



SCIENCE
SPOTLIGHT

Unpredictable:
**A Sweet Story on Responding
to Climate Change**

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A Sweet Story on Responding to Climate Change

Origin Story:

A Sappy Past

Maple syrup is a favourite of many, and a healthier option compared to refined sugars. It is filled with many different minerals and has many benefits to it. Of course, we cannot forget why we love maple syrup in the first place; its sweet and flavourful taste. The sap from maple trees was discovered by Indigenous peoples. Maple syrup is a significant part of both Indigenous and Canadian history.

Located on Fort William First Nation sits a beautiful forest of maple trees, called a sugar bush. This is where sap is collected to make maple syrup. It is uncommon for a sugar bush to be located so far north, but due to its location on the mountains, it is able to survive in its environment. This sugar bush was previously used in the 1970s for a commercial syrup company but left practically untouched for years. In 2014, the community started to tap the maple trees again. Today, the syrup collected from the sugar bush is given to Elders or visiting guests.

Confronting the Changes: The Root of the Problem

Walking through the sugar bush, Helen looks around to see if the maple trees are ready to be tapped. They should have been ready weeks ago, but there are no signs that the trees are ready, and no sap is flowing. With the effects of climate change, the trees are ready at different times each year. Helen starts walking away from the sugar bush. "Tomorrow," she says, "tomorrow I will be back."

Helen Pelletier, a member of Fort William First Nation, and is passionate about the sugar bush. She will often bring visitors to the sugar bush to see it or help tap it, and share her knowledge about it. The sugar bush is beautiful in the fall time, and the trees seem to go on forever. Helen will walk to the sugar bush multiple times a day, all-year round. To her, the walk is her medicine, it is what keeps her healthy. However, Helen is not the only person who monitors and taps the sugar bush. It is tapped by a community of people, including friends, family, students, or others close by. Unfortunately, the sugar bush is being affected by climate change.

You have likely heard of climate change before. Climate change is the drastic variation in the climate over a long period of time. The cause of climate change is human activity increasing the amount of greenhouse gases that are released into the atmosphere. Climate change contributes to an increase in natural disasters, such as melting glaciers and forest fires. It is affecting the Earth, animals, and humans.

We, as humans, have a great influence on how quickly climate change will affect us and the world around us. It may seem as though climate change has little to no effect on you. Yet, climate change does affect you, your family, and the place where you live in ways you might not even be aware of. Let's take a look at how it is affecting the community of Fort William First Nation.

Climate change has created a problem of unpredictability with the sugar bush due to the everchanging weather. Each year, they are unsure when the trees will be ready to be tapped. Tapping the trees is the process by which the sap is extracted from maple trees. It is important that the trees are tapped at the right time, in order to get all the sap. A few years ago, there was hardly any snow, meaning the trees could be tapped earlier in the year. Last winter, they were faced with four feet of snow, and it was unknown when the trees could be tapped. These sort of variations in the weather can be challenging when trying to tap the trees at the right time.

Although many think there is not much we can do about climate change, there are things we can do to slow climate change. Helen and the community are taking action against climate change by listening to the land to know when it is ready to tap. The trees are usually ready to be tapped when the temperatures are above freezing during the day and below freezing at night. However, there are signs Helen looks for to know for sure if they are ready or not. Being aware of the changes is important in order to adapt to the new circumstances. Walking to the sugar bush daily helps Helen observe maple trees better. In a similar way, monitoring the climate can help us know how to respond to it.

Climate change is not a future problem to worry about. It is affecting us today at a rapid rate. The weather is becoming more unpredictable as time goes on, which makes it difficult for us to know what to expect for each season. Taking action against climate change can help lessen the impact of climate change on us.



Time for **GENACTION!**

Try This at Home:

A Taste of Our Future

Now that you have learned about climate change and the affects it can have, let's take a look at what you are already doing to slow down the effects of climate change. Everyone plays an important role in slowing down climate change. Can you think of five things you, your family, and your community are taking action against climate change? Write down a list of five ways you are taking action. Look around your house, community, and school to discover the ways you are helping. A few examples of this might be recycling, using a reusable water bottle, or having solar panels to power your house. Talk to your family to see if they can add anything to your list. Once you have your list complete, let's see what more you can do to help!

Climate Action:

A Flourishing Future

Although many of us are already taking some sort of action, there is always more to do! One way you can help our planet is by planting a tree. Plants play an important role on the Earth as they help to keep our air clean and release carbon dioxide. Since plants provide us clean air, we need to do our best to protect and care for them. When you are out in nature, remember to be kind to the plants and do not destroy them. Leave no trace; take what you brought and leave what you find.

Meet Our Local Science Hero:

Helen Pelletier is a member of Fort William First Nation, a mom to one daughter, and a dog owner. She is very knowledgeable and passionate about the sugar bush and plays a big role in monitoring and tapping it.



This Science Spotlight was written by Indigenous Programs Intern Ashlin Maenpaa based on an interview with Helen Pelletier in Thunder Bay, Ontario on October 4, 2022.

Climate Change

Past, Present, and Future

Earth is the only planet in the solar system known to support life. What makes our home so special? Earth has an atmosphere, a layer of gases between our planet and space. Some of these gases, like carbon dioxide, are called **greenhouse gases**. They are crucial parts of our atmosphere; they trap in the heat of the sun, similar to how heat is trapped in a greenhouse, or in a car on a hot day. This process, called the **greenhouse effect**, keeps Earth's temperature warm enough for living things to thrive.

The sun's rays hit our round, tilted planet unevenly. This uneven heating of Earth's surface leads to differences in temperature, which drives weather patterns. We call the patterns in temperature and weather over long periods of time **climate**. Different parts of the world have vastly different climates; it depends on how much heat they receive, as well as what landscape features are nearby. Water, mountains, ocean currents, and forests all impact our climate. In turn, living things around the world have adapted to the climate they live in.

Something, though, is changing. Over the past two hundred years, humans have been burning fossil fuels, such as coal and oil, to make energy to power our daily lives. Fossil fuels are made from decomposed plant matter and microscopic life millions of years old. This matter is full of carbon, and, burning it releases, or emits, billions of tonnes of **carbon dioxide** gas into the atmosphere every year. When too much carbon dioxide is emitted, the delicate balance of greenhouse gases maintaining

Earth's climate is upset. More and more heat is trapped, causing the planet to warm. Weather patterns change, water levels rise, storms get worse.

Climate has changed many times throughout Earth's history, from ice ages to periods much hotter than today. So why is this time any different? Scientists agree on two things. One, temperatures are rising faster than they ever have in documented climate history. Two, this climate change is driven by human activities, due primarily to greenhouse gas emissions. Climate change is already impacting people's ways of life all over the world. Powerful storms, droughts, forest fires, and floods are threatening people's access to food, water, and safe homes.

The most important step we can take to prevent serious climate change is to reduce greenhouse gas emissions. Incredibly brave and caring people around the world are finding new ways to reduce emissions and make our communities climate resilient every single day. And you can join them! These Science Spotlights are here to help us learn more about climate change and how you can take action.

Our Commitment to the Decolonization of Science

Institutions of GenAction initiative respect and affirm the inherent and Treaty Rights of all Indigenous Peoples across what we now know as Canada. We give thanks to the Indigenous Peoples who care for this land since time immemorial and pay respect to their traditions and ways of knowing. We acknowledge their many contributions to innovations in Science, Technology, Engineering, and Mathematics, past and present, and are committed to deepening engagement and collaborating with Indigenous Peoples as partners in order to advance truth and reconciliation and the decolonization of science.

