



25min FoodPrints Grade 7 Facilitator Notes

Objective: Students will be able to make important links between our food choices and our effect on the environment, in particular the mode of transportation of our food.



Recipe Category: Food: “Outside the Box”



Level of Difficulty: Grades 7



Cooking Time: 25mins



Recipe Ingredients:

- FoodPrint factor visuals (set of 6)
- Plane, Truck, Ship, Train, Bike and Walking signs (with neck ties)

- CO₂ Emissions graph for food production
- Pledge postcards (60)



Curriculum Links:

Grade	Subject Area	Ontario Curriculum Links
7	Geography	<p><i>Natural Resources</i> Use a variety of resources and tools to gather, process, and communicate geographic information about the distribution, use, and importance of natural resources. (O)</p> <ul style="list-style-type: none"> • Describe a variety of ways in which people use and manage renewable, non-renewable, and flow resources to meet their needs. (S) • Describe ways in which technology has affected our use of natural resources. (S)
	Science & Technology	<p><i>Understanding Life Systems</i> Demonstrate an understanding of interactions between and among biotic and abiotic elements in the environment. (O)</p> <ul style="list-style-type: none"> ▪ 3.8 Describe ways in which human activities and technologies alter balances and interactions in the environment. (S)



Field to Table Schools
www.foodshare.net
FoodPrints Grade 7
Updated September 3, 2010

Introduction: (3 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 can have a significant effect on the environment. By environment we mean the natural spaces containing living and non-living things (plants, soil, air, water, animals, people, etc.)*
- Overview of the workshop/ what to expect from the next 20 or so minutes.
 - *What is FoodPrints?*
 - *How our food choices impact the environment*
 - *Spotlight on food transportation and fuel as a FoodPrint influencer*
 - *Pledge! (if time)*

FoodPrints – What's that? (2 mins)

For starters, do you know what *ecological footprints* are?

- They're not real footprints. It's the idea that the choices we make in our everyday lives have a lasting impact on the environment (i.e. our choices leave footprints behind)
- Ecological footprints are the land and water it takes to support a person's *overall lifestyle*

Therefore, what do you think *FoodPrints* might mean then?

- The impact that our *food choices* have on the environment.

Influencing Factors: (10mins)

In pairs...

- Distribute one "FoodPrint Factor Visual" per pair. The visuals are drawings that represent one way a human's food choice could impact the environment.
- Each pair needs to decipher what their picture might mean and give an example to demonstrate.
- Once they think they have it, each pair can share with the group.

FoodPrint-Influencing Factors are:

- The *types* of foods we eat (e.g. seasonal vs out of season, fruit and veg vs. meat)
- The way food is *grown* (e.g. use of pesticides, herbicides, fungicides)
- The way food is *processed* (e.g. machines, fuel, ingredients added)
- How food is *transported* (e.g. mode, distance, load size)
- The way food is *stored* (e.g. refrigeration, freezing, warehouse, electricity)
- How the food is *packaged* (e.g. saran wrap, polystyrene, canning)
- How and where the food is *sold* (e.g. supermarket energy usage vs. farmer's market stall)
- How the food is *cooked* (e.g. oven, stove top, water, BBQ, microwave, raw)
- How the scraps are *disposed* (e.g. composting, garbage, green bins, recycling)

*Show the CO₂ emissions from food graph to demonstrate that each type of food is different in terms of its CO₂ output.

Transport Hierarchy: (10mins)

“Importing and Exporting is a very large and important part of the food system.” Ask students to share what the definition of imports and exports are. “In order to meet the huge demands of imports and exports, many modes of transport are used, depending on the load and the distance that needs to be travelled.”

“Unfortunately, often the foods that are being imported can actually be grown here in Ontario if the season is right. Meaning that the fuel (or gasoline) being used to transport it from far away could have been saved and our impact on the environment could have been lessened.”

Does anyone know where gasoline comes from?

- From oil. Large factories refine the petroleum or “crude oil” and mix it with other things to make it more suitable for modern vehicles.

Is oil a renewable source of energy?

- No, it is non-renewable! Oil will run out if overused. It takes 1000's of years to replenish naturally – a rate that's much slower than our usage.

What happens when fuel is burned to power a vehicle such as a car?

- Nitrogen gas, Carbon Dioxide and water vapor are produced. These are greenhouse gases that contribute to global climate change.

“So, it's important to try and reduce the amount of fuel we use transporting food if we want to reduce harmful effects on the environment.”

1. **Choose 7 volunteers** to represent the following modes of transport (in no particular order):

- Train
- Plane
- Walking
- Biking
- Ship
- Car
- Truck

2. Have each of the volunteers **wear their relevant sign** around their neck

3. The students need to **arrange the 7 volunteers** in the correct order – from *lowest to highest impact on the environment* (i.e. the lowest to the highest carbon dioxide emissions for equal distance travelled).

4. Students can work together as a team to come up with the answer.

5. They get **three chances** to get it right – but after each try, only tell them how many are correct (don't actually tell them which ones though).

The correct order from lowest to highest carbon dioxide emissions for equal distance traveled is:
walking < biking < train < ship < truck < car < plane.

6. Once they have the order correct, hand the carbon emission value to each 'vehicle'.

Values are in *grams per tonne-kilometre*, the grams of CO₂ released for every tonne of cargo transported one km.

- *Plane – 370grams, Car – 180grams, Truck – 160grams, Ship – 33grams, Rail – 18grams*

- Bike and walking values were not included but studies show that exercise-based transportation instead of driving could reduce the USA's oil consumption by up to 38%, help people lose weight and in turn reduce our carbon emissions!

(Exercise-based transportation reduces oil dependence, carbon emissions and obesity, Environmental Conservation (2005), 32:3: 197- 202 Cambridge University Press)

**Show the Carbon Dioxide Emissions Factor graph*

Make a pledge: (if time)

Based on what they've learned about the influencing factors on our FoodPrint AND the hierarchy of transport modes, ask students to brainstorm ideas for reducing their own impact on the environment. Students are to make a 'pledge' to their future selves on the FoodShare postcards provided (they need to **include their school name on the postcard**).

They need to indicate **how they're going to try to reduce their FoodPrint**. For example:

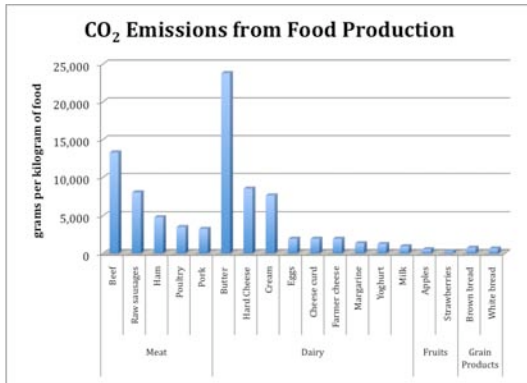
- *I plan to choose Ontario apples when I shop with my family at the supermarket*
- *I'm going to eat a piece of fruit instead of a pre-packaged snack*
- *I'm going to ask my parents if we can visit the local farmer's market*
- *I'm going to ride my bike to the store instead of catching the bus*

Pledges will be sent to the students at a later date.



Serving Suggestions:

CO₂ Emissions from food production:



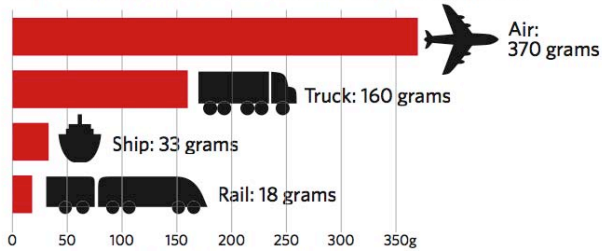
Source: <http://timeforchange.org/eat-less-meat-co2-emission-of-food>.

Data from: *Pendos CO₂-Zähler: ISBN 978-3-86612-141-6 (German)*

For the Transport Hierarchy:

Carbon dioxide emissions factor

CO₂ emissions by mode of transportation (grams per tonne-kilometre)



SOURCE: Canadian Standards Association, based on Natural Resources Canada data. All greenhouse gas emissions converted to carbon dioxide equivalents.

*Average cars in the UK emit around 180g per kilometer travelled (small, diesel fuelled cars with manual transmission emit 130g/km). (<http://www.lowcarbonlife.net>)

Transport Hierarchy signs: (Example)

