

WHERE DOES OUR FOOD COME FROM

and what does feeding the world actually take?



Introduction

This lesson investigates how the world's agricultural land is used and what that means for global food security. Using real data and an enquiry-based approach, students move from exploring global land use patterns to analysing how the amount of land required to produce food varies significantly depending on what is being grown. Food systems offer a rich, relevant and genuinely complex context in which to develop these ideas.

The *I do, We do, You do* structure is used deliberately. Teacher-led explanation builds the conceptual knowledge students need before they are asked to apply it, paired data investigation gives students the chance to work with real evidence in a supported context, and independent written analysis asks them to synthesise and communicate geographical thinking in their own words.

Relevant Links

Ritchie and Roser (2024) on land use for agriculture – [The Vegan Society](#) OR [Our World in Data](#)
Food and Agriculture Organization of the United Nations video on food security (0:00-1:35) – [YouTube](#)
(also embedded on slide 8 of the *Enquiry 1 – Slide Deck*)
Poore and Nemecek (2018) data on land use per kilogram of food product – [The Vegan Society](#)
OR [Our World in Data](#)
Food security – [The Vegan Society](#)

LESSON OVERVIEW

Timing
60 minutes

Setting
classroom

KS3 Geography National Curriculum

Human geography: economic activity in the primary sector; the use of natural resources.

Human and physical processes: how human activity relies on the effective functioning of natural systems.

Geographical skills: interpret a range of sources of geographical information; communicate geographical information through numerical and quantitative skills.

What you'll need

Enquiry 1 – Slide Deck, Data Card, Bar Chart Worksheet, Writing Frame Worksheet

Additional resources

Pens, graph paper, coloured pencils, mini whiteboards and pens

Before the lesson

- Print and cut Data Card (1 card per pair, 4 cards on each page)
- Print blank Bar Chart Worksheet (differentiated support sheet)
- Print Writing Frame Worksheet (differentiated support sheets, print as needed)
- Collect graph paper and coloured pencils ready for the We do
- Check YouTube clip on slide 8
- Gather mini whiteboards and pens for plenary

Learning Objectives

1. Describe how agricultural land is currently distributed and used globally.
2. Explain why the amount of land needed to produce food varies depending on what is being grown.
3. Analyse how global food systems are connected to food security.



The Lesson

Timings are a guide – adjust them to suit your class.

Slide 1 – Enquiry question

Starter [10 mins]

Resources: Enquiry 1 – Slide Deck needed throughout

Slide 2

The activity

- Display the meal image. Ask students to spend two minutes individually thinking about and jotting down:
 - Where in the world might the ingredients on this plate have come from?
 - What did nature have to provide to produce this meal? (Prompt if needed: soil, water, sunlight, land).
- Pairs then share their thinking for two minutes before a brief whole-class discussion. Take four or five responses and map them loosely on a world map. (See slide 3 for a blank map).

Potential script

- I want you to think about something you do every single day without really thinking about it – eating.
- Look at this plate. Somewhere in the world, land was used to grow every single ingredient on it. Some of that land might be close to home. Some of it is thousands of miles away.
- Today we're going to find out how much of the world's land is actually devoted to feeding us – and whether that's working.

Slide 4

- Introduce the learning objectives and key terms.

Task – I do [15 mins]

Resources: YouTube clip on food security (embedded on slide 8, but also linked here)

Slide 5

The activity

- Before showing any data, invite students to come up and annotate the map directly using the interactive whiteboard (IWB) pen tool. Ask them to shade or circle the regions they think are most heavily used for farming.

- Taking four or five volunteers, build up a class prediction map together. Leave the annotations visible.
- (Option if no IWB – small groups decide areas where agricultural regions may be and use Post-it notes to mark them on the screen.)

Potential script

- Before I show you any data, I want to know what you already think. Where in the world do you think most farmland is? Come up and show me – shade the regions you'd predict are most heavily farmed. [Take contributions.]
- Agriculture – farming – covers about 44% of all the land on Earth [Ritchie and Roser 2024]. Nearly half the planet's land surface is given over to growing food or raising animals. That's an enormous amount. And remember from our starter – that land has to provide water, soil nutrients, sunlight and space. Once it's damaged or lost, it can be hard to recover.
- [Leave the class prediction map visible for the following question.] That 44% of land... What do you think it's mainly being used for? Growing crops for people to eat directly, or something else? [Take responses. Answers are revealed on next slide.]

Ritchie H and Roser M (2024) Land Use, <https://ourworldindata.org/land-use> (accessed 4 June 2026).

Slide 6

Summary

- Show and explain the bar chart
 - 80% of all agricultural land is used for animal farming (grazing or growing crops to feed animals); 20% is used to grow crops directly for people to eat (Ritchie and Roser 2024).
- Encourage students to question the efficiency of our current agricultural system.

Potential script

- Here's something that surprises most people. Of all that agricultural land – nearly half of Earth's surface we've given over to farming – around 80% of it is used either to graze animals or to grow crops that are fed to animals rather than directly to people.
- Only around 20% grows food that goes straight onto



a human plate. So the question geographers ask is: why does feeding people through animals take so much more land than feeding people directly from plants?

Potential questions to ask

- What do you think happens to all that land used to grow animal feed?
- Is it efficient?
- What does 'efficient' mean in geography terms?

Don't over explain at this point, the next slide continues...

Slide 7 Summary

- A visual representation of the inefficiency, or 'conversion problem', of farming animals.
- This slide requires explicit links back to Learning Objective 2 and is a key teaching point of the lesson.

Potential script

- Does this look very efficient?
- This slide shows what we might call a conversion problem. When crops are fed to farmed animals, most of the energy and protein in those crops is used by the animal just to live – to breathe, move, keep warm. Only a small fraction of what the animal eats actually becomes the meat, milk or eggs that are consumed.
- The Vegan Society describes it this way: farmed animals consume much more protein, water and calories than they produce.
- To give you a sense of the scale, to produce just 1 kg of beef, a cow must first consume significantly more grain or feed crops every day for their entire life. That feed has to be grown somewhere, and that takes up a lot of land.
- This isn't a moral argument – it's a geographical one. It's about resource efficiency. How much land, water and energy does it take to produce a kilogram of food for humans?

Potential question

- If you wanted to feed as many people as possible from one field – what might be the most land-efficient way to do it?

Again, take responses without confirming. Students will investigate this in the We do.

Slide 8 The activity

- Play the YouTube clip by the UN Food and Agriculture Organization – only up to 1:35. It explains the unequal progress on food insecurity globally.
- Highlight 'land use' and 'food security' as key terms of the lesson.

Potential script

- **Before the clip:** We've looked at how land is being used and why the current food system requires so much of it. Now I want you to see the human side of that picture. As you watch, think about two things: the scale of food insecurity globally, and whether the problem is the same everywhere in the world.
- **After the clip:** The video mentions that progress on food security has been unequal. That word – 'unequal' – is really important geographically. It tells us this isn't just a global problem with a single global answer. Regions are experiencing it differently. Some parts of the world have made significant progress; others haven't.
- As geographers, that's exactly the kind of pattern we want to interrogate – where is the problem most severe, and why might that be?
- Based on what you've just seen, can you name a region where food insecurity appears to be a particular challenge? And can you think of any geographical reasons why that might be?

Slide 9 Summary

- The enquiry question – a chance to link back and a bridge to the We do

Potential script

- So far, I've shown you what the land is being used for and we've touched on how inefficient it is for feeding a growing global population. Now it's your turn to look at the data yourselves.
- In a moment you're going to investigate land use figures for different types of food – and start forming your own geographical conclusions about what feeding the world actually takes.



Task – We do [15 mins]

Resources: Data Card (1 per pair); graph paper (1 each) and pencils/coloured pencils

Differentiation

Support

- Place students who are in need of support near another helpful student.
- Allow discussion during the sorting phase to ensure the data is correctly ordered.
- Use the differentiated Bar Chart Worksheet with some data points already plotted.

Stretch

- Students can add a second colour to distinguish animal-based from plant-based foods.
- Annotate observations about the pattern they observe.

Slide 10

The activity

- Students are to work in pairs to investigate some data about land use for food produce. They will plot it on a graph and then discuss the questions on the board.
- The Data Card figures are not in order. Pairs are to order them from highest land use per kg to lowest.
- Then they can plot the data onto their own graph and begin to draw geographical conclusions in the discussion segment.

N.B. The data is drawn from a study by Poore and Nemecek (2018) – see [The Vegan Society](#) and [Our World in Data](#).

Potential script

- You've seen how the world's agricultural land is distributed, and you've seen the human consequences when food systems don't work for everyone. Now it's your turn to investigate the data.
- With your partner, you're going to look at how much land is needed to produce one kilogram of different foods. Your job is to analyse that data, present it visually and start drawing some geographical conclusions.
- This is the kind of work geographers actually do – looking at data, spotting patterns, asking why?

Bring the class back together for a class discussion after ~10 mins of the We do.

Potential script

- Let's hear what you found. Who wants to share the pattern they noticed? [Take responses.]
- Geographers always ask, 'What does this mean on a larger scale?' We've been looking at one kilogram of food. But think about the billions of kilograms of food produced globally every year. If the pattern you've just identified in your chart holds at that scale, what does that tell us about why 80% of agricultural land is used the way it is? [Allow responses.]
- **Key teaching moment:** What you've just done is start to answer our enquiry question. You can see that the amount of land needed to produce food varies enormously depending on what the food is. And when you think about that at a global scale – across billions of people, billions of kilograms of food – those differences in land use add up to something very significant geographically.
- A good geographer also asks, 'Are these figures the whole story?' These are averages – land use varies by farming method, by country, by climate. The pattern is clear, but geography is rarely as simple as one number. Keep that in mind as we move into the next part of the lesson.

Task – You do [15 mins]

Resources: Writing Frame Worksheet (as required)

Differentiation

Support

- The printed Writing Frame Worksheet provides scaffolded sentences.

Core

- Use the structure and key terms on slide 12.

Stretch

- Encourage students to think critically rather than just describe.
- Encourage reference to unequal access to food security.
- Answer the challenge question on slide 12.



Slide 11

The activity

- Students will work alone to respond to the enquiry question in a geographical analysis extended writing exercise.
- Switch to slide 12 for structure or key terms for the class to use while writing. You can also distribute the Writing Frame Worksheet to those who need it.

Potential script

- You've investigated the data, you've discussed the patterns and you've seen the human consequences of how our food system works. Now I want you to put that together in writing – on your own.
- A geographer doesn't just describe what the data shows. They explain what it means and why it matters. That's what I'm looking for.
- Use your bar chart, the key terms and your notes from today.

Plenary [5 mins]

Resources: Mini whiteboards and pens

Slide 13

The activity

- Focus on wrapping up the enquiry question.

Slide 14

The activity

- An exit question to show on the board. Students will write their response on their mini whiteboard.

Potential script

- We started this lesson with a plate of food and a question: where does our food come from, and what does feeding the world actually take? At the start, you told me where you thought ingredients might come from. Now I want to know – how has your thinking changed?
- I'm not asking you to repeat your analysis back to me. I want to know what surprised you. What did you not expect to find?

