

Post-Workshop Teacher Resources

Pathways to Climate Change Education

To support students' deeper understanding of climate change and how our choices influence the future, BCSEA encourages teachers to delve into topics that help meet student needs and curriculum requirements.

A variety of activities and resources are suggested here. These activities are organized and labelled below by TYPE and by TOPIC to enhance your ability to choose.

TYPES	Video Discussion	Reflecting	Research & Explore	Action-Projects
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TOPICS	Climate Science	Communication & Media	Energy Use	Hope & Leadership
	Appliance Solutions	Food Solutions	Transportation Solutions	Water Solutions

Quick Menu

To aid you in selecting a pathway through several activities, we have provided several suggestions below that support you and students getting the most out of the program. These are four possible pathways to select from this resource package. Mix and match as you see most appropriate. Pick and choose among the activities in the list of Post-Workshop Resources below to best meet your class needs and interests

Week	Four Possible Pathways			
	Quick	Hope theme	Science focus	Action focus
1	1 Where we waste energy 2 Students leading school projects	2 Students leading school projects 4 Climate change through the eyes of a 9-year old	3 People who don't believe in Climate 5 Media-bias on Climate Change debates	2 Students leading school projects 6 Youth Leadership on Climate Change 20 Just One Trip
2	8 The Power of Acting	6 Youth Leadership on Climate Change 7 Hopefulness Article 8 The Power of Acting	13 Be the Expert not the Sceptic 1 Where we waste energy 11 What's your footprint? 8 The Power of Acting	8 The Power of Acting 1 Where we waste energy 11 What's your footprint?
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Note that many other activities and resources to explore climate change are also available. See the additional resources section at the back.

Post-Workshop Resources

Each activity below is grouped by TYPE of activity. The activity topic is shown after each activity name

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- 1 Where we Waste Energy – **Energy Use**
- 2 Students Leading School Projects - **Hope & Leadership**
- 3 People who don't believe in Climate Science - **Climate Science/ Communication & Media**
- 4 Climate change through the eyes of a 9-year old - **Communication & Media/ Energy Use**
- 5 Media-bias on Climate Change debates - **Communication & Media**
- 6 Youth Leadership on Climate Change - **Energy Use/ Hope & Leadership**

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- 7 Hopefulness Article - **Hope & Leadership**
- 8 The Power of Acting – **Energy Use/ Hope & Leadership**
- 9 Walk & Bike to School – **Transportation Solutions**
- 10 Contest Actions Poster – **Energy Use**

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- 11 What's your Footprint? - **Energy Use/ Hope & Leadership**
- 12 Climate Change Optimism - **Hope & Leadership/ Communication & Media**
- 13 Be the Expert not the Sceptic - **Climate Science**
- 14 Water Use - **Water Solutions**
- 15 Kill-A-Watt on Appliances - **Appliance Solutions**

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- 16 School Project – **ANY TOPIC**
- 17 School Composting – **Food Solutions**
- 18 Fieldtrips – **Energy Use/ Food Solutions/ Water Solutions**
- 19 Eat Farmers' Food – **Food Solutions**
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- 21 Be An Active Citizen – **Communication & Media/ Hope & Leadership**

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See Activity Descriptions section below for more details on each activity and resource

Activity Descriptions

Video Discussion

1 - Where we Waste Energy – Energy Use

Early in the Contest this video may be useful to highlight how we waste energy, in some cases without even knowing it. A Great lead-in to the issue(s) of energy waste and things we need to do to reduce waste

SHOW *The Surprising Places We Waste Energy* (3:32min) – **Grade 6-7**

<https://www.youtube.com/watch?v=QsAgaD7IeuA>

Question: *Ask students their responses to this video and have students brainstorm a solution area for each of them to add to their contest goals*

2 - Students Leading School Projects - Hope & Leadership

An Antarctic explorer funds students taking action on climate in Australian Elementary Schools. Students love to take part and help lead on projects.

Discuss with students projects they would like to take on at their school.

SHOW: **24 Hours of Reality: 24 Reasons for Hope - Cool Australia** <https://vimeo.com/106119756>

Questions: *What kinds of projects/ activities that you saw in the video look interesting or fun to you? Make a list of your top 3 projects/ activities. What do you think we could explore doing at our school?*

3 - People who don't believe in Climate Science - Climate Science/ Communication & Media

When climate change comes up there are still a number of people who are ill-informed or actually don't believe in climate science. This video highlights what can get in the way of people understanding and acting on climate change. A closer look at how our 'caveman' brains, social communications and 'limited pool of worry' challenge many of us to act on Climate Change

SHOW *Why People Don't Believe in Climate Science* (7:12min) – **Grades 6-7**

<https://www.youtube.com/watch?v=y2euBvdP28c>

Question: *Discuss with students what do you think motivates people to act? What part of what you know about climate change so far motivates you?*

4 - Climate change through the eyes of a 9-year old - Communication & Media/ Energy Use

A short video on how climate change affects the lives of villagers in the South Pacific (Vanuatu Island). Gives a unique perspective on climate change for 3rd world people and their most basic needs (food, shelter)

SHOW *Climate Change through the eyes of a 9-year old* (1:36min) – **Grade 4-7**

<https://www.youtube.com/watch?v=7BmNCziSCRO>

Question: *What does this video make you feel about taking action on climate change?*

5 - Media-bias on Climate Change debates - Communication & Media

Media has had a profound effect on people's perception of climate change. In particular the many TV debates between two 'sides' for and against the reality and urgency of climate change. Here John Oliver highlights the confusion created by having proportional debaters on the matter. A Great tangible look at how the 97% consensus is skewed by Media's 50:50 representation

SHOW [Last Week Tonight with John Oliver: Climate Change Debate](#) (Start at 2:05min to 4:26min) [*harsh language in first 2 minutes*]
<https://www.youtube.com/watch?v=cjuGCJJUGsg>

Question: *How can media do a better job of representing issues like this more accurately?*

6 - Youth Leadership on Climate Change - Energy Use/ Hope & Leadership

During the workshop, students saw one video on youth leading to recycle and reuse used cooking oil from local restaurants. Watch another youth leader going head to head with petroleum interests in Colorado, US. A 14-year old Xiuhtezcatl Martinez is the youth director of Earth Guardians and inspires young people in 25 countries to take action on Climate Change.

SHOW [Kid Warrior Fights Climate Change](#) (6:22 min) – **Grade 6-7**
<http://video.nationalgeographic.com/video/short-film-showcase/kid-warrior-fights-climate-change>

Question: *Do you agree with his position? What gives him hope? Why is hope so important?*

Reflecting

7 - Hopefulness Article - Hope & Leadership

This short article highlights the importance of hopefulness for teachers, scientists and others. You can share the key ideas in the article with your students and have them reflect and discuss in class. See Activity #12.

<http://www.hakaimagazine.com/article-long/rise-ocean-optimism>

8 - The Power of Acting – Energy Use/ Hope & Leadership

Each individual action has far reaching consequences. It encourages students and families to consider what the outcomes of their actions are and why they are worthwhile doing. This encourages students to focus on Core Competencies (Personal and Social Responsibility).

Provide students an opportunity for students to write about how their family responds to the actions and what kinds of conversations come up. Ask them to consider – How does their own actions appear to affect their own family members. Is it positive or negative or a mix? What do they think would help make this work more effectively? When done the writing exercise, ask them to discuss in pairs and then as a class share what observations they made.

9 - Walk & Bike to School – Transportation Solutions

In 1969 90% of students within a mile of their school walked or biked to school. Today, this average has dropped to 30%. There are many contributing factors. The perception of risk in walking and biking due to the dangers of traffic – created the circumstance where more parents drove their children to school – thus escalating the very challenge. Active and Safe Routes to School provides programs and resources for schools and parents to revisit and renew their approaches to transportation – with powerful results. One point of entry for students is to show one of the videos at <http://www.saferoutestoschool.ca/media>.

Ask students to reflect and journal on their own situation, and consider opportunities to make a change. Lead a discussion afterwards and opportunities to voice their challenges and goals.

10 - Contest Actions Poster – Energy Use

Ask students to capture a photo of themselves and/or family member taking an action (from the Contest) that worked well for them and that they enjoyed. It should be a picture that tells a story and shows what is “happening” – a winning, funny, beautiful or inspiring moment.

Ask students to:

1. Print the photo or send it to you as an e-file for printing – as a 3.5”x5” or trim these to slightly smaller dimensions
2. Write a 5 to 10 word caption describing the photo
3. Write 2 or 3 sentences that tell the reader what they did, and what the result was.

Provide each student with a small paper – print the photos and attach to the page. Come up with a fun title and assemble the class stories and pictures into a poster collage and display it on a school corridor

Research and Explore

11 - What's your Footprint? - Energy Use/ Hope & Leadership

The online footprint activity allows students to see how their actions compare to that of other regions and countries in the world, expanding their awareness and the value of their actions.

The activity supports the **Personal** and **Social Responsibility** competency and links well to **Social Studies learning outcomes** on Natural Resources by highlighting the importance of active citizenship. The climate change challenge cannot be solved by technology alone. People need to act on their understanding and convictions. The calculator provides the understanding that climate change is not just an individual problem with only individual solutions but a collective one. Encourage students where possible to do the online calculator activity with their parents.

For Students: Calculate your footprint with your parents. The lower your footprint, the less impact you will have on nature and the climate. Figure out your eco-footprint and carbon footprint and record them in your journal

Ecological footprint calculator – Global Footprint Network

<http://www.footprintnetwork.org/en/index.php/GFN/page/calculators/>

Your eco-footprint is _____ hectares per year

Carbon footprint calculator - Livesmart BC

http://www.livesmartbc.ca/homes/h_calc.html

Your carbon footprint is _____ tonnes of GHGs per year

12 - Climate Change Optimism - Hope & Leadership/ Communication & Media

Discuss hopefulness and urge students to each find a story online (YouTube, Blog, News etc.) about a success story they would like to share on environmental restoration, renewable energy, community gardening, school composting. One good source is a Pinterest site (Climate Change Optimism):

<https://www.pinterest.com/mikaidt/climate-change-optimism/>

Develop basic criteria for a short and simple presentation and written report with photo with students. These can then be shared in a school hall-way to emphasize positive messages on climate change action.

13 - Be the Expert Not the Sceptic - Climate Science

Climate change has been portrayed by media for many years as contested. But is the Science up to question? How real are the misconceptions that often creep into this topic? To find out more, have students choose ONE unique topic in the first 40 on <https://www.skepticalscience.com/argument.php>.

Ask students to read the BASIC tab section or INTERMEDIATE (for bonus points) to understand better one claim about climate change – not being true (This activity follows best after *Why People Don't Believe Climate Change* Video).

Ask students to bring back to share in class – 1-minute report outs. You may wish to use one or more of the **Video-Discussion** options above to show a selection of as 'breaks' between the regular student presentations.

14 - Water Use – Water Solutions

While we think of our water use in terms of what we see and experience being used (e.g. food preparation, laundry, dishwashing, showers, watering garden) a far larger impact is the hidden or invisible use of water through our food choices. Have students explore their daily water use using this:

<http://www.angelamorelli.com/water/>

Ask students to co-create a ‘whole class’ chart of pre- and post- contest water savings from 4 minute showers, and waterwise showerheads and faucet installations. Project the values over 1 year to highlight how much water it is. Contrast this with the impact of food choices on water use (e.g. cutting out one meat base meal per week). Further information is located at: <http://www.meatlessmonday.com/about-us/why-meatless/>

15 - Kill-A-Watt Appliance Savings – Appliance Solutions

Have students explore choose one of the following items in their home:

- Clothes dryer
- Clothes washer
- Dishwasher
- Freezer
- Electric range/ oven
- Refrigerator
- Room Air Conditioner

The EnerGuide label

<http://www.nrcan.gc.ca/energy/products/energguide/label/13609>

List of Products

<http://oee.nrcan.gc.ca/pml-lmp/index.cfm?action=app.welcome-bienvenue>

Ask students to determine:

- the **Make** and **Model** of their Appliance, and
- it’s Rating for energy consumption in kWh.

to translate their kWh rating to tonnes of CO₂e using the equations: **0.000140kg per kWh consumed**
and **1,000 kg = 1 tonne**. i.e. A model rated at **554 kWh**, would generate the following amount of kg CO₂e
= 554 kWh x 0.000140 kg CO₂e / 1 kWh = 77.56 kg CO₂e per year
= 77.56 kg x 1 tonne / 1,000 kg = 0.07756 tCO₂e

Then have students use research a NEW model of the same appliance to determine its rating(s) as above and calculate the relative emissions level of a more efficient model. Have them compare the difference and estimate the savings

Action-Projects

16 - School Project – ANY TOPIC

Brainstorm with students a School Based Initiative together (e.g. school recycling, school composting, school gardening, lights off days, sweater day, eco-storytelling, hibernation event...). Narrow the topic down to core set of ideas that many students are excited about. Use the SMART plan approach to find one project that fits best at this time. Many resources are available to support you and your students as below.

Leap into Action (WildBC) <http://hctfeducation.ca/product/leap-into-action/>

Action projects make learning relevant, alive, and real. They enhance creative and critical thinking skills, and empower students in taking responsible action on issues and problems that affect them and their community. Action projects also integrate diverse subject areas through a real world context, and connect students to their broader community. *Leap Into Action* will help you do all that!

Science World's BC Green Games <https://www.bcgreengames.ca/>

BC Green Games is a contest for elementary and secondary schools with two project types; photo essays and video projects. Entries may consist of new or on-going action projects committed to environmental stewardship. The contest begins in October with winners announced in April and there are great prizes to be won.

17 - School Composting – Food Solutions

As a leadership opportunity – the class, school may wish to take on a Composting Project at school. (See the Leap into Action link in 16)

Composting levels is 50% for people living in detached homes but only 22% for families in apartments. Composting rates are higher in municipalities where curbside greenwaste pickup is provided. Where people grow food on balconies or in community gardens composting rates are higher. Where curbside pickup is not offered – worm bins provide an alternative.

A fieldtrip to a local non-profit facility where composting workshops and/or displays are provided can help motivate student interest. A fieldtrip to a local landfill will help students understand the emissions from organic waste that are not composted. See **Additional Teacher Resources** at back for composting links

18 - Fieldtrips – Energy Use/ Food Solutions/ Water Solutions

Plan a fieldtrip with your class. Fieldtrips can provide valuable hands-on and applied knowledge when well-planned and clear learning expectations of learning are built in. A field trip can connect ideas from the classroom, reinforce content learned and tangibly demonstrate the reality and application of learnings – stimulating new insights, reinforcing student understanding and open up new areas of inquiry all while connecting related topic areas. In the **Eat Farmers' Food** activity below, a fieldtrip to a Farmers Market brings the matter of local food and allows students to handle, taste, prepare and bake meals with local food and then consider ways they can support local food growing as a class.

Links to 3 suggested resources in BC or the Lower Mainland are provided:

MetroVancouver K-12 Field Trips <http://www.metrovancouver.org/events/school-programs/K-12-field-trips/Pages/default.aspx> Access Regional Parks, Watersheds and Facility Tours (local water, wastewater and waste management) to give your student further insights into the value of these services and how these relate to reducing Climate Change impacts.

BC Fieldtrips <http://www.bcfieldtrips.ca/> The most comprehensive and up-to-date listing of curriculum-linked field trips available to teachers! The website contains a [searchable listing](#) of more than 500 individual programs offered by over [100 organizations](#) in the Lower Mainland, Fraser Valley and across British Columbia. It contains all the information a teacher needs to plan a field trip – program information, transportation solutions and more. Created to help you identify field trips that meet your needs, budget and schedule.

BC Association of Farmers' Markets <http://www.bcfarmersmarket.org/> Over 47 farmers markets across BC can be located online, as well as information on how to support, access coupons, and video resources about Farmers' Markets, local food producers and how the markets work. A great starting point to prepare a fieldtrip with students.

Plan your own Wild Foraging Fieldtrip learn.wearewildness.com Access online resources, take a short course and demonstrate for students' ways to access food in their local environments

19 - Eat Farmers' Food – Food Solutions

Over 47 Farmers markets offer local and organic food <http://www.bcfarmersmarket.org/>
Have students explore print information on Local Farmers Markets.

Plan a fieldtrip to visit a local farmers market in season. (See the [Get Local in Southwest BC](#) link in [Additional Teacher Resources](#) below for more)

20 - Just One Trip – Transportation Solutions

A point to emphasize – changing just one trip each week and sustaining it is a powerful way to empower students into their ability to make change. To achieve this will take planning and logistics for many households to achieve but once underway is easy to continue. For families who live far from school it will be difficult. Walking with a friend is a powerful way to strengthen student commitment and elevate safety.

Request as many students who are able to participate in the challenge and see if they can sustain the practice of altering ONE trip each week. Chart their progress in class together for 6 weeks, and see if they have created a new habit for themselves and their families.

21 - Be an Active Citizen – Communication & Media/ Hope & Leadership

In this activity, students are encouraged to write a letter to a leader: local, provincial or federal politician, mayor, premier or minister – to ask them to take action and show leadership on climate action.

This activity supports the **Communications Competency**. It provides teachers an opportunity to link classroom and home learning to the world outside.

Additional Teacher Resources

WildBC

Dig into applied, place-based, hands-on, outdoor and active education with a suite of climate change activities that support student understanding – each complete in a 1-hour lesson

- How carbon moves in natural cycles
- Seeing how CO₂ warms the atmosphere
- Using metaphors and props to tell the climate change story as a class
- Play an active game to test how your actions shift the climate

And more...

<http://hctfeducation.ca/lessons/energy-atmosphere-and-climate/>

BC Sustainable Energy Association (BCSEA):

<http://www.bcsea.org>

<http://www.bcsea.org/ccshowdown>

<http://www.bcsea.org/learn/resources-for-educators/climate-change-showdown>

The “myrecyclopedia.ca” service of the CRD provides information regarding recycling batteries, cell phones and digital cameras. Many other products, including e-waste, are included in this service.

Biodegradable cleaning and bath products:

The Soap Exchange <http://www.victoriasoapexchange.com/>

Composting

Factsheets on Composting Options in BC

<https://www.compost.bc.ca/education/factsheets/>

Apartment based composting

<http://globalnews.ca/news/1450180/how-to-compost-if-you-live-in-an-apartment-or-condo/>

Vancouver resources

<http://vancouver.ca/home-property-development/what-food-scraps-and-yard-waste-go-in-green-bins.aspx>

Victoria resources

<https://www.compost.bc.ca/> - a great 2 minute video on the home page explains the benefits of composting

Kelowna resources

<http://www.kelowna.ca/CM/page412.aspx>

Earth Future: <http://www.earthfuture.com/>

<http://www.earthfuture.com/theclimatechallenge/>

<http://www.earthfuture.com/theclimatechallenge/teachers.html>

http://www.earthfuture.com/theclimatechallenge/downloads/Teachers_Guide.pdf

GreenLearning

www.greenlearning.ca Bias balanced, science based energy conservation and Climate Change teachers lessons, units and online interactive resources available free online

Get Local in Southwest BC

Download a PDF chart of what Local foods are available in southwest BC for each month of the year

<http://www.farmfolkcityfolk.ca/PDFs & Docs/MetroVan%20Seasonal%20Chart.pdf> . Additional local food information and local markets at www.farmfolkcityfolk.ca

Do you have favourite climate change education resources to share? Write us at info@bcsea.org with your suggestions and links. We will select from your suggestions and grow this resource page annually.