

Science Debate Kit: Food Security



For more information go to debate.imascientist.org.uk/foodsecurity

Debate Kit: Food Security

Should our school only buy food produced in the UK?

A structured practice debate on a controversial topic. The different 'rounds' of the debate help students think through the issues and reconsider their opinions. The structure also shows them how to build a discussion and back up their opinions with facts.

You can use all eight characters, or fewer, as you wish.

The minimum is the four essential characters (**in bold**), this gives two for and two against.

Characters

For only UK-produced food

- **Leanne Roberts – Farmer**
- **Toby Swan – Allotment owner**
- Jim Kernow – Fundraiser
- Corrine Radford – Green campaigner

Against only UK-produced food

- **Helen Harvey – Fair trade fruit importer**
- **Anya Katzmareck – Vegetarian restaurateur**
- Tony Percy – Chocolate fan
- Murad Kamal – Ecologist

Facilitation tips

Ensure pupils know there is no right or wrong answer. Be observant of those who want to speak and are not getting a chance. Encourage students to give a reason for their opinions.

Designed for KS4.
Can be used with ages 11-18

For groups who may need extra support you can put the following prompt sentences upon the board:-

"I think our school should/shouldn't only buy food produced in the UK because....."

"I think is the most important point to think about."

Learning notes

Learning objective:

- To practise discussing and debating issues and expressing an opinion
- Understand more of the science and ethics around global food security

Other learning outcomes:

- Consider social, ethical and factual issues in an integrated way
- Think about different points of view
- Learn to back up their opinions with facts

Curriculum points covered:

HSW:

- Using data to draw conclusions
- Societal aspects of scientific evidence
- Developing an argument

Substantive:

- Evaluate some of the issues surrounding global food security and to consider the ethical implications of food production



Debate

Toby Swan – Allotment owner



After I had my heart attack the doctor said I should get more exercise and eat better. My wife suggested getting an allotment and it's been the best thing I ever did.

Each month brings a new crop. Cauliflowers in the winter, strawberries in the summer. When you buy food in packets from the supermarket, you don't think about where it comes from. I appreciate my food now and make the most of it. I never throw any away!

Fact: The UK imports 40% of its food from other countries around the world. But about 30% of all food produced just gets thrown away.

Issue: Local food is fresher and more natural, we should learn to appreciate it.

Question: Does importing food make us value it less and throw away more?

**I'm a
Scientist
Get me OUT of here**

Debate

Tony Percy - Chocolate fan



I really love chocolate. And you can't grow half the ingredients you need to make it in this country.

We also can't grow rice, or bananas, or soya, or ginger, spices, tea and coffee... We're a rich country, why shouldn't we be able to buy what we want or need from other parts of the world?

Fact: Just to make a Kit Kat we need to import ingredients from seven different countries.

Issue: I don't want to live on a diet of just the stuff we can grow in this country. It would all be turnips and potatoes, really boring.

Question: Have the people arguing for this really thought through what we'd have to miss out on?

**I'm a
Scientist
Get me OUT of here**

Debate

Leanne Roberts – Farmer



Since the 1970s scientists and farmers have worked hard to improve productivity. We produce double the amount of food now from only 8% more land – it's a real success story. But we've probably made the easy advances already, to increase productivity more will take hard work, investment and support. I sometimes think most people take farming for granted.

Fact: 0.5% of the UK workforce works in agriculture. In China it's 70%.

Issue: We should be supporting British farmers, not sending our money to other countries.

Question: We're dependent on other countries if we import food. Shouldn't we work together to look after ourselves?

**I'm a
Scientist
Get me OUT of here**

Debate

Jim Kernow – Fundraiser



I went travelling in Africa when I was 18 and I fell in love with Kenya. It's a beautiful country, with amazing, vibrant people. Since then I've devoted myself to raising money for an orphanage there and I've visited many times. The orphanage has a small farm to grow food to feed the children and staff. It's hard for them to grow food because it's very dry there, and nearby farms that export to the UK use up a lot of the available water.

Fact: Most green beans in UK supermarkets are grown in Kenya. It takes one bucket of water to grow one green bean.

Issue: UK supermarkets have more power and can pay more money than the local Kenyan people.

Question: Why are we taking scarce resources away from the people who need them most?

**I'm a
Scientist
Get me OUT of here**

Debate

Murad Kamal – Ecologist



The British Isles are small and crowded. There's little wilderness or real countryside left, yet it's key to biodiversity and the health of the ecosystem. 70% of land in the UK is used for farming already. Some types of farming are more productive than others, and some are more damaging to the environment. Creating farmland means destroying important natural habitats such as wetlands, which help to purify water and protect against floods, and forests, which soak up carbon dioxide.

Fact: We've lost over 100 plant and animal species during the last century, and many more species and habitats are in danger of disappearing.

Issue: It makes much more sense to import some food from other places where it's easier to grow and they have more space.

Question: How could we use our farmland more effectively?

**I'm a Scientist
Get me OUT of here**

Debate

Corrine Radford – Green campaigner



I'm worried that people aren't taking global warming seriously enough. I've got a five year old daughter, I want her to grow up in a stable world. Not one with melting icecaps, rising sea levels and hurricanes. We should cut carbon emissions wherever we can. I don't think we're doing enough.

Fact: Scampi caught in Scotland is shipped 5,000 miles to China, to be shelled by people there, because wages are cheaper. It's then shipped 5,000 miles back again.

Issue: We shouldn't be pumping out carbon dioxide to move food from one side of the world to the other, when we don't have to.

Question: What's more important than preventing global warming?

**I'm a Scientist
Get me OUT of here**

Debate

Anya Katzmareck – Vegetarian restaurateur



When I was a teenager I decided it was cruel to eat animals. I've since realised it's much better for the environment too, because you need much less land. Also, animals flatulate lots of methane and that's bad for global warming as well. My restaurant is all about showing people that veggie food can be tasty! Even if you don't want to completely give up meat, most people can eat a bit less.

Fact: It takes ten times as much land to feed a meat eater as to feed a vegetarian. You grow crops, then feed them to the animals, THEN eat the animals. It's much less efficient.

Issue: Whether the animals are farmed here or abroad they still affect the environment. It's not where the food is produced that's the issue, it's what we eat.

Question: Population is increasing. How are we going to feed everyone if we all insist on eating meat?

**I'm a Scientist
Get me OUT of here**

Debate

Helen Harvey – Fair trade fruit importer



I run a social enterprise business, importing dates from Morocco. These dates are grown on small collective farms, run by women. It's hard for them in Morocco to earn enough money to feed their children, but I pay them a fair price for the dates.

Fact: Dates are shipped on big oil tankers - they use just 1% of the carbon dioxide a plane would use to transport the same thing. Greenhouse gas emissions matter more to the environment than distance travelled.

Issue: You have to look at the big picture. Morocco is suited to growing dates, the UK isn't. You'd need to use huge amounts of energy to grow dates in greenhouses here. That would be much worse for the environment.

Question: Why shouldn't food be grown in the countries with the right climate?

**I'm a Scientist
Get me OUT of here**

Teachers Notes



Science Debate Kit: Food Security

Question: Should our school only buy food produced in the UK?

Lesson plan

The different 'rounds' of the debate help students think through the issues and reconsider their opinions. The structure also shows them how to build a discussion and back up their opinions with facts.

Starter: 5 minutes

Where does most of our food come from? Can the class name things we grow in the UK? What things do they think we import? Can they suggest reasons we import food?

Main Activity: 35 minutes

- 1) **Split students into as many groups** as characters you want to cover.
- 2) **Give them their character cards** – one per group, and give them a few minutes to read them over.
- 3) Get one student in each group to **read out their first section** to the rest of the class.
What are the class's initial thoughts? Is there one position they identify with or reject?
- 4) Take it in turn to **read out their fact**.
Does it change the way they think?

**I'm a Scientist
Get me out of here**

- 5) **Read the issue.** Any different feelings?
- 6) Each team **asks their question to the character of their choice.**

Support: To help students you can put the following prompt sentences up on the board:

"I think our school should/shouldn't only buy food from the UK because"

"I think is the most important point to think about."

Plenary: 10 minutes

Vote for which position they agree with most (if there is one). Why? Which arguments were the most persuasive?

Note – Pupils can stay in roles all the way through debate, or only for the first round if you prefer. If it's all the way through, give them a chance to express their own opinion at the end and in the plenary.

For groups who are not confident at class discussion, it might help to have them start by discussing the question and/or their character's position in pairs, and then compare notes in fours. They've then had chance to rehearse some of what they want to say before having to do it in front of the whole class.

Background notes for teachers

This kit has been commissioned by the UK's Global Food Security programme. This programme brings together the work of all government departments and agencies that fund research related to food.

What is global food security?

In essence, global food security means providing everyone in the world with enough to eat. Not just enough calories, but the right nutrients to live a healthy life. The challenge is doing this with a growing population and sustainably, given that in the future there will likely be less land available and climate change will mean we need to use the Earth's resources more efficiently. That's why they call it a challenge.

The present situation

At the moment 925 million people in the world experience **hunger**: they lack access to sufficient of the major macronutrients (carbohydrates, fats and protein).

Perhaps another billion are thought to suffer from 'hidden **hunger**', in which important micronutrients (such as vitamins and minerals) are missing from their diet, with consequent risks of physical and mental impairment.

In contrast, a billion people are substantially **over-consuming**, spawning a new public health epidemic involving chronic conditions such as type 2 diabetes and cardiovascular disease.

That's three billion people having sub-optimal diets. The world's total population (as of early 2013) is estimated to be just over 7 billion.

The future

It's impossible to predict the future for sure, but it's projected that world population will plateau at roughly 9 billion, around 2050. However, despite what people sometimes assume, population growth isn't the key problem in food security. Consumption patterns are a much bigger issue.

If everyone today lived like Americans, we would need four earths.

People in the developed world consume far more resources per capita than people in the developing world. The real challenge is that with increasing affluence, growing middle classes in countries like China and Brazil start adopting a more western diet – more meat and dairy, eating a more varied diet, with more imported foods and fruit and vegetables out of season.

Suggested homeworks:

Seasonal foods – make a poster promoting seasonal foods grown in the UK. You may need to explain that seasonal food means fruit or vegetables that are harvested at particular times of year – in a survey, one respondent, asked to name a seasonal food, said Easter eggs.

Local seasonal food – research what food grows locally and design a balanced meal using local ingredients.

Carbon footprint – research and compare the factors that make up the carbon footprints of some foods grown in the UK and abroad.

All facts in this kit have been researched. References can be found online at: debate.ima.scientist.org.uk/foodsecurity

This debate kit was commissioned and funded by the Global Food Security programme with support from the University of Nottingham, and was independently produced by the I'm a Scientist team at Gallanor.

The Global Food Security programme brings together the UK's main public funders of food-related research that are working together to meet the challenge of providing the world's growing population with a sustainable, secure supply of nutritious food from less land and using fewer inputs. For further information visit www.foodsecurity.ac.uk

