

Lesson # 4: Movie Moment

Plants, People and Climate Change (Length: 7m4s

Watch the video at: https://youtu.be/OttWoaGXphE



This video introduces students to the concept of climate change. This includes how plants and humans are dependent on the balance of greenhouse gases such as carbon in the atmosphere. This ensures the planet stays at a stable temperature so that plants, animals and people can survive.

Science Review

Please read the Climate Change background in the *Plants, People, Planet* Teacher's Guide for an overview of the known causes of Climate Change.



This video has a few science extensions that are worth noting and exploring further with some classrooms.

We often hear two terms used interchangeably: Climate Change and Global Warming. Both terms are used to explain how the earth's climate (long-term weather patterns in an area) is rapidly changing and warming. While many of the most disastrous effects of Climate Change are due to the rise of global temperatures, Climate Change can result in both abnormally hot and cold weather. The complexities of Climate Change may become too simplified and lead to misunderstandings when we refer only to Global Warming.

Greenhouse gases are a major contributor to Climate Change and the rise of global temperatures. Without any intervention, our current rate of global greenhouse gas emissions would result in a disastrous 4 degrees Celsius rise of the average global temperature by the end of this century. Scientists internationally agree that we need to stay below a 2 degree rise to curb the worst of Climate Change impacts.

While overall the planet is warming, different geographic regions feel the effects of Climate Change differently. Climate change effects weather patterns over time, including air temperature and precipitation, and therefore some parts of the country will warm or cool, depending on local geographical features as well. Because of this, it is difficult to make general assumptions about Climate Change impacts across Canada. However, we do know that climate change is warming the Arctic twice as fast as the rest of the planet. There are many effects of climate change on our environment, and our atmosphere. A warmer

atmosphere can hold more moisture, and therefore extreme rain and snowstorms will have more water available to fall as precipitation. Increased duration and frequency

Movie Moment!

of extreme weather events such as snowstorms, hurricanes, forest fires, droughts and flooding all can be expected -and are already being connected to- climate change. When we talk about plants and animals, movements of certain species to different ecological zones will become more common. This disruption and entry of new species upsets the natural balance of species already in that area, especially as certain areas become too hot, and northern areas see milder. shorter winters.

What is the solution to climate change? There are many! The key culprit is fossil fuels. Fossil fuels make up our day-to-day lives and account for 70-90% of our human contribution to global greenhouse gas emissions. Transportation, manufacturing, generating electricity, and heating and cooling all are key sectors of our daily lives that use a great deal of fossil fuels. Agriculture and waste systems also produce greenhouse gas emissions, often shown with a cow flatulating, which releases methane. While we often talk about carbon dioxide as the main culprit of global warming, it's not alone. For example, methane is roughly 30 times more effective than carbon dioxide at trapping heat in the atmosphere. Nitrous oxide and water vapour are also some of the major greenhouse gases.

We will continue to explore the impacts of climate change over the course of the lessons. To explore more solutions, see Lesson 7: Solutions. [VERIFY TITLE]

Stop & Check!

Pause the video at this timestamp to check for your students' understanding.

- Do you know what climate means? [01:03]
- Can anyone explain the difference between climate and weather? [02:25]
- How does the Earth stay at the right climate? [03:22]



Sight Words to look out for:

- Climate
- Sun • Greenhouse gases • Photosynthesis • Weather
- Carbon Dioxide • Habitats
- Atmosphere

Indigenous Connections:

The idea of thinking seven generations ahead is often used in environmental messaging. The much broader notion of thinking long-term for the future is said to be first coined by Iroquois teachings, and is now commonplace language when thinking about our current impact on the planet.

This notion of conservation of resources for generations to come has been a staple in Indigenous worldview in Canada and across the world. Yet climate change is challenging this foundation. Climate change is impacting local Indigenous communities whose economies, traditions, and livelihoods often predominantly rely on the land. Stable, historically consistent weather for hunting and gathering plants and animals and transportation is now up in the air. Groups such as the Indigneous Climate Hub have been working to inform and connect Indigenous communities to the local effects of climate change, linking to Traditional Knowledge.

For more information on stories, resources, and other learnings, refer to our glossary of resources in the Teacher Guide.

Lessons From Mother Earth



Oxygen

Energy