



recipe for change

25min FoodPrints Grade 8 Facilitator Notes

Objective: Students will be able to make important links between our food choices and our effect on the environment and know the factors that influence Carbon emissions.



Recipe Category: Food: “Outside the Box”



Level of Difficulty: Grades 8



Cooking Time: 25mins



Recipe Ingredients:

- Time to Talk Turkey posters x4
- Calculators x6 (2/group)
- Scrap paper for workings
- A large green garbage bag
- 3x sets of laminated food item cut outs with Velcro dots and
 - a. What it is
 - b. Weight in kg
 - c. Mode of transport used to transport it (see back page for table to guide)
- List of food item origins x3
- World maps x3 (laminated if time)
- Sticky tac (for making marks on map/ reusable)
- Pens (around 10)
- Rulers x3



Curriculum Links:

Grade	Subject Area	Ontario Curriculum Links
8	Geography	<p><i>Economic Systems</i> Use a variety of geographic representations, resources, tools and technologies to gather, process, and communicate geographic information about regional, national and international economic systems. (O)</p> <ul style="list-style-type: none"> • Communicate the results of inquiries for specific purposes and audiences, using computer slide shows, video, websites, oral presentations, written notes and reports, illustrations, tables, charts, maps, models and graphs. (S) • Use thematic maps to identify economic patterns (trade). (S)
	Math	<p><i>Number Sense and Numeration</i> Solve problems by using proportional reasoning in a variety of meaningful contexts. (O)</p> <ul style="list-style-type: none"> ▪ <i>Operational Sense</i>: Solve multi-step problems arising from real-life contexts and involving whole numbers and decimals, using a variety of tools and strategies. (S) ▪ <i>Proportional Relationships</i>: Identify and describe real-life situations involving two quantities that are directly proportional. (S)

Introduction: (5 mins)

- Introductions (*who you are and what you're all about*)
- Give a brief introduction to the concept of *Food and the Environment*. For example:
 - *Food is an important part of our lifestyle. The different decisions we make about the foods we eat have a significant effect on the environment and our carbon emissions.*
- Overview of the workshop/ what to expect from the next 20mins
 - Brief introduction to Carbon Dioxide as a “Greenhouse Gas”
 - *Time to Talk Turkey* Posters
 - “Shopping” for, mapping and calculating our food choices

Brief introduction to Carbon Dioxide as a GHG: (5-10mins)

Who has ever been inside a greenhouse? Is it hot or cold? Why?

- Greenhouses have clear walls that let the sun’s rays in, but don’t let the heat out. That’s why you can grow plants in there all year ‘round.

Greenhouse Gases are gases that trap heat in the atmosphere, heating it up. This is necessary to a certain degree to keep us comfortable, but these gases also contribute to *global warming*.

In this workshop, we'll be looking at Carbon Dioxide (CO₂) in particular, a GHG that is being released into the atmosphere at a rapidly increasing rate each year. CO₂ is measured by taking samples of the atmosphere in Hawaii each year and is called the "Keeling Curve".

Prompt students to think about how our *food choices* can affect the amount of CO₂ emissions released into the atmosphere at the following points in the *food system*:

- The *types* of food we choose (e.g. seasonal produce vs. hamburger) – *Why?*
- Where and how it's *grown* (e.g. local vs. imported, organic vs. conventional) – *Why?*
- *Transportation* (e.g. near or far, truck vs. plane) – *Why?*
- *Storage* (e.g. electricity for lights, air con or refrigeration)
- How it's *processed or prepared* (e.g. machines, packaging, additives)
- How it's *disposed of* (e.g. landfill vs. compost)

Time to Talk Turkey (15-20 mins):

**Review the Time to Talk Turkey poster*

1. **Split the group** into three (5 per group)
2. **Distribute** a *Time to Talk Turkey* poster, food item cards, one map, some stickers, two calculators, a ruler, some scrap paper and a couple of pens to each group.
3. Discuss what's happening in the **poster**:
 - A comparison of two menus: the "Global Warming" menu and "Kyoto" menu
 - *The Kyoto Protocol is a UN framework for fighting global warming*
 - Local vs. Imported ingredients and the distance travelled
 - Different modes of transport
 - Calculations of the CO₂ being produced by each item
 - The formula used to calculate the CO₂, using weight, distance, and the emissions factor

**Show the garbage bag to visualize what 2.62kg (14 bags - first menu) or 0.06kg (1/3 of a bag - Kyoto menu) of CO₂ looks like*

4. Ask the students to **choose their own Thanksgiving meal** as a group (to feed roughly 5).
At this stage they don't know *where* their food items have come from, this will form the activity to follow.
 - On the back of the food items is the following information:
 - a. *What it is*
 - b. *Weight in kg*
 - c. *Mode of transport used to transport it*
5. Once groups have selected their food items, hand out the **list of food item origins** so students can **map each chosen item** using the stickers/sticky tack as a marker on their world maps.
6. Once mapped, students are to roughly **calculate the distance travelled** of all their items using the ruler provided. They need to translate **centimeters into kilometers** for the purpose of the equation (e.g. if 5cm on the map = 1000km, 15cm will = 3000km distance).
7. **Using the equation on the poster**, students can now fill in the missing data to calculate the Carbon emission for each food item, and then **their whole meal**. They can use the scrap paper to work it out.
8. **Compare carbon emission totals** for all three groups.
9. If time, calculate **how many garbage bags** each carbon emission total would fill



Serving Suggestions:

Time to Talk Turkey Poster:

ENVIRONMENT | CHRISTMAS

Time to talk turkey

These 15 ready-made menus for the planet what foods you gather for your festive dinner? Carbon Footprint and Smart Labeler amount some amazing facts.

GLOBAL WARMING MENU
 15.71 Kilograms for an average 10-person dinner
 15.71 Kilograms for an average 10-person dinner

KYOTO MENU
 0.37 Kilograms for an average 10-person dinner
 0.37 Kilograms for an average 10-person dinner

Carbon dioxide emissions factor
 A bar chart comparing the carbon footprint of different food items. Turkey is shown as the highest emitter, followed by beef, pork, and chicken.

Figures and the CO2 impact of your meal
 A table showing the CO2 emissions for various food items. Turkey is the highest emitter, followed by beef, pork, and chicken.

Calculating on the web
 A link to a website where users can calculate the carbon footprint of their meal.

World Map: www.maps.com



Food Item List and Information:

Food Item	Origin of major ingredient	Distance Travelled (km)	Mode of transport	Weight (kg)
Frozen Turkey	France	6,000 km	boat/plane	4kg
Fresh, free-range Turkey	Ontario	under 100 km	truck	4kg
Tofu Steaks	China	10,000 km	plane	1kg
Green Beans	Ontario	under 100 km	truck	500g
Green Salad	USA (North Carolina)	900 km	truck/plane	300g
Roasted Beets	Ontario	under 100 km	truck	500g
Corn on the Cob	Ontario	under 100 km	truck	500g
Fresh Bread	Prairies, Canada	3,000 km	truck	500g
Rice Salad	China	10,000 km	plane/boat	600g
Pasta Salad	Italy	7,000 km	plane/boat	600g
Strawberries	Florida	2,000 km	truck/plane	500g
Apples	Ontario	under 100 km	truck	1kg
Oranges	California	4,000 km	plane/boat/truck	1kg
Canned Pineapple	Costa Rica	4,000 km	plane/truck	400g
Ice-Cream	Nevada (mid west) USA	5,000 km	plane/truck	500g
Pumpkin Pie	USA	1000 km	plane/truck	300g
Pop	Indonesia	10,000 km	plane/boat/truck	250g or 1 cup
Water (tap)	Ontario	under 100 km	pipes! and truck	250g or 1 cup
Fresh Lemonade	India	12,000 km	plane/truck	250g or 1 cup