Lesson Seven

Environmental Impacts of Eating Patterns

USDA

NIFA

NEW JERSEY • DEPARTMENT OF ENVIRONMENTAL PROTECTION

Robert Wood Johnson Foundation

Lesson Seven

Lesson Overview

From the previous lessons, students have developed a basic understanding of the greenhouse effect, and a conceptual toolbox for thinking about food systems. This lesson focuses students' attention on the three different eating patterns and the resources/inputs needed for each. In the last lesson students developed an understanding of the three eating patterns and were able to understand what foods belong in each pattern. In this lesson, students will expand that knowledge by looking deeper at the resources or inputs needed for different eating patterns. Students will go through water, land, and greenhouse gas emissions and discuss in small groups which pattern requires more land and water and which pattern produces the most greenhouse gas emissions. This lesson will end with students discussing as a class what they can do to reduce their greenhouse gas emissions and land and water use through their food choices. One goal with this lesson is to explain to students that production of food products from animals (red meat) requires substantially more land than production of plant-based foods. This is because raising animals for people to eat also requires having enough land and growing enough food to feed those animals. Putting these points together, an important conclusion emerges: greenhouse gas emissions, and therefore climate change, related to changes to the land are much greater for animal-based foods than for plant-based foods.

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.

Cross Cutting Concepts
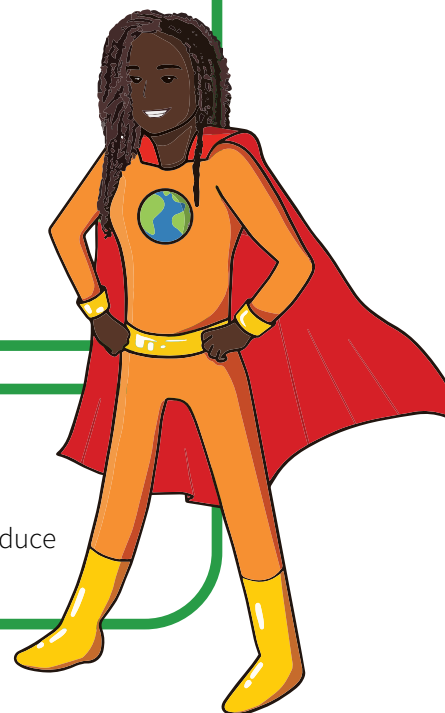- Systems and system models
- Cause and effect

Disciplinary Core Ideas
ESS3.C: Human Impacts on Earth Systems.

Driving Questions
- How do the different eating patterns impact the environment?
- Different eating patterns use different amounts of water and land and produce different amounts of greenhouse gases.

Green Italicized words are weblinks for more information.

Learning Objectives

Students will be able to:

- Describe what eating pattern requires the most land and water resources/inputs and produces the most greenhouse gases and understand why.

Behavior Change Objectives

- Identify actions that can help reduce greenhouse gas emissions and land and water use through their food choices.

Keywords

Food production **|** **resources/ inputs** **|** **animal-based foods** **|** **plant-based foods** **|** **plant forward foods**
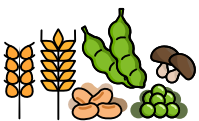
Before you Begin

- Prepare to show slides to class.
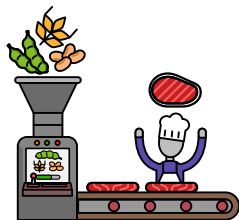- Make enough copies of handouts.
- Prepare The Fridge Board Game.

Materials

Students will be able to:

- Presentation Slides
- The Fridge Board Game pieces.
- Copies of handouts.
- Exit Ticket

Plant

Processing

Environment

GREENHOUSE GASES

Health

Animal

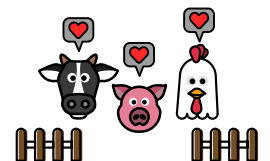# Lesson Seven

Lesson

1st Recap

1. Discuss how different foods need different resources/inputs in the food system and name and describe the three eating patterns discussed. Have students identify what foods are included in each.

2nd Jigsaw Activity

1. Jigsaw activity- Divide class into three separate groups. Each group will receive a chart of either water, land, or greenhouse gas production. Have students discuss in the groups what the bars mean, what the chart is describing, and complete the corresponding handouts. Once they understand what the chart means, have the students describe the findings to the entire class.

2. Discuss with the class which eating pattern produces the least/most amount of greenhouse gases, uses the most land, and the most water and why. Draw conclusions from the graphs and ask students to identify, using the graphs, what they can do to reduce these amounts.

3rd Board Game

1. Have students play the Fridge Game (instructions can be found in handouts) and use the 'Let's Summarize' slide to close out the lesson.

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.