



## “That’s the Truth” Episode #9 Backgrounder (Climate Call-In Show Part B)

**TOPIC:** Climate Change - What Can We Do?

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### CURRICULUM CONNECTIONS

Kindergarten: Environment and Community Awareness  
Grade 1-6 Science “Attitudes” -

Gr 1-2: Students will show growth in acquiring a sense of responsibility for actions taken

Gr 3-4: Personal and group actions, Gr 5-6: Personal and shared responsibility for actions taken

Grade 2 Science Topic D: Hot and Cold Temperatures

Grade 4 Science Topic A: Waste and Our World

Grade 5 Science Topic D: Weather Watch

Grade 6 Science Topic: Trees and Forests

### Quick Facts

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- The Earth’s climate is affected by natural factors (changes in ocean currents, solar radiation, and natural activity such as volcanic activity) and **human factors** (increased GHG emissions which trap heat in the atmosphere primarily by burning fossil fuels, using forests and wetlands for agricultural, residential and industrial uses)

- Climate change impacts include increasing temperatures, rising ocean levels, more extreme weather, more frequent droughts, flood and forest fires
- There are plenty of **simple lifestyle actions Albertans can take** to reduce emissions and play a part in the global fight against climate change such as:
  - walk, bike or take public transit, carpool
  - turn off the lights when you leave a room
  - shorten showers
  - energy-efficient appliances & windows
  - replace light bulbs with energy-efficient LEDs
  - use a push mower
  - buy local food and other goods whenever you can

## Discussion Questions

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- What is climate change?
- How does climate change impact people? Animals? The Earth?
- Do you know any examples of greenhouse gases? Why are too many emissions problematic?
- What can you do (or encourage your parents/family/school to do) to reduce emissions?

## Activities/Resources

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**ACEE – The Alberta Council for Environmental Education** has compiled an excellent list of climate education resources. Check out selected resources outlined below or follow the ACEE link for the comprehensive listing. <https://www.abcee.org/climate-education>

## LOCAL/REGIONAL RESOURCES:

- **The City of Calgary Eco-Leaders Program** has the goal to deliver climate-literacy and foster climate leadership in Calgary youth. (Partnership with CPAWS)

<https://www.calgary.ca/UEP/ESM/Pages/Mayors-Environment-Expo/Eco-Leaders-program-information.aspx>

<https://cpaws-southernalberta.org/>

- **The City of Edmonton's [Actions for Change](#)** initiative has a list of 30+ actions that individuals can take to reduce their carbon dioxide emissions. The actions are rated from low to high impact. There are also actions submitted by individuals. A potential class activity can be rating the impact of submitted actions.

<https://changeformclimate.ca/action>

- **Inside Education** has a number of classroom and digital/remote resources connected to energy/climate as well as other science/environmental topics. They also host classroom programs and field trips, as well as offering energy project grant opportunities.

<https://www.insideeducation.ca/learning-resources/classroom-learning-resources/elementary-school/>

- **PEEL provides [lesson plans](#) for Gr. 4-12 focusing on climate change and energy literacy.** Each lesson fully integrates with Alberta Education curriculum goals and 21 Century Learner Competencies.

<https://www.teachpeel.ca/lesson-plans>

- **The Biosphere Institute** of the Bow Valley has downloadable [lesson plans](#) about wildlife, conservation, and climate change for Kindergarten to Grade 9 science and social studies curriculum.

<https://www.biosphereinstitute.org/educationresources>

- **The Columbia Basin Environmental Education Network** links to a wide range of [climate change resources](#) for all grade levels.

<https://cbeen.ca/climate-change/>

- **Future Energy Systems** is a research program out of the University of Alberta studying all aspects of the energy transition. Future Energy Systems researchers, graduate students and post-doctoral fellows are making home-learning resources available for students of all grade levels, as well as for members of the public. Content includes lab tours, at home experiments and crafts, mini talks, full lectures, storytimes with associated worksheets and more. Register for weekly notifications of new videos and access to all content.

<https://www.futureenergysystems.ca/resources/learning>

- The **Energy Education Encyclopedia** (U of C) is an online resource for teachers and students that contains accurate information on:
  - [Energy sources](#), [energy use](#), and [energy impacts](#), as well as pages on how each country gets their [electricity](#), [transportation energy](#), and [household energy](#).
  - [Climate](#), [abrupt climate change](#), [the water cycle](#), and [pollution](#)
  - [Coal formation](#), [coal seam](#), and [greenhouse effects on other planets](#)

[https://energyeducation.ca/encyclopedia/Main\\_Page](https://energyeducation.ca/encyclopedia/Main_Page)

- **Alberta Climate Records** is an exciting new interactive website from the University of Lethbridge, providing decades of climate data from across the province. Explore datasets from 1951-2017, including mean temperature, cold weather, hot weather, growing temperature, and precipitation.

<http://albertaclimaterecords.com/>

- **At Home Activities from Green Calgary**

<https://www.greencalgary.org/green-kids/online-activities>

## Other General Resources:

- There are over 700 scientifically credible resources in the **CLEAN (Climate Literacy and Energy Awareness Network)** collection. Every item in the CLEAN collection is rigorously peer-reviewed by teams of educators and scientists.

[https://cleanet.org/clean/educational\\_resources/index.html](https://cleanet.org/clean/educational_resources/index.html)

- **UN Climate Change Info Kit:** A compilation of climate change information and data compiled by various international organizations.

<http://unfccc.int/resource/iuckit/cckit2001en.pdf>

- The [Google Earth timelapse](https://earthengine.google.com/timelapse/) takes you around the world, looking at changes such as glacier retreat, coastal expansion, deforestation, mining, and urban growth.

<https://earthengine.google.com/timelapse/>

- [Earth School](https://ed.ted.com/earth-school) is a collection of short videos and lessons organized by the following topics:

- The Nature of Our Stuff
- The Nature of Society
- The Nature of Nature
- The Nature of Change
- The Nature of Individual Action
- The Nature of Collective Action

<https://ed.ted.com/earth-school>

- **The Teacher Friendly Guide to Climate Science** is written for teachers and includes both the basics of climate change science and perspectives on teaching a subject that has become socially and politically polarized (US based info but some good information).

<https://teachclimatescience.wordpress.com/>

- [Yale Climate Connections](https://www.yaleclimateconnections.org/) provides current articles and radio stories from around the globe about the impacts of climate change and what people are doing about it. Articles are written at a level that students can understand.  
<https://www.yaleclimateconnections.org/>

## Video Source Articles & Links

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### ***Climate Change in Alberta***

The climate is changing and globally we are experiencing impacts, such as:

- increasing temperatures
- rising ocean levels
- more frequent droughts, floods and forest fires

More extreme weather is creating greater challenges.

### **Causes of climate change:**

The Earth's climate is affected by these human and natural factors that are external to the climate system:

#### **Natural factors**

- Changes in ocean currents
- Changes in solar radiation
- Natural activity, such as volcanic activity

#### **Human factors**

- Depleting ozone layer through use of chemicals like Chlorofluorocarbons (CFCs)
- Increases in concentrations of greenhouse gases, primarily from burning fossil fuels, which trap heat within our atmosphere
- Using forests and wetlands for agricultural, residential and industrial uses

### **Greenhouse gas emissions:**

The main greenhouse gas emissions are:

- Carbon dioxide (CO<sub>2</sub>)
- Methane (CH<sub>4</sub>)
- Nitrous oxide (N<sub>2</sub>O)

Each of these compounds has an important affect on the earth's temperature by trapping heat in the atmosphere and causing global temperatures to increase. While this natural greenhouse effect makes life on Earth possible, an excess of greenhouse gases in the atmosphere could dramatically change our ecosystem.

97% of climate scientists now agree that human activity is responsible for most temperature increases over the past 250 years.

### **What you can do:**

The choices we make every day have an impact on the planet. There are plenty of simple lifestyle actions Albertans can take to reduce emissions and play a part in the global fight against climate change.

Discover some of the things you can do to curb your energy consumption, lower your emissions and save money.

#### **Home**

- Upgrade to a programmable thermostat or simply set your home's temperature to 16 Celsius when you leave the house or go to bed.
- Turn off the lights when you leave a room, or if you don't require lighting. Consider occupancy sensors that turn on and off automatically.
- Replace light bulbs with energy-efficient LEDs.
- Shorten your showers to less than five minutes.
- Purchase energy-efficient appliances, such as an ENERGY STAR® washing machine, which uses up to 50% less water and 50% less energy per load than average.
- Install new insulation and energy-efficient windows.
- Choose a push mower. Running an old gas lawn mower for an hour can create as much pollution as driving your car 500 kilometres.

- Buy local food and other goods whenever you can. Less travel distance means lower emissions.

### **Transportation**

- Walk, bike or take public transit. Choose a more fuel efficient vehicle if you drive.
- If you have to drive to work, consider carpooling.
- Check your tire pressure. Tires that are underinflated by two pounds per square inch can cause a four per cent increase in fuel consumption.
- Use a block heater to warm your vehicle's engine in the winter. Buy a timer for it and set it for two to three hours before you need to start your car.
- Avoid idling your vehicle. Idling for longer than 10 seconds during cold weather isn't necessary, and wastes gas and money.

<https://www.alberta.ca/climate-change-alberta.aspx>

### **Additional Resources:**

<https://www.un.org/en/sections/issues-depth/climate-change/>

<https://www.canada.ca/en/environment-climate-change/services/climate-change/causes.html>

<https://climate.nasa.gov/causes/>

<http://factmyth.com/factoids/humans-impact-climate-change/>