

# Muinín Catalyst STEAM Education for Sustainable Development and Futures Literacy

## SDG2 The Future Of Food



### Programme Phase 2: Exploration and Experimentation

### Micro-Module 4: Feeding the World Sustainably and Responsibly in the 21st Century

Subject Areas: Art and Design, Agricultural Science, CPSE, Home Economics, SPHE



# SDG2 Feeding the World Sustainably and Responsibly in the 21st Century



## Micro-Module 4: Feeding the World Sustainably and Responsibly in the 21st Century

### Exploration and Experimentation

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

### Micro-module Summary: Feeding the World Sustainably and Responsibly in the 21st Century

The last century has seen the emergence of a global society dominated in many ways by multinational corporations and supply chains (or value chains) that stretch from one side of the planet to the next. Services and products produced by companies and industry delivered on scale across the globe have enabled billions of people to move beyond poverty, to feed their families, and gain access to affordable and nutritious food every day. Incredible progress has been achieved for humanity in this era, but a huge price has been paid by mother nature, the animal kingdom, workers, and farming communities all over our planet.

Over these 7 lessons, learners will learn about the value chains behind the everyday goods and foods we consume, gain deep understanding of the link between agriculture and food production, business, human development, and climate change. Students will apply learnings from the lessons through group projects and presentations to address people and planet related challenges existing in real and broken food value chains today.

#### In this module, the learners will:

- Learn about human progress, population growth and agriculture through the ages
- Understand how our global food systems work
- Learn about the externalities and costs of producing and consuming food
- Learn about value chains, shareholders, profits and stakeholders
- Gain an understanding into the journey of the products in our cupboards

#### Materials

- Lesson plans
- Worksheets



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## Feeding the World Sustainably and Responsibly in the 21st Century

### Lesson 1: 2000 Years of Human Agriculture, Population and Progress

Through this lesson we'll learn about the growth in global populations through the ages exploring how population rates have rocketed up in the past century, understanding how and why population is expected to plateau at 10-11 billion by the end of 2100, and explore the links between population growth, agriculture, and food.

Resources: Worksheet: Population Curve Exercise, Worksheet: Nitrogen as Fertiliser, Worksheet: World of Data Links and Questions

### Lesson 2: The Food We Eat: Where Does Our Food Come From?

In this lesson, we'll dive into our cupboards, larders, shopping trolleys and bellies to learn what we eat and why, where we buy these foods, where and how they're made, and where they come from.

Resources: Worksheet: The Top Foods We Eat, Worksheet: The Food Pyramid, Worksheet: Breakfast

### Lesson 3: Food, Agriculture and Climate Change

In this lesson, we'll learn about the connection between industrial agriculture, our global food systems and climate change. Learners will explore our food systems to understand the various and complex ways in which agriculture impacts the natural world, including through land and water use and the production of greenhouse gases from farming. In this lesson we'll attempt to explore whether a more sustainable and climate friendly way is possible and see if our food systems can be reinvented!

Resources: The Four Impacts of Agriculture Worksheet, Top Foods and their Environmental Impact Worksheet

### Lesson 4: From Farm to Fork: The Steps of Food Value Change

Each day our plates are filled with foods that come to us from farmers and producers from every country and continent in the world. The supply chains and value chains behind our food stretch across the globe. In this lesson Learners explore the paths our food travels, learn more about farming, harvesting, production, packaging, and the transport of our food and try to understand the true cost of our food.

Resources: Worksheet: Value Chain Definitions, Worksheet: Bananas and the Steps of a Value Chain, Worksheet: Value Chains in the Media

### Lesson 5: Case Studies - Coffee, Tea and Cocoa

Coffee, Tea, and Chocolate (Cocoa) are some of the world's most popular drinks and treats. These are massive global industries worth billions, yet our current model of business sees little of the

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income or profits make their way back to the workers and farmers who put in the hard work to bring these goods to us. In this lesson Learners will look at business as usual in the tea, coffee and cocoa industries and question whether things can be better.

Resources: Worksheet: Ethical Trade Definitions, Worksheet: FairChain and Moyee Coffee, Worksheet: Tony Chocolonely's Chocolate, Worksheet: FrankAboutTea

### Lesson 6: Supermarkets, Farmers and our Broken Value Chains

Today we buy most of our food from a handful of supermarkets. These multinational companies are tremendously successful and profitable at delivering all kinds of food to us when and where we want it. They dominate the planet's food supply systems. In this lesson we'll try to understand why the global food system is so broken that farmers can starve and struggle while supermarkets profit and explore whether a better way is possible for the future.

Resources: Worksheet: The Power of Supermarkets, Worksheet; Living Income for Farmers, Worksheet: How to Solve Farmer Poverty?

### Lesson 7: Value Chain Exercise

In this lesson, we'll take a deep dive into the value chains behind some of the everyday foods we all enjoy and plot the journey through the value chains these foods make, identifying the human and environmental problems that exist within these food systems, and attempting to discover what innovations and solutions can help change the systems behind our foods to do right by customers, farmers, workers, company owners, and our planet.

Resources: Worksheet: Value Chain Six Stages, People and Planet

**Module development and expertise: Killian Stokes, Moyee Coffee Co-Founder and Proudly Made in Africa CEO**

### Using the Resources:

If you wish to use these resources, we can offer an induction and online support throughout the module to help you plan integration into your projects and timetable. To register for this option, please contact us e:hello@futurefocus21c.com

For more information on the resources please visit [www.muinincatalyst.com](http://www.muinincatalyst.com)

Setting up an online learning environment for the lessons on this module:

Our lessons integrate the use of virtual learning environments. To ensure seamless use of our

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lessons, a module should be set up on your school's virtual learning environment such as Teams, Google Classroom, etc. Learners are encouraged to upload documents to share with their peers.

You can also use Google Sites or Microsoft Sway to encourage learners to present their work over the year - this can easily be set up to reflect the aims of TY and provide a showcase for their work as well as assessment tool.

### Setting up a Canva Education account.

If your virtual learning environment does not support document sharing, we recommend OneDrive or Google Drive. As our lessons integrate design, our lessons also refer to Canva. Educators and schools are able to open a free [Canva for Education](#) account by registering. Canva for Education provides primary and secondary school teachers and students with premium features and templates. You can then also set up lessons and invite your learners to the class.

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