

CLIMATE CHANGE CURRICULUM - TEACHER PACKAGE (by permission of TLDSB and SMCD SB)

INTRODUCTION to the Community Carbon Challenge 50% by 2030, zero by 2050 *joint project by Retired Teachers of Ontario District 46 (RTOERO) and Climate Action Muskoka (CAM)*
(prepared by retired TLDSB teachers, Janet Libke, Linda Mathers, and Sue McKenzie)

Project overview:

To support climate education in the classroom and to engage a widespread community involvement in reducing greenhouse gas emissions (GHGs) to keep climate heating to 1.5C, CAM developed the Community Carbon Challenge (CCC) and then designed an accompanying bookmark with RTOERO. The CCC is a user-friendly springboard to cross-curricular climate education in classrooms. We know students are worried about climate change. Seeing solutions and taking action are one way to build hope into their future.

Use of the CCC bookmarks, the CAM website material, and additional sources in delivering the lessons outlined below, meets these goals in the [TLDSB Climate Change Action Plan](#):

- *Collect and develop climate-related educational resources and learning tools for teachers.*
- *Integrate a minimum of one climate-related activity in every course (e.g. examining nature motifs in literature in a language course, assessing the impact of information and communication technology on personal health and the environment in a business course, etc*
- *Creating informational posters and/or displays about climate education to display in schools*
- *Ensuring all students in TLDSB understand how the actions of individuals and communities have a direct impact on the future is crucial to mindful sustainability.*

This teacher package includes:

- **Sample CCC item Lesson - Break the Idling Habit - resource links and some activities**
- **Nine-lesson Unit on Climate Change with links to the CCC and other resources (digital copy available through QR code or request a copy: climateactionmuskoka@gmail.com)**
- **2 bookmarks for each child in your class - one for school, one for the family**
Additional bookmarks also available on request.
- **QR code link to digital copy of the Sample Lesson and Nine-Lesson Unit**

CAM and RTOERO sincerely hope this curriculum supports your teaching and enhances learning for your students.



SAMPLE LESSON:

Background: The list of CCC items is clearly laid out on the CAM website under the headings: **How You Power Your Home, How You Travel, What You Eat, and The Other 20%.**

Each challenge is laid out in the following manner:

- **Behaviour:** Something an individual/family can do to reduce their carbon footprint (their GHG emissions) I will...
- **Fact:** Numerical impact: How much will greenhouse gas emissions (GHGs) be reduced?
- **Source:** Evidence to back up the fact

Here is one concrete example from our website. We add [New Challenges](#) regularly. Please visit climateactionmuskoka.org to see first-hand the wide range of available CCC actions.

Community Carbon Challenge: Break the Idling Habit

Please don't let your vehicle idle, especially while waiting at schools.

Pledge: I will not let my vehicle idle for more than 60 seconds. *Fact: 10 min of idling burns half a litre of gasoline emitting 1.15 kgs of CO₂ as well as nitrogen dioxide and particulate matter.* [Source](#)



Children are especially vulnerable to vehicle emissions

Children breathe faster, inhale more air per kilogram of body weight and their lungs are still developing. Their height puts them closer to the source of emissions. Kindergarten play yards are often located next to school drop-off zones.

This exposure can lead to a variety of negative effects including respiratory health issues and poor school performance. Exhaust aggravates asthma and allergies. A child's exposure to environmental pollutants can have life-long health effects.

In addition, carbon dioxide emissions from exhaust contribute to global warming.

Further to the health of our children and the planet

Motorists should keep in mind that idling for over 10 seconds uses more fuel and produces more CO₂ than restarting your engine. To balance factors such as fuel savings, emissions and component wear, if you're going to be stopped for more than 60 seconds – except in traffic – turn the engine off.

Contrary to popular belief, idling is not an effective way to warm up your vehicle, even in cold weather. The best way to warm it up is to drive it. Computer-controlled, fuel-injected engines, need no more than thirty seconds of idling on winter days before driving. Warming up the vehicle means more than warming the engine. The tires, transmission, wheel bearings and other moving parts also need to be warm for the vehicle to perform well. Most of these parts don't begin to warm up until the vehicle is driven.

Resources

[Idling – Frequently Asked Questions \(nrcan.gc.ca\)](http://nrcan.gc.ca)

[Every breath you take: air pollution from idling cars puts kids at risk, U of T research says \(utoronto.ca\)](http://utoronto.ca)

[London Cracks Down on Drivers Who Sit With Engines Idling \(treehugger.com\)](http://treehugger.com)

[Vehicle Idling | the lung association](http://the.lungassociation.org)

[Why Idling is Bad for Your Car \(and the Environment\) | Scott's Fort Collins Auto \(scottsfortcollinsauto.com\)](http://scottsfortcollinsauto.com)

Using the resources above junior students could:

- Track and graph the number of vehicles waiting to pick up students at the end of the school day, including buses. How many are there? How many are idling? The idling problem will likely increase as the temperature gets colder offering a longer-term tracking opportunity.
- Calculate the amount of carbon being released by these vehicles.
- Design a handout about the health dangers and the unnecessary carbon being released.
- Create an i-movie to educate others on the impact of idling.
- Design an infomercial for the local radio station.
- Share one of the above with your family.

NINE-LESSON UNIT ON CLIMATE CHANGE for Junior Grades Using the [Community Carbon Challenge 50% by 2030, zero by 2050](#) (CCC) prepared by CAM and RTOERO

Young people around the world are calling for the inclusion of widespread education on climate, climate justice, and on climate activism in education curricula. They want not only knowledge, but also ways to achieve the changes required i.e. how they can influence change. Recent reports show that Climate Change education focusing on solutions is essential to bring hope and opportunity to our young students. We suggest you start here: [Talking To Young People About Climate Change](#) Educator's Guide.

LESSON ONE: What is Climate Change?

Resources:

CAM Climate Action by Sector: [Education](#)

[What Is Climate Change?](#) (climatescience.org) *Resources are free but you will need to sign up with your email to access them.*

[What Is Climate Change?](#) (science-sparks.com)

Video: [Climate Change: How Does It Really Work?](#) (climatescience.org)

LESSON TWO: Understanding the Difference Between Weather and Climate

Resource: climatescience.org

Some activities:

- Make a chart.
- Use the sorting cards to reinforce the difference.

LESSON THREE: What Is Your Carbon Footprint?

Resources:

- CAM Community Carbon Challenge: Understanding what carbon is. [Carbon 101](#)
The information presented at this link may be somewhat complicated for junior students. You might want to use it as a teacher resource, then present a lesson in more simplified terms, rather than using this link as a student resource.
- Take the www.footprintcalculator.org
- Use the CAM Bookmark developed from the [Community Carbon Challenge](#)

Some Activities:

- Brainstorm a list of things that you or your family do that uses energy and emits carbon dioxide.
- Then...how can you make your family's carbon footprint smaller?
- Make this information into a poster.
- How many planet Earths does it take to support your lifestyle?
- Which activities in your life use the most resources?
- Which of these activities would be the hardest to change? The easiest to change?
- Choose an action to reduce your footprint
- Create a board game that incorporates this information. "Climate Action" or other name?
- Create a pop-up book "I Can Help the Earth".

LESSON FOUR: Young Climate Warriors

Resources:

CAM Climate Action by Sector - [Education](#)

CAM [Taking Action Together](#)

CCC New Challenges: [A Call to Action at Every Level](#)

Lesson Kick-off video (3:10): ([https://worldslargestlesson.globalgoals.org/resource/call-to-learning/World's Largest Lesson](https://worldslargestlesson.globalgoals.org/resource/call-to-learning/World's%20Largest%20Lesson)) developed in conjunction with UNICEF [Climate Changemakers](#)

[Young Women on the Frontlines of the Climate Movement](#)

[Indigenous Peoples Around the World](#)

[Meet some of Canada's Young Climate Activists](#)

Ontario Kids Taking Action: [#GenClimateAction](#), [Taking the Ontario Government to Court Over Climate Change Plan](#)

Maybe a good lesson-ending video? (3:39) [Nature Now](#) with Greta Thunberg and George Monbiot

Some Activities:

- Who is Greta Thunberg? [Greta's Speech at UN Climate Change COP24 Conference](#) (3:29)
- What other children around the world are taking action? What actions?
- Research these Canadian kids: Albert Lalonde, , Sadie Vipond, Saj Starceвич, Ira Reinhart-Smith, Madeline Laurendeau, Allie Rougeot, Lilah Williamson, Emma Marnik, Sophia Mathur, Zoe Keary-Matzer, Shaelyn Wabegijig, Shelby Gagnon, Beze Gray, Madison Dyck, Alex Neufeldt, Kahenientha Cross, John Gertler , Chase Cardinal, Savi Gellatly-Ladd, Emma Lim, Ella Noel, Sophia Mathur

LESSON FIVE: What Are the Sustainable Development Goals (SDGs)? What is SDG 13? SDG 14? SDG 15?

Resource:

[World's Largest Lesson](#)

Activities are all there on the website.

LESSONS EXAMINING SOLUTIONS: (Use the CCC to develop more lessons for this section.)

LESSON SIX: Energy Vampires and Digital Upgrades

Resource:

CCC New Challenges: [Energy Vampires](#), [Don't Upgrade Your Phone \(Yet!\)](#)

Some Activities:

- Where are the energy vampires in your classroom? Your bedroom? Your kitchen? Other rooms in your home?
- What could you do to reduce the amount of power these vampires use?

LESSON SEVEN: Fast Fashion

Resources:

CAM Climate Action by Sector: [The Stuff We Buy](#)

CCC New Challenges: [The Carbon Footprint of Getting Dressed](#), [A Stitch in Time - Mend Your Clothes](#)

Some Activities:

- Locate on a map where the countries that make most of our clothes are located?
- Why are most of our clothes made outside Canada?
- Brainstorm all the possible places the clothes you wear might come from ie: hand me downs, made by someone especially for you, Second Hand, Amazon, etc.
- Graph where 10 of your favourite pieces of clothing have come from.
- How can you make others aware of the carbon footprint of the clothes they wear?

LESSON EIGHT: The Food We Eat

Resources:

CCC New Challenges: [The Carbon Footprint of Food](#), [Grow Your Own Vegetables](#)

CAM Climate Action by Sector: [Food and Agriculture](#)

CAM CCC recipes: [Quick and Delish](#)

Some Activities:

- Use when looking at the new Canada Food guide.
- Cooking vegetarian dishes.
- Exploring recipes from other cultures.

LESSON NINE: How Can We Make Our School Greener?

Resource:

CCC New Challenges: [Carbon Drawdown: Rewilding](#)

[TLDSB Climate Change Action Plan](#)

Some Activities:

- Brainstorm ways your class could make the school greener.
- How can you get the message out to younger students in your school, the adults in your life?

OTHER RESOURCES:

[TLDSB Climate Change Action Plan](#)

[Georgian Bay Biosphere/ Education](#)

Their Education section has lesson plans. [Lessons in a Backpack](#) and [Kids in the Biosphere](#)

Avi Lewis' Films:

[A Message from the Future](#) with Alexandria Ocasio-Cortez (7:35)

[A Message from the Future II: The Years of Repair](#) (8:57)

[The Drawdown Project](#) great teacher resource for climate solutions