

# SDG2: Future of Food

## MM5: The Food We Eat



### Micro-Module 5: The Food We Eat

### Experimentation and Exploration

### Lesson 3: Food and the Environment

Subjects: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE

### Lesson Title and Summary: Food and the Environment

In this lesson, learners will investigate the environmental impacts of global food production. They will begin to understand what is required to create the food that we eat every day, and what it means for the planet and its natural resources.

**Vocabulary: Commodity, Data, Environment, Eutrophication, Greenhouse Gas Emissions (GHG), Supply Chain**

### In this lesson, the learner will:

- Research food production and the environment
- Navigate, search, and filter data
- Learn how to compare data
- Work in pairs/groups

### Materials

- Worksheet: Food and the Environment
- Internet access
- Markers/pens/pencils
- Paper

11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



15 LIFE ON LAND



# MM5: The Food We Eat

## Lesson 3: Food and the Environment



### ACTIVITY INSTRUCTIONS

#### Activity 1: Investigation (35 minutes)

1. Divide the class into groups of 2 or 3.
2. Provide a computer with internet access to each group.
3. Load the URL: <https://ourworldindata.org/environmental-impacts-of-food> on each computer. This will be the primary source of information for the duration of this lesson.
4. Distribute the worksheet: Food and the Environment (one per group).
5. Learners should use the worksheet to guide their research, answering the questions along the way.

NOTE: This lesson can be run as a flipped classroom if computers are not available for all learners/groups in class.

#### Activity 2: Research playback (15 minutes)

1. Ask each group to place their worksheets on the shared classroom board for everyone to see.
2. Ask each group to read out or “playback” PART 3 of their completed worksheet. They should share this task so that each learner has the opportunity to present their findings and learnings.

### REFLECTIVE EXERCISE: 3-2-1 (10 mins)

- Three things they feel they have learnt from the tasks.
- Two things they found most interesting and would like to explore more.
- One – their opinion they have about the tasks.

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## Lesson 3: Food and the Environment



### EXTENSION / REDUCTION ACTIVITIES:

**Reduction:** For a shorter lesson, run activity 1 as a flipped classroom activity. If possible, learners should still work in pairs or groups of 3 to complete the activity outside of class.

**Extension:** For a longer lesson, give the class more time to explore the research. Once the worksheet is complete, learners can continue to click through the data and read additional articles.

### MEDIA BOX: (materials, online video links, extra resources, case studies etc)

Our World in Data: Environmental Impacts of Food Production:

<https://ourworldindata.org/environmental-impacts-of-food>

Environmental Protection Agency:

<https://www.epa.ie/our-services/monitoring--assessment/climate-change/ghg/agriculture/>

National Geographic:

<https://education.nationalgeographic.org/resource/environmental-impacts-agricultural-modifications/>

Video: How does your diet affect the environment? (1:26 mins)

<https://youtu.be/7Rufgoy9R2U>

Video: Can healthy food save the planet? (2:10 mins)

<https://youtu.be/Plc42oIU0Ik>

### LOCAL TRIP / EXPERTISE / ADDITIONAL WORK AND ASSESSMENTS

Visit your local community garden, farm, or production facility to learn how food in your area is produced.

Interview a farmer about the impact of agriculture on the environment.

Contact your local council to ask about steps they are taking to reduce the impact of agriculture on the environment.

# MM5: L3 WS FOOD AND THE ENVIRONMENT

2 ZERO HUNGER



You will need to access the following website for this activity:

<https://ourworldindata.org/environmental-impacts-of-food>

Steps:

1. Work together to read the data on the website and complete the questions below.
2. One person should manage the worksheet and take notes while the other navigates the website and datasets. Decide who owns which task!

## PART 1

How does agriculture impact the environment?

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

What negative impact does agriculture have on our land?

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What percentage of greenhouse gas emissions come from food?

\_\_\_\_\_ %

What percentage of global freshwater is used for agriculture?

\_\_\_\_\_ %

What does Eutrophication mean?

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In your own words, why do we need to change the way we produce food?

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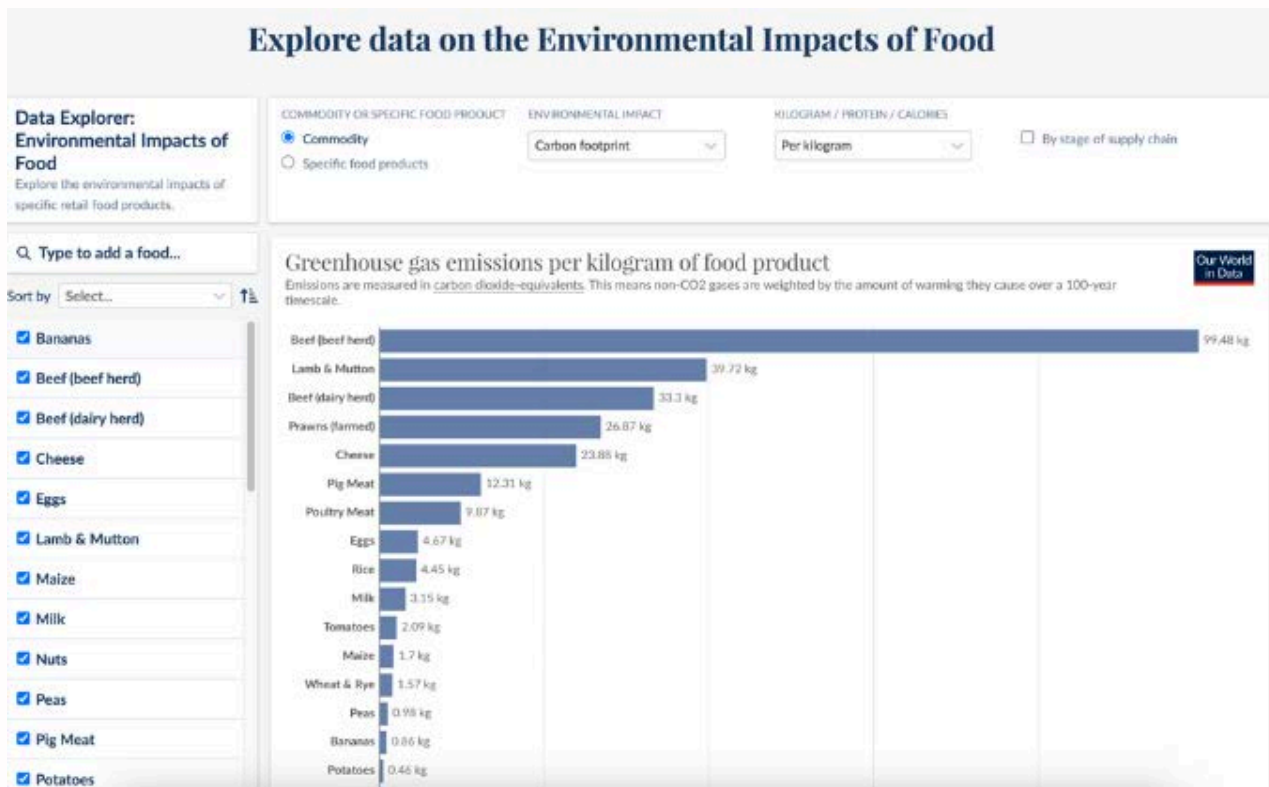
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## FOOD AND THE ENVIRONMENT

### PART 2

Use the Data Explorer tool to complete the rest of the worksheet. Use the filters on the left and top to answer the questions below.



What are the greenhouse gas emissions per kilogram of potatoes

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What are the greenhouse gas emissions per kilogram of milk

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Out of the following, which food product emits more greenhouse gases per kilogram (circle one):

- Fish (farmed)
- Pig meat
- Poultry meat

By how much (in kg)? \_\_\_\_\_

## MM5: L3 WS FOOD AND THE ENVIRONMENT

2 ZERO HUNGER



Out of the following, which food product requires more land per kilogram (circle one):

- Fish (farmed)
- Pig meat
- Poultry meat

By how much (in m<sup>2</sup>): \_\_\_\_\_

Out of the following, which food product requires more land per kilogram (circle one):

- Fish (farmed)
- Pig meat
- Poultry meat

By how much (in m<sup>2</sup>)? \_\_\_\_\_

Out of the following, which food product requires more land per kilogram (circle one):

- Fish (farmed)
- Pig meat
- Poultry meat

By how much (in m<sup>2</sup>)? \_\_\_\_\_

How many litres of freshwater is required to produce one kilogram of cheese?

\_\_\_\_\_

### PART 3

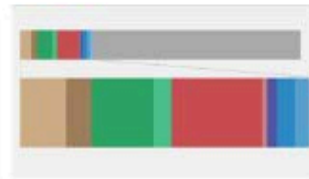
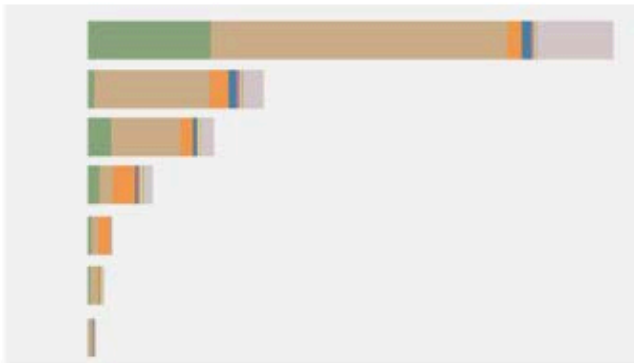
Now, move to the Research & Writing section for the final part of this activity.

Steps:

1. Looking at these article headlines, choose one that interests you.
2. Take a minute or two to read the article and any associated data.
3. Create a summary of what you have learned. Fill out the fields below:



## Research & Writing



### You want to reduce the carbon footprint of your food? Focus on what you eat, not whether your food is local

'Eat local' is a common recommendation to reduce the carbon footprint of your diet. But transport tends to account for a small share of greenhouse gas emissions. How does the impact of what you eat compare to where it's come from?

Hannah Ritchie

### Food production is responsible for one-quarter of the world's greenhouse gas emissions

One-quarter of the world's greenhouse gas emissions result from food and agriculture. What are the main contributors to food's emissions?

Hannah Ritchie

#### MORE KEY ARTICLES ON THE ENVIRONMENTAL IMPACTS OF FOOD

**Less meat is nearly always better than sustainable meat, to reduce your carbon footprint**

Hannah Ritchie

**Dairy vs. plant-based milk: what are the environmental impacts?**

Hannah Ritchie

**Yields vs. Land Use: How the Green Revolution enabled us to feed a growing population**

Hannah Ritchie

Article 1: <https://ourworldindata.org/food-choice-vs-eating-local>

Article 2: <https://ourworldindata.org/food-ghg-emissions>

Article 3: <https://ourworldindata.org/less-meat-or-sustainable-meat>

Article 4: <https://ourworldindata.org/environmental-impact-milks>

Article 5: <https://ourworldindata.org/yields-vs-land-use-how-has-the-world-produced-enough-food-for-a-growing-population>

Article headline:

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In your own words, what is the article about:

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Share two facts or statistics that you found most interesting:

1. 

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2. 

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What did you learn that surprised you?

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