TAKING A HEALTHY BITE OUT OF CLIMATE CHANGE

UNIT OVERVIEW

Objectives:

This four session unit (*suggested time: approx. 1 hour per session*), with an optional fifth session - aims to help Grade 5-6 students in Ontario understand:

→ **Session #1: The Greenhouse Effect - Why We Need It, Why We Don't Need More!** What climate change is and how food is involved.

→ **Session #2: What's "Up" With Climate Change?** Math and graphing exercise to show that CO_2 is "Up", Food Miles are "Up", etc.

→ **Session #3: Growing Solutions to Climate Change - Eat Sunshine, Not Fossil Fuels!** How we can connect what we have learned about climate change with food and a farmer growing local, organic produce (Farmer Visit).

→ **Session #4: Take A Healthy Bite Out of Climate Change (Classroom Meal)** How modifying the kinds of food that school kids eat – in lunches & nutrition break snacks - will reduce their carbon footprints, help put the brakes on climate change AND make them healthier.

→ **Session #5: Kids Taking Action on Climate Change - Food, Art, Drama & Writing** (optional): Designed to help students articulate their concerns about climate change (& worries about their future), then demand action from adults (the school principal, the parent council, trustee, MPP/MP?) who hold the power to make changes that are urgently needed.

Ontario Curriculum Expectations / Assessment & Evaluation:

Curriculum connections for Grade 5-6 and appropriate Assessment / Evaluation strategies will be outlined in each Session Outline (Lesson Plan).
Subject Areas: Mathematics, Science & Technology, Language, Health & Phys Ed

Suggested Extension Activities add depth with connections made to Language, Mathematics, Science, Arts and Health & Physical Education curriculum areas.

Developing Skills:

Analyzing & comparing various food items, researching options, making conscious food choices, preparing healthy snacks.

Overall Message:

Eating local, organic, more plant-based foods can significantly reduce greenhouse gases contributing to climate change and also offer many health benefits.

TAKING A HEALTHY BITE OUT OF CLIMATE CHANGE

Vocabulary * :
- food miles
- fossil fuels
- greenhouse gases (GHGs)
- climate change
- organic food
- conventional farming
- organic farming
- carbon footprint
- parts per million
- local vs imported foods

* *definitions provided in Resources section*

Concepts:
- Food is the main source of energy for humans (usually counted in calories) and all of us require a minimum number of calories each day to survive and stay healthy.
- The energy to grow our food comes mainly from the sun, but conventional and industrial food production currently relies on many non-renewable fossil fuels and therefore emits greenhouse gases during:
    - use of synthetic pesticides & fertilizers
    - use of machinery for planting, harvesting, spraying, fertilizing
    - processing & packaging
    - transporting food to our tables and lunch boxes

FIVE ISSUES LINKING FOOD TO CLIMATE CHANGE

There are many climate change issues associated with food & food production; here are five key issues addressed in this program:

1) DISTANCE - Foods grown and consumed locally have a smaller 'carbon footprint' than the same foods that travel longer distances (the average item of food in Canada travels 2,500 to 3,500 kms from field to plate).

2) PROCESSING & PACKAGING – Highly processed, multi-ingredient packaged foods create a larger carbon footprint than bulk whole foods.

3) MEAT - Meat-based foods, especially from ruminants (beef, lamb, goat), emit significant quantities of methane, a potent greenhouse gas.

4) ORGANIC PRODUCTION - Organic producers typically use far fewer fossil fuels for food production than 'conventional' and industrial farmers.

5) SEASONAL FOODS - Eating local food 'in season' creates fewer GHGs than long distance, out-of-season choices.

CLIMATE CHANGE THEME IN THE CLASSROOM

To enrich students' understanding, we suggest providing them with representations of the key concepts that will be studied over the duration of the unit.

Recommended Visual Aids:
- Photos on a bulletin board of sources of energy (renewable and non-renewable)
- Photos or samples of fossil fuels (ie. gasoline or oil for a car, piece of coal)
- Large charts showing increasing levels of atmospheric greenhouse gases
- Diagram of the Greenhouse Effect

CONTEXT / BACKGROUND: Where does our energy (fuel) come from?

• **Direct energy** from the sun, which we experience as heat/warmth.

• **Fossil fuels or non-renewable energy**: This is energy from the sun that has been stored over millions of years as **oil, gas, natural gas** and **coal**. We burn these **fossil fuels** to release the energy they captured from the sun long ago. What happens to fossil fuels when they are burned - for example, the gasoline in our car? They escape up into the atmosphere as carbon dioxide. **Non-renewable energy** is a one-time gift from our Earth's ancestors. Once we burn it, it's gone forever.

• **Renewable energy**: We can also capture energy from wind, from moving water (from ocean tides and waterfalls like Niagara) or store it in solar panels. This is **renewable energy**, which we can capture now, and into the future.

• **Food:** The sun's energy is also captured in plants (via photosynthesis) and in animals (which eat the plants), which we humans eat. This is **our** fuel.