*Making the Case for a Carbon Focus and Green Jobs in BC’s Forest Industry*, [www.policyalternatives.ca/greenforests](http://www.policyalternatives.ca/greenforests)

## OBJECTIVES

- Students will review BC’s economic history and the role of resource development and exports.
- Students will be able to identify the essential elements of the proposed “green industrial revolution.”
- Students will recognize the benefits of a BC green jobs plan.
- Students will reflect on and analyze green policy proposals for building retrofits, transportation, forestry, and energy conservation and efficiency.

## COMPONENTS

1. History of BC’s economy
2. Forestry: The history and potential of a sustainable resource industry
3. The green industrial revolution

**Suggested Lesson Pairing:** Module 7– Imagining the Future We Want

## CURRICULUM CONNECTIONS

- Science and Technology 11
- Social Studies 9, 10, 11
- Civic Studies 11
- Comparative Civilizations 12
- Geography 12
- Social Justice 12
- Sustainable Resources 12
- English Language Arts 9, 10, 11, 12
- Communications 11, 12
- Applied Skills 11
- Business Education 8, 9, 10
- Economics 12
- Home Economics: Family Studies 8, 9, 10
- Technology Education 9, 10
- 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 with internet access
- Whiteboard/chalkboard and markers/chalk
- Paper and pens/pencils
- PowerPoint: *Green Industrial Revolution* [Download at [www.teachclimatejustice.ca](http://www.teachclimatejustice.ca)]
- Printed copies of the *Elements of the Green Industrial Revolution* handout and the *Green Jobs BC infographics*



## Part 1 – History of BC’s economy



**Brainstorm as a class:** Create a list of BC’s economic industries throughout history. What were the main economic drivers over the last few hundred years? Use prompts and questions to jog students’ memories and stimulate educated guesses.

BC’s economic industries include:

- Fur trade
- Gold rush
- Fishing
- Forestry
- Mining
- Railway
- Agriculture
- Energy (coal, hydroelectric, natural gas)
- Proposed industries: Oil (e.g. pipelines), liquefied natural gas

### NOTE TO TEACHERS:

Please be sensitive to the fact that some of your students may have family members who work in the fossil fuel industry. The point of this module is not for them to feel badly about this. We are all dependent on that existing economy. The goal of this module is to understand that we all need economic and employment opportunities, and that our collective challenge is to transition to a sustainable economy with well-paying green jobs.



**Question:** What thoughts come to mind when you look at this list?

- Much of BC’s economic past has been based on resource extraction and export. Income from these exports allows us to buy imported goods from outside of BC.
- BC’s economy has grown because of resource extraction, but sometimes this conflicts with climate change action.
- Older resource industries have established infrastructure, political power and money, and will be resistant to change that potentially impacts their economic interests.



### Questions:

- What makes a resource industry environmentally sustainable? Do all resource industries have the same potential to be sustainable?  
*Some are renewable (e.g. forestry can be renewable if the rate of cutting is not greater than the rate at which new trees grow) and some are not (e.g. coal or natural gas reserves are finite).*
- Who has benefited from resource development? Who has been negatively impacted or exploited?  
*Those who have benefited may include: companies and their owners, international customers, workers who earn high wages, local businesses. Those who have been negatively impacted or exploited may include: local First Nations communities, Chinese labourers during the gold rush/railway construction, people whose water or air quality has been polluted by industrial activity.*
- BC’s current economic strategy emphasizes fossil fuel extraction (increased exports of natural gas and coal from BC to Asia). How will this impact our GHG emissions?

35  
minutes

## Part 2 – Forestry: The history and potential of a sustainable resource industry



**Read aloud:** Forestry is an example of a local resource-based industry that can be sustainable if developed in certain ways. Forestry is one of BC’s most important industries and is at the heart of what built BC as a province. But forestry has also been controversial due to company practices such as clearcutting of old growth forests. Because of our vast forestry resources, existing infrastructure, skills, rich legacy and potential for sustainability, it makes sense for us as a province to reimagine how sustainable forestry can be part of BC’s future.

Many BC forestry towns have experienced great prosperity, but also some very hard times. Let’s look at a video that tells the story of how we got from there to here, and what we could possibly do to turn it around.



**Show video:** *Town at the End of the Road*, a story about Mackenzie, BC and its history and possible future as a forestry town (17 minutes) [vimeo.com/37208285](https://vimeo.com/37208285)



### Questions:

- What factors contributed to the loss of Mackenzie’s forestry industry and local jobs?
- What actions are the people in the video suggesting the province take to revitalize BC’s forestry sector? (*Local control, local processing and local manufacturing.*)
- What factors contribute to a resource industry being both economically and environmentally sustainable?
- What would it mean to you if the BC forestry industry was redeveloped in a sustainable way?

45  
minutes

## Part 3 – The green industrial revolution



**Read aloud:** Human societies have gone through various “revolutions” in the past that have transformed our economies and the ways we live. We began as hunter-gatherers, then, beginning several thousand years ago, many shifted to agricultural societies. About 200 years ago, the way many people lived shifted again with the Industrial Revolution.



**Activity:** As a class, discuss what you remember as the key features of the Industrial Revolution.

- Shift from farming in rural settings to working in factories and living in cities
- Spread of ideas and new technology (engines, machines, electricity)
- Rise of transportation and communications linkages over large distances
- Emergence of a wealthy “business class”
- Burning fossil fuels in large quantities for energy
- Economic shift to mass production of low-cost consumer goods



**Question:** During the Industrial Revolution, who benefited from the change and who was left behind?



**Read aloud:** The key challenge of climate change is to decarbonize our economy – that is, to reduce and eventually eliminate the use of fossil fuels for our energy needs. This is a massive change that has been called a “green industrial revolution” and includes shifting to clean energy supplies, using our energy much more efficiently and redesigning our communities. How to do this in a manner that is fundamentally fair is central to climate justice.

**Elements of the green industrial revolution include:**

- Transitioning from an unsustainable fossil fuel economy to a sustainable green economy.
- Fair distribution of the costs and benefits of economic transition.
- Implementing tools like taxes on carbon to increase the financial cost of using fossil fuels, and investing the resulting revenues in climate action.
- Creating well-paying jobs through systems that are designed to reduce carbon emissions, and that make communities more resilient to climate change impacts.



**Small group activity:** Give each group a copy of the *Elements of the Green Industrial Revolution* handout and one of the four Green Jobs BC infographics (on the following pages): retrofits, transportation, forestry, energy. More than one group will have the same infographic.



**Questions:**

- What is being proposed in your group’s infographic?
- How do the recommendations reflect the elements of the green industrial revolution?

Ask groups to report back to the class with their findings and thoughts.



**Questions:**

- Which groups in our society could have greater difficulties transitioning to a low- or zero-carbon BC?  
*E.g. Low-income households, car-dependent households, workers in GHG-intensive industries.*
- How can we ensure that no one gets left behind as we contemplate such a major shift?

**ADDITIONAL RESOURCES**

- **Green Jobs BC**  
[www.greenjobsbc.org](http://www.greenjobsbc.org)
- **Closing the Loop: Reducing Greenhouse Gas Emissions Through Zero Waste in BC**  
[www.policyalternatives.ca/publications/reports/closing-loop](http://www.policyalternatives.ca/publications/reports/closing-loop)  
*In particular, see Table 2: Green Jobs Potential from 100% Recycling in BC*

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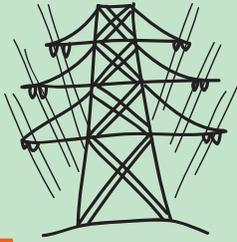
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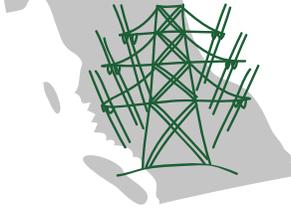
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**Energy**  
GREEN JOBS BC  
BUILDING A GREEN ECONOMY

BC's largely **HYDROELECTRIC** electricity system means that the province...



has one of the **CLEANEST** and most **AFFORDABLE** electricity systems in **NORTH AMERICA.**

With the right **POLICY CHOICES,**



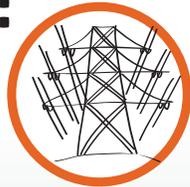
BC can build on this legacy to become a **GREEN ECONOMY LEADER**



→ **FOCUSING** ←  
**ON:**



Energy conservation



Renewable energy generation



Manufacturing and Development  
'clean technology'



## Energy Conservation and Efficiency



**ENERGY** conservation & efficiency



frees up 'clean' BC **ELECTRICAL POWER**



to use as a substitute for **FOSSIL FUELS**

which means



**LESS GHG** greenhouse gas

emissions.

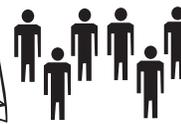
Economic activity associated with **ENERGY EFFICIENCY** and **CLEAN TECHNOLOGIES**



creates significantly **MORE JOBS** PER \$1 MILLION in increased output



than activity in the **FOSSIL FUEL SECTOR.**



From the perspective of job creation, investments targeting growth in energy efficiency and clean technology are likely to be more cost-effective than ones focused on stimulating the fossil fuel sector.<sup>1</sup>

1. Sources: BC Stats (2008), Provincial Economic Multipliers and Lee and Carlaw (CCPA, 2010) Climate Justice, Green Jobs and Sustainable Production in BC



Moving to a low GHG  
**FREIGHT** and  
**PASSENGER**

transportation model...

# TRANSPORTATION



**1** can create **10,000s of JOBS**

**2** can improve **HEALTH**,  
the **economy** and  
quality of **LIFE**



**TRANSPORTATION EMISSIONS**

are moving in the

**WRONG DIRECTION.**

by reducing problems associated with traffic congestion and long commutes.



Fortunately, **TRANSPORTATION** that is **GOOD** for the **environment** is **GOOD** for the **economy**.

**TRANSPORTATION** is the single largest source of **GHG emissions in BC.**

since 1990:



**ALMOST DOUBLED**

**HEAVY DUTY DIESEL**



**MORE THAN 2X**

**LIGHT DUTY TRUCKS**  
(pickups and SUVs)



almost as much carbon as gasoline trucks in 2010

**LIGHT DUTY GASOLINE**  
(cars and motorcycles)

**38% OF ALL EMISSIONS.** 28% above 1990 baseline levels

**\$1 m**



**JOBS**



Investments in mass transit and railways in North America create between 9 and 22 jobs per \$1 million.<sup>2</sup>



bus and train drivers



warehouse & shipping work



vehicle manufacturing & maintenance



trades & construction<sup>3</sup>



Investments in needed public transit and railway upgrades in BC could create **230,000 TO 270,000 PERSON-YEARS** of employment



Moving freight by rail reduces GHG emissions by almost 90% compared to moving the same goods with conventional fossil fuel powered trucks.



Public transit use can reduce GHG emissions by 90% or more per person compared to automobiles travelling the same distance.<sup>1</sup>

**CONGESTION**



Traffic congestion costs Vancouver's economy between \$400 - \$628 million annually.

An example: Policies to reduce commuting distances in Portland Oregon = **\$2.6 billion in savings per year.**<sup>4</sup>

1. Canadian Urban Transit Association (2010), The Economic Impact of Transit Investment: A National Survey.

2. See Canadian Urban Transit Association (2010), The Economic Impact of Transit Investment: A National Survey and "Measuring Success: the Economic Impact of Transit Investment in Canada,"; Pollin, Heintz, and Garrett-Peltier (2009), The Economic Benefits of Investing in Clean Energy: How the economic stimulus program and new legislation will boost U.S. economic growth and employment. Center for American Progress.

3. Thompson and Duffy (2010), Jobs, Justice, Climate: Building a Green Economy for BC.

4. Joe Cortright/ CEOs for Cities (2007), "Portland's Green Dividend."



# FORESTRY

## GREENJOBSBC

BUILDING A GREEN ECONOMY



We need to start strategizing now to ensure **HEALTHY FORESTS**



and a **SUCCESSFUL and DIVERSE** BC forestry sector

for the coming **DECADES.**



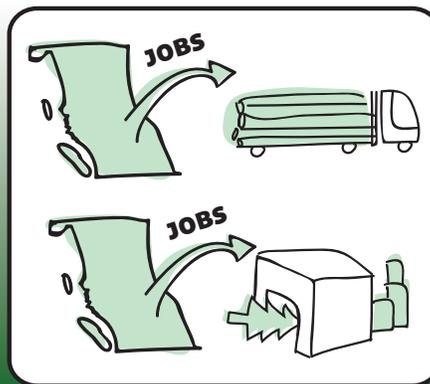
The National Roundtable on the Environment and the Economy estimates:

### TIMBER QUANTITY



depending on the success of global climate change mitigation efforts.<sup>1</sup>

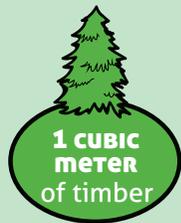
### The RAW LOG EXPORT FOCUS of BC's forest sector



has meant that the province has in effect been

**EXPORTING THOUSANDS OF JOBS**

in wood processing and manufacturing every year.



**BC** 3 Jobs  
**Quebec** 12 Jobs  
**Ontario** 15 Jobs

**4x JOBS**  
**5x JOBS**

Ontario's forestry sector creates more than five times as many jobs as BC per cubic metre and Quebec performs about four times better than BC for forest sector jobs intensity.

With targeted policies, more than **15,000 new**

**FULL TIME** forestry jobs and thousands of **ADDITIONAL SEASONAL POSITIONS** could be created while boosting the health of BC's forests.<sup>2</sup>

### Green Job Creation: one estimate

**2630 JOBS**



Solid wood, pulp & paper, bio-energy products

**10,100 JOBS**



Higher value forest product manufacturing

**5200 JOBS**



Tree planting & tree nursery work

**2400 JOBS**



Processing usable wood waste

**200 JOBS**



Reinstating 20% of BC Forest Service positions cut since 2001

(1,000 jobs if restored to pre-2001 levels).

1. The National Round Table on the Environment and the Economy (2011), *Paying the Price: The Economic Impacts of Climate Change for Canada*.  
2. Parfitt/CCPA (2011), *Making the Case for a Carbon Focus and Green Jobs in BC's Forest Industry*



# RETROFITS

**GREEN JOBS BC**  
BUILDING A GREEN ECONOMY



What are building energy **RETROFITS**?



**1** **FASTEST** way to **Reduce** BC's **GHG emissions**

**2** Potential to create **HUNDREDS OF THOUSANDS OF JOBS**



construction



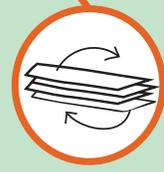
weatherization & insulation



installation



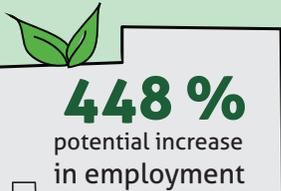
deconstruction & waste management



green building materials

## JOB CREATION ESTIMATES

If supportive policies are implemented:



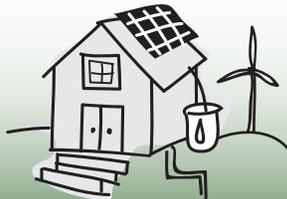
in the energy efficiency and green buildings sector.<sup>1</sup>

### RESIDENTIAL RETROFITS

**4100-6600 JOBS** for 2 years  
**14,000-30,000 PEOPLE** directly employed



Basic upgrades  
400,000 homes<sup>2</sup>



Intensive upgrades  
100,000 homes/year<sup>3</sup>

### PUBLIC SECTOR BUILDING RETROFITS



**2500 new JOBS**



Reduce emissions in line with provincial GHG targets for 2020<sup>4</sup>

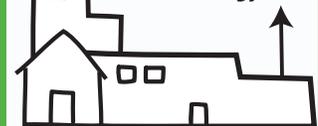
### OTHER environmental & economic BENEFITS

previous energy bills

**Financial savings could free up BILLIONS**

for other job-creating economic activity and investments.<sup>5</sup>

reduced energy bills



residential, institutional & commercial

Electricity saved through

**ENERGY EFFICIENCY** would be freed up for other uses

which could help further reduce BC's GHGs.<sup>5</sup>

1. The Pacific Coast Collaborative (2012), The West Coast Clean Economy  
2. Thompson and Duffy (2010), Jobs, Justice, Climate: Building a Green Economy for BC.  
3. Horne, cited in Thompson and Duffy (2010)  
4. Calculations based on BC Government PSECA program data (2011)

5. NRCan/Office of Energy Efficiency, "Improving Energy Performance in Canada – Report to Parliament Under the Energy Efficiency Act For the Fiscal Year 2009-2010."





Responding to a big issue like climate change can make people feel overwhelmed, even though there are lots of alternatives and solutions. In this module, we engage students to imagine the world they want.

This module draws on Climate Justice Project research including:

*Avoiding Collapse: An agenda for sustainable degrowth and relocalizing the economy*

[www.policyalternatives.ca/publications/reports/avoiding-collapse](http://www.policyalternatives.ca/publications/reports/avoiding-collapse)

*A Green Industrial Revolution: Climate Justice, Green Jobs and Sustainable Production in Canada*

[www.policyalternatives.ca/publications/reports/green-industrial-revolution](http://www.policyalternatives.ca/publications/reports/green-industrial-revolution)

### OBJECTIVES

- Students will view the current climate crisis as a call to action.
- Students will connect to the ecological story of our time and the implications for their future descendants.
- Students will be motivated to take action to make a better life and future for themselves and the people they care about.

### CURRICULUM CONNECTIONS

Social Studies 8, 9, 10, 11

Civic Studies 11

Comparative Civilizations 12

Geography 12

Social Justice 12

Sustainable Resources 12

English Language Arts 8, 9, 10, 11, 12

Communications 11, 12

Home Economics:

Family Studies 10, 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

1 hour

### RESOURCES REQUIRED

- Digital projector and computer with internet access
- Some type of auditory cueing device (e.g. a bell or chime)



## Imagining the Future We Want



**Read aloud:** “The human enterprise has already overshoot global carrying capacity and accelerating global change will soon force the world community to contemplate the end of material growth. If our best climate and environmental science is basically correct then humanity faces a choice between maintaining business-as-usual — in which case nature is likely to impose a chaotic implosion — or planning an orderly equitable contraction. In short, to achieve sustainability with justice we will have to deliberately scale back the global economy (or at least reduce the throughput of energy and material) and consider means to redistribute ecological and economic wealth at national and local levels.”

– William Rees, *Avoiding Collapse*

Many people see the climate crisis as a call to action – to make things better and to strive for climate justice. The transition away from fossil fuels can be a way to improve the lives of all people and to ensure the benefits and burdens of the transition are distributed equitably. As we make major changes to reduce our GHG emissions and adapt to climate change, there are many opportunities for well-paying jobs and innovation. We do not face a technological challenge so much as a challenge of finding the political will to make change.

The climate justice questions for this moment become:

- How can we build a sustainable future that strengthens our economy and society, and that doesn’t only benefit some at the expense of others?
- What things are young people doing to start this revolution?



**Show video:**

*What can young people in your community do to react to climate change?*  
[youtu.be/ldgPEUvjGSs](https://youtu.be/ldgPEUvjGSs)



**Activity:** “The Double Circle”

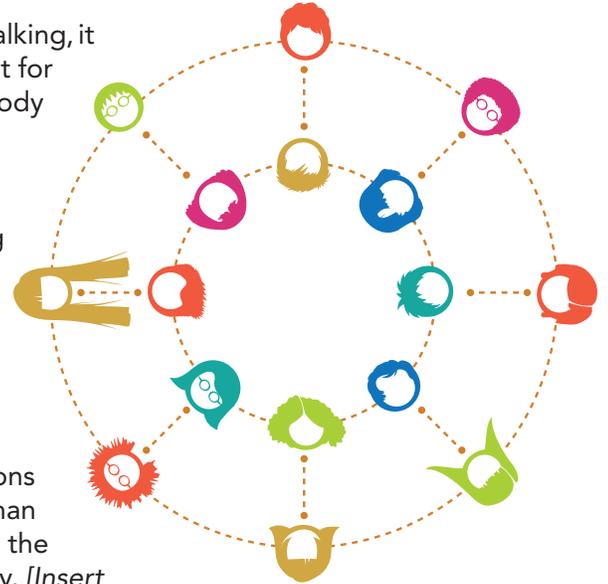
This activity draws on Joanna Macy’s *The Work that Reconnects*, specifically Chapter 9 – “Deep Time: Reconnecting With Past and Future Generations”: [www.joannamacy.net/theworkthatreconnects/guidebook.html](http://www.joannamacy.net/theworkthatreconnects/guidebook.html)

**NOTE:** The following exercise should have an atmosphere of shared space and ceremony. Student and teacher cell phones/mobile devices should be turned off and inaccessible during this time in order to maintain the feeling of a sacred space and eliminate distraction of focus. Teachers should also put great intention behind how they are speaking and the character of their cues for transition. The use of a bell or chime to signal the end of response time is highly recommended.



Create two concentric circles (an inside circle and an outside circle that encompasses it). There should be the same number of people in both circles. People in the inside circle face out, and people in the outside circle face in, so that everyone is facing a partner. Once students have made this formation, ask them to sit in silence for 10 seconds before they start the exercise to set the tone.

Throughout this exercise, when one person is talking, it is important for the listener to be totally present for them and to listen actively. Keep in mind that body language to indicate active listening will differ for people for cultural and other reasons; the important thing is for each student to bring all of their attention to what they are doing, saying and hearing.



**Read aloud:** The people on the inside circle – the person sitting across from you is your descendant. Through a miracle of fate, you are able to be face to face with your great, great, great, great, great grandchild – seven generations from now. The future is a very different world than it is today, and our present moment is known in the future as a pivotal one in the history of humanity. *[Insert current year here]* is a time of ecological disaster. Centuries of burning fossil fuels have altered the climate of our planet, and it is this present moment that determined the future for generations after.

Your descendant asks this question: “Ancestor, is what we’ve been taught by our teachers and learned in our history courses true? Is it true that in the times in which you lived, wars and preparations for war, hunger and homelessness, the rich getting richer and the poor getting poorer, poisons in the seas and soil and air, the death of many species... all these things were happening all the time? What was that like for you?”

Ask the person from the present to respond to the person from the future.  
🔔 Ring a bell or chime to signal the end of the response time.

Ask the people in the outside circle to rotate clockwise to the next person in the inside circle.



**Read aloud:** The descendants ask a second question: “Ancestor, we have stories and films and songs that tell of what you and your friends did back in your time to bring important changes to the world for the better. What I want to know is how did you start? You must have felt lonely and confused sometimes, especially at the beginning. What first steps did you take? How did you take part in that change process?”

Ask the person from the present to respond to the person from the future.  
🔔 Ring a bell or chime to signal the end of the response time.

Ask the people in the outside circle to rotate clockwise again.



**Read aloud:** The descendants ask a third question. “Ancestor, I know you didn’t stop with those first actions on behalf of the Earth, despite the challenges you faced. Tell me, what gave you hope? Where did you find the strength and what gave you joy to continue working so hard, despite all the obstacles and discouragement?”

Ask the person from the present to respond to the person from the future.  
 Ring a bell or chime to signal the end of the response time.

**Read aloud:** Descendants, please stay where you are. Now it is your turn to talk, while your ancestor listens. Share what you thought and felt after all you have heard from your ancestors.

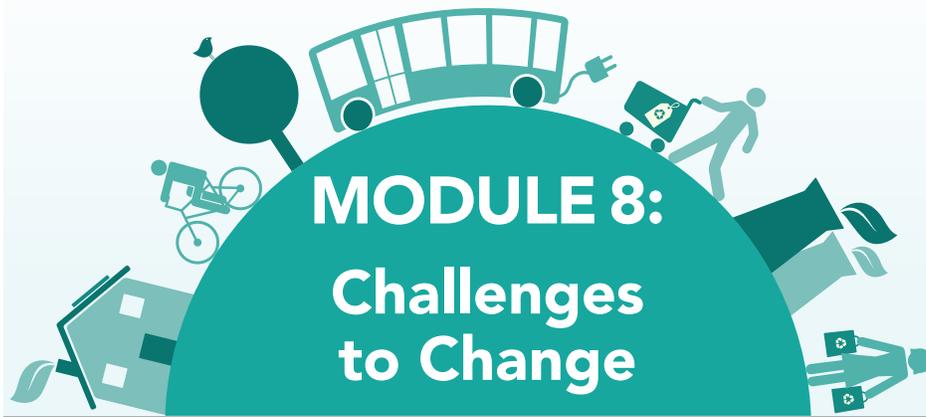
 Ring a bell or chime to signal the end of the activity.



**Debrief exercise as a class.** Students can respond to these questions verbally or in writing:

- What emotions came up in the course of this exercise?
- How did it feel to tell the story to your descendants, or to hear the story from your ancestors, in the context of “history”?
- What ideas came to mind when you described, or heard about, how we took action to address climate change?
- What came to mind when you spoke or heard about what provided hope when hardships or obstacles arose?
- What would you like to do in this present moment to make a better life and future for you and the people you care about? Be specific:
  - What can I do in my family?
  - What can we do as a classroom?
  - What can we do as a school?
  - What can we commit to now?

The opinions and recommendations made in these lesson plans and the linked reports and resources, and any errors, are those of the authors, and do not necessarily reflect the views of the CCPA, BCTF or funders of the Climate Justice Project.



# 8

Climate justice emphasizes systemic change – new rules and regulations, public investments in infrastructure and better systems – above and beyond the small changes we can make as individuals. This module reflects on successful social movements, then opens up a conversation about achieving climate justice in BC.

While this module is more about movement-building than research, the Climate Justice Project (CJP) report *A Green Industrial Revolution* contains lots of ideas for how to build a sustainable economy: [www.policyalternatives.ca/publications/reports/green-industrial-revolution](http://www.policyalternatives.ca/publications/reports/green-industrial-revolution)

The CJP's *The Good Life, The Green Life* video project looks into the lives of several British Columbians as they wrestle with change in their own lives: <http://goodlifegreenlife.ca/>

## OBJECTIVES

- Students will reflect on and name the essential elements of successful social change movements.
- Students will identify the challenges to widespread social change.
- Students will identify specific challenges to achieving climate justice in BC, and brainstorm ways to overcome them.

## COMPONENTS

1. Defining and creating change
2. BC climate justice: the potential of this moment

## CURRICULUM CONNECTIONS

- Social Studies 8, 9, 10, 11
- Civic Studies 11
- Comparative Civilizations 12
- Social Justice 12
- English Language Arts 8, 9, 10, 11, 12
- Communications 11, 12
- Applied Skills 11
- Economics 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

1.75 hours

## RESOURCES REQUIRED

- Digital projector and computer with internet access
- Whiteboard/chalkboard and markers/chalk
- PowerPoint: *Challenges to Change* [Download at [www.teachclimatejustice.ca](http://www.teachclimatejustice.ca)]
- Copies of *The Story of Change* and Youth4Tap reflection sheet



## Part 1 – Defining and creating change



**Read aloud:** Today we are going to explore social change and what we can do to successfully create it. In some cases, we can act as individuals to create change, but often, in order for it to have long-term, widespread impact, we need to work collectively to change structural factors, or the systems around us. We are going to use the climate justice movement, which is taking action to address climate change and reduce our greenhouse gas emissions in ways that will make our province better and more just, as our focus.



**Activity:** In small groups, name at least three examples of:

- Personal change – changes you can make in your own behavior to address climate change and reduce greenhouse gas emissions (e.g. buying recycled paper, biking instead of driving, using less energy at home).
- Systemic change – changes in systems or our environment that address the underlying causes of climate change and high greenhouse gas emissions (e.g. public transit, recycling systems, clean tap water, hydroelectric power).

Ask groups to share their ideas with the class.

- **Discuss:** What are the main changes we need to make together in order to reduce our greenhouse gas emissions?



**Read aloud:** To rise to the challenges of climate change, reduce our greenhouse gas emissions and pursue a fairer world and better life, effective, large-scale, systemic change is vital.



**Brainstorm as a class:** What are some examples of successful change movements through history? (E.g. US civil rights movement, women’s right to vote in Canada, India’s independence from Britain, anti-apartheid movement in South Africa, lesbian and gay rights.)



**Questions:**

- Why do you think these change movements were successful?
- What are some of the obstacles and challenges these movements faced, and were able to overcome?



**Show video:** *The Story of Change* <http://storyofstuff.org/movies/story-of-change/>  
Ask students to think about these questions while they watch the video:

- What do you think are the biggest challenges to change?
- What do you think people need to do to make lasting change in the world?



Ask students to complete *The Story of Change* reflection sheet (page 53) in pairs, then debrief as a class.



Discuss the questions above, and as ideas emerge make notes on the board similar to this table:

Challenges to Change	Elements for Successful Change
Established systems	People work to change systems
Focusing only on individual action	People taking action together for a common goal

Possible ideas to tease out:

- Old systems can reinforce existing habits and be barriers to new ones.
- There are people who feel they benefit from the old way of doing things and may resist change.
- Over time, small changes in the right direction can add up to a lot. Back in the 1980s it was still the norm for people to smoke in restaurants or at work!



## Part 2 – BC climate justice: the potential of this moment



**Read aloud:** How much popular support do you think the average social change movement needs to make meaningful, widespread change actually happen? Raise your hand if you agree with the percentage, and keep it up until you disagree – 80%? 60%? 40%? 20%?

What percentage of people in BC do you think support climate action initiatives for the province, such as investments in public transportation, transition programs for workers in fossil fuel industries, and subsidies for home and building retrofits?

- It's around 80% to 95%!
- 86% of people in BC believe climate action will be good for people and the province
- 89% agree that "Canadians as a whole will be better off if we can be less dependent on fossil fuels" – from *Moving Towards Climate Justice: Overcoming Barriers to Change*

As we saw in *The Story of Change* video, this means we have the numbers to make real positive change in BC around climate justice if we:

- are guided by a BIG IDEA
- work TOGETHER
- take ACTION to change SYSTEMS

AT THE TIME OF  
MARTIN LUTHER  
KING JR.'S MARCH  
ON WASHINGTON,  
ONLY 23% OF  
AMERICANS  
SUPPORTED HIM.



### Question:

- What are some systemic changes we could make in BC that would help us move towards climate justice?

*This is an opportunity to link back to other modules on food, transportation, waste, energy and the green economy, and consider actions at different levels.*



**Read aloud:** There are already young people in the province making significant, positive change for climate justice in their schools and communities. An example of change in action is Youth4Tap, a student-driven initiative that emerged from several Vancouver schools.



**Show video:** *Youth4Tap Windermere*, [www.youtube.com/watch?v=k1idmn96ceY](http://www.youtube.com/watch?v=k1idmn96ceY)  
While they watch the video, ask students to consider how the Windermere group fulfilled the elements of change we heard about in *The Story of Change*.



Ask students to complete the Youth4Tap reflection sheet (page 55) in pairs, then debrief as a class.

**Positive change is possible, and we can do it too!**



### Questions:

- What systems or policies in our school or community could we try to change in order to move towards climate justice?
- What would be our big ideas?
- Who would we network with in our communities?
- What collective actions could we engage in to try to make change happen?



### QUESTIONS AND ACTIVITIES FOR FURTHER EXPLORATION

1. Using the Big Idea – Working Together – Collective Action to Change Systems/Policies model, create an action plan to address a climate justice problem in your community. What is your big idea? What system do you want to change? What can you do to bring people together? What group actions would you want to take? It doesn't have to immediately create a systemic change, but can be a start.
2. Suggestions for how to make environmental and social change happen have often emphasized individual choice or consumer-based models. Why do you think these methods have been so heavily promoted even though they have proven to be less effective in producing significant social change?
3. Start a Youth4Tap initiative in your school.
4. Watch Dave Meslin's TED Talk, *The antidote to apathy*: [www.ted.com/talks/dave\\_meslin\\_the\\_antidote\\_to\\_apathy](http://www.ted.com/talks/dave_meslin_the_antidote_to_apathy). Using his ideas, explain how groups advocating for social or environmental justice issues in BC can make it easier for people to be part of their movement.
5. If you wanted people to work with you on a campaign or a project for social change, what tactics or strategies could you use to encourage people to join you?

### ADDITIONAL RESOURCES

- **The Good Life, The Green Life**  
<http://goodlifegreenlife.ca>
- **Moving Towards Climate Justice: Overcoming Barriers to Change**  
[www.policyalternatives.ca/moving-towards-climate-justice](http://www.policyalternatives.ca/moving-towards-climate-justice)
- **Youth 4 Action: Youth leadership and action at school and beyond**  
[www.metrovancouver.org/region/Youth4Action/Pages/default.aspx](http://www.metrovancouver.org/region/Youth4Action/Pages/default.aspx)
- **Aliya Dossa, TEDxKids: Sustainability Begins with a Smile**  
[www.youtube.com/watch?v=UdDEGn4S5nA](http://www.youtube.com/watch?v=UdDEGn4S5nA)
- **Fossil Free Canada**  
<http://gofossilfree.ca>
- **The Story of Stuff Project**  
<http://storyofstuff.org>
- **Why It's Not Enough To Be Right About Climate Change**  
<http://desmog.ca/2014/01/27/why-it-s-not-enough-be-right-about-climate-change>

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# The Story of Change

## Challenges to Change

1. When people talk about changing the world, the focus is often on giving individuals the opportunity to make different choices for themselves. Why is it a problem to try to make change solely by focusing on individual action or personal choice?

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2. We often hear that we can help save the planet by changing how we shop. Yet “green” products, such as organic food or energy efficient home appliances, are usually more expensive than other options. Is this method of change equally accessible to everyone? Does it distribute the benefits and burdens of adapting to climate change fairly? Why or why not?

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3. If we wanted to create a new kind of economy that focused on the wellbeing of people and the planet, would the presence of the old economy help or hinder the change? Why?

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## Moving Forward

4. What can people do beyond buying green products or making personal choices to help make successful change?

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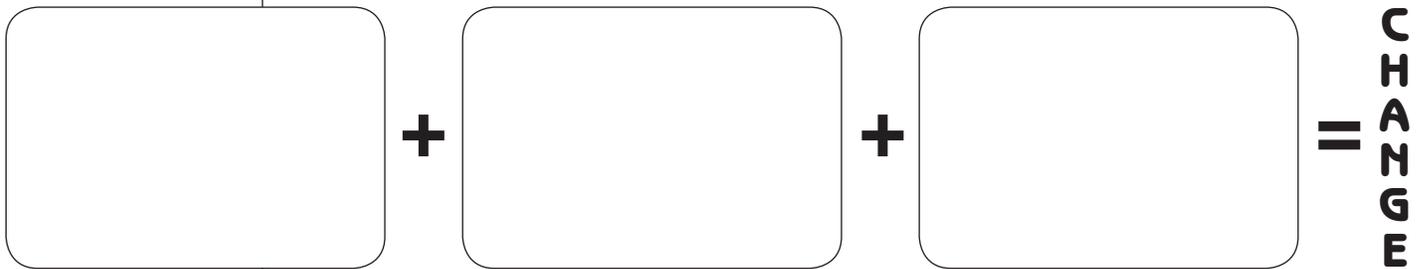
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5. Complete the elements for change diagram below, as proposed in *The Story of Change*. Use your own words in the boxes, not their pictures.



6. Complete the sentences:

A **big idea** doesn't just make things a little better for a few people, it makes things a lot better for \_\_\_\_\_. When Martin Luther King Jr. organized his march on Washington he only had 23% popular support, yet was successful in the end. Although not everyone supported the civil rights movement, the people who did worked \_\_\_\_\_ and took collective \_\_\_\_\_.

7. What do you like to do and what are you good at? What kinds of skills could you bring to a change movement?

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# Youth4Tap

1. What was Youth4Tap's **big idea** for their school?

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2. What different actions did they take? How did these actions involve or engage different groups of people?

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3. How are the students going beyond the personal choice model to changing the systems at their school?

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4. The two principles of climate justice are that actions need to 1) rise to tackle the challenges of climate change, and 2) be fair, and make life better for everyone, including the people who are most poor or vulnerable. Does Youth4Tap's initiative achieve this? In what ways?

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## Answer key

### The Story of Change

1. When people talk about changing the world, the focus is often on giving individuals the opportunity to make different choices for themselves. Why is it a problem to try to make change solely by focusing on individual action or personal choice?

**The systems and environments we live in have a much greater impact on what happens in the world than what we choose to do individually; systems greatly influence our personal choices; we can have a greater impact collectively than individually.**

2. We often hear that we can help save the planet by changing how we shop. Yet “green” products, such as organic food or energy efficient home appliances, are usually more expensive than other options. Is this method of change equally accessible to everyone? Does it distribute the benefits and burdens of adapting to climate change fairly? Why or why not?

**No—people with less money would have to take on more of a financial burden to “go green.” This extra burden might be a barrier that prevents some from living a healthier, more sustainable lifestyle and excludes them from being part of making change.**

3. If we wanted to create a new kind of economy that focused on the wellbeing of people and the planet, would the presence of the old economy help or hinder the change? Why?

**The presence of the old economy would hinder the change—old systems tend to try to perpetuate themselves and resist the new.**

4. What can people do beyond buying green products or making personal choices to help make successful change?

**People can work together to try to change systems or policies.**

5. Complete the elements for change diagram below, as proposed in The Story of Change. Use your own words in the boxes, not their pictures.

**A big idea that helps everyone a lot + a group of people who work together as a collective + people who take action together to change systems = CHANGE.**

6. Complete the sentences: A **big idea** doesn’t just make things a little better for a few people, it makes things a lot better for **EVERYONE**. When Martin Luther King Jr. organized his march on Washington he only had 23% popular support, yet was successful in the end. Although not everyone supported the civil rights movement, the people who did worked **TOGETHER** and took collective **ACTION**.

7. What do you like to do and what are you good at? What kinds of skills could you bring to a change movement?

**Answers will vary.**

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### Youth4Tap

1. What was Youth4Tap’s big idea for their school?

**Eliminate plastic water bottles at their school.**

2. What different actions did they take? How did these actions involve or engage different groups of people?

**They organized a water information week to engage students (both through coordinating and attending events); they lobbied administration and the school board to make changes to the school facilities.**

3. How are the students going beyond the personal choice model to changing the systems at their school?

**The students worked to change the physical environment of their school by installing new water fountains. Not just leaving it to individuals, they remade a system where it is now easier for everyone to engage in reducing waste and consumption.**

4. The two principles of climate justice are that actions need to 1) rise to tackle the challenges of climate change, and 2) be fair, and make life better for everyone, including the people who are most poor or vulnerable. Does Youth4Tap’s initiative achieve this? In what ways?

**Yes. By eliminating plastic water bottles from their schools they are reducing waste and the amount of carbon used to create plastic water bottles. They are also educating others in their community on waste and consumption. Their initiative makes life better for everyone in the community, as everyone can benefit from the new water fountains.**

## 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<sub>2</sub>)** – A heat-trapping molecule, and the principal greenhouse gas of concern to climate scientists. A growing concentration of CO<sub>2</sub> 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<sub>4</sub>)** – 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.