RUTGERS–NEW BRUNSWICK
School of Environmental and Biological Sciences

Lesson Eight

Food Miles

NEW JERSEY • DEPARTMENT OF ENVIRONMENTAL PROTECTION

Robert Wood Johnson Foundation

Lesson Eight

Lesson Overview

In this lesson students will learn about how food travels to get from where it is produced to where it is purchased by consumers. This lesson focuses on the effect of how far food travels by different modes of transportation including by boat, plane, truck, and train and its effect on global climate change. These modes of transportation emit carbon dioxide which is a greenhouse gas that contributes to global warming. Generally speaking, the farther food travels the more carbon dioxide is produced. Buying food that has traveled a long distance contributes to someone's carbon footprint. Students will learn about how this information has been used to find ways to reduce one's carbon footprint. They will discover ways they themselves can reduce their own carbon footprint using their knowledge on food miles. Students will calculate the distance different foods travel to reach them and compare that to the same or similar foods grown locally and purchased in season.

Next Generation Science Standards

5-ESS3-1 – Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Science and Engineering Practices

- Developing and using models.
- Using a model to describe phenomena.
- Obtaining, Evaluating, and Communicating Information.

Cross Cutting Concepts

Systems and system models

Cause and effect

Disciplinary Core Ideas

ESS3.C : Human Impacts on Earth Systems.

Driving Question(s)

How do food choices and where foods are from influence the earth's climate system?

Observable phenomena

Image of map and chart showing how many miles certain foods travel.

Learning Objectives

Students will be able to:

- Explain how food miles are connected to global climate change.
- Identify foods that are in season in New Jersey.
- Describe ways that they can reduce greenhouse gas emissions using knowledge on food miles.

Behavior Change Objectives

- Discuss one way they will try to reduce their food miles.

Gold italicized words are web links for more information.

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Keywords

food miles | distance | global climate system | air pollution | water pollution carbon dioxide | carbon footprint

Before you Begin

- Prepare to show slides to class.
- Make enough copies of handouts.
- Review eLearning game.

Materials

- Presentation Slides and Worksheets
- Computer/Chromebook/Technology
- Video: ***youtube.com/watch?v=PxRfnmCXrDI&list=PLKx8NLAujm_nCPmzHM3eUKiaqM-vaH55Zw&index=6***
- Exit Ticket

Lesson

1st Recap & Lesson Introduction

1. Review what was discussed last class:
   - A. Different foods require different amounts of resources or inputs, such as land and water.
   - B. Different foods result in different amounts of greenhouse gas outputs, such as carbon dioxide and methane, which negatively impacts the climate system.
2. Introduce today's lesson:
   Ask students – Does anyone think they might know what the term Food Miles means?

2nd Observable Phenomena

1. Observing how far food travels, Generating questions

   After a brief discussion about the term Food Miles, students will be introduced to the observable phenomenon; they are asked to make observations using the notice and wonder handouts while reviewing the image of a map with different foods and how far they travel. After discussing what they observe students will be asked to make an educational guess as to how this connects to/effects the global climate system. This will lead to the video where they will be asked to pay close attention to the video so we can discover this answer.

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3rd Lesson

1. Play the video on food miles and have students fill out the video recap handout together as a class.
2. Observe the difference in food miles between locally grown foods versus conventional foods using the chart on the slide. Explain to students that conventional foods means foods that are typically bought at large supermarkets that come from all over the world.

4th Food Miles Detective Activity

1. In this activity students will be split up into groups of 4-5 students each and each group will receive a different Food Miles Detective worksheet. The worksheet will focus on one food and how far it travels. Students will be tasked with uncovering what their food item is as well as calculating how many miles in total that food has to travel to get to the consumer. After about 10 minutes, each group representative will explain how many miles their food item travelled in total.

5th E-learning game: Shrinking our Food's Carbon Footprint

1. Together as a class, review and play eLearning game: Shrinking our Food's Carbon Footprint. Remind students that they can play the games at home or during free time, if permitted.

Exit Ticket

1. Teacher passes out Exit Ticket.
2. The teacher collects exit tickets and reviews student answers. Make minor adjustments to the next lesson based on data received.

Additional Activity Food Miles and Shrinking our Foods Carbon Footprint

Separate groups into teams and assign each one of the four handouts, have them use their laptops/computers to find out how many miles that item has travelled to get to the U.S. Have them use the food calculator at foodmiles.com. Each group will be given a handout where they will write their assigned food item and the number of miles. Groups will have 5-10 minutes to finish. After each group is finished, students are asked to put each group's food item in order (least to greatest miles). Students are then asked questions as a wrap up: How should they be organized for carbon emissions (least to greatest)? **Idea is that students know to leave them in the same order.

Additional Activity The First Greenmarket in New York City by Readworks

Have students read the article and answer the questions.