



# CONSCIOUS CONSUMERS

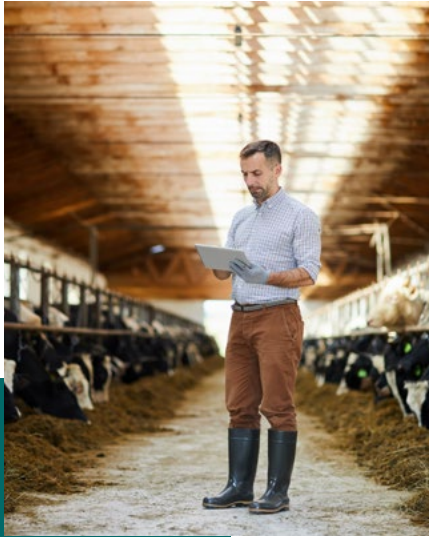
## Personalised Nutrition

Workbook

Name \_\_\_\_\_



# A fresh look at agricultural science and food



This project aims to start conversations about topics of importance to society by looking at overlapping topics of Food Miles, Plant-Based Diets, Personalised Nutrition, Rewilding, Animal Welfare and Climate Change.


There is a lot of information on social media and in the news about these topics but it's often hard to know what to believe when stories seem to contradict each other. These workshops will give you an introduction to some of the key facts and encourage you to look more closely at sources of information available online to determine how reliable they are.

We all have to make choices, particularly around the food we eat and our choices as consumers really do have the power to shape the world we live in.

Following each workshop, we invite you to undertake further research and encourage others to become more Conscious Consumers!



The **Food and Farming Discovery Trust** coordinate and communicate existing food, farming and countryside educational activity in Norfolk. They also develop new activity and support educators and providers to enhance the learning outcomes for all young people in Norfolk through food, farming and the countryside.

 [discoverytrust.org.uk](https://discoverytrust.org.uk)



The **Science, Art and Writing (SAW) Trust** is a science education charity (no.1113386) developed in 2005. SAW takes a fresh approach to science education, using intriguing images to initiate exploration of scientific research through activities in practical science, creative writing and visual arts, aimed at as wide an audience as possible.

 [sawtrust.org](https://sawtrust.org)




A skills award to support and inspire the next generation into Science, Technology, Engineering, Maths and Medicine (STEMM). Students aged 13-19 can register through their school or at home and start working towards a bronze, silver or gold level award. Ask your teacher about how you can get involved or visit our website.

 [ysawards.co.uk](https://ysawards.co.uk)



**LEAF Education** works with members and partners to promote visits to farms. LEAF Education also provides access to a range of high-quality educational resources and activities for school-based studies and outdoor visits.

 [leafuk.org/education](https://leafuk.org/education)

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# How do we eat for a healthy microbiome?

Our personal microbiota, but more specifically the microbes in our gut, impact how we digest our food. Microbes also help us fight disease and infection, by supporting our immune system, and potentially our mental health too.



## What are Microbes?

Microbes are tiny organisms, or microorganisms such as bacteria, fungi, protozoa, algae and viruses. They can be very simple, single-celled organisms (prokaryotic), or more complex, multi-celled organisms (eukaryotic).



**90% of microbes** live underground or in the ocean, but they can be found everywhere; in soil, plants, insects and animals.



We have around **38 trillion bacterial cells to every 30 trillion human cells** in our body.



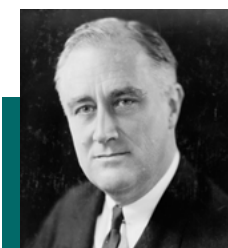
There are **'good' and 'bad' bacteria**, most won't do us any harm. In fact, our health, and the health of the plants and animals we eat, depends on beneficial bacteria.

## Microbes in the soil

In the soil, organic matter such as leaves, dead insects and plant roots, are decomposed by microorganisms and turned into nutrients which plants use to grow.

A teaspoon of healthy soil can contain up to **1 billion microbes**.

Plants are eaten by insects, birds and animals, and become part of the human food chain. It is important for farmers to look after our soils, a healthy soil full of microorganisms can grow healthy food and store carbon from the atmosphere to help reduce climate change.



**“A nation that destroys its soil, destroys itself”**

- USA President Franklin Roosevelt, 1937

## Microbes in humans

The human microbiome refers to all the microbes that reside on our skin and inside our bodies, with the highest population living in our gut. We need to look after our microbiome as if it were a group of tiny ‘pets’ that we carry around with us.



## Eating for a healthy microbiome

For our good gut bacteria to thrive, we need to eat a variety of fruit, vegetables, pulses and wholegrains, which contain different kinds of protein, carbohydrate and fibre.



**Probiotics** are live microorganisms that can be beneficial to your microbiome and occur naturally in certain foods including fermented foods like live yoghurts, kimchi and some cheeses.



**Prebiotics** are compounds that can feed our gut growth and activity. They occur naturally in certain foods including garlic, onions, apples, oats, bananas and peas.



Too much salt, sugar and fat encourages **harmful bacteria** to grow.

If we have a bacterial infection and take antibiotics to kill the bad bacteria, our good bacteria can be killed as well. After a course of antibiotics we should eat a healthy diet to build up the number of good bacteria in our microbiome.

## The link between soil health and human health

There is increasing scientific knowledge about the importance of microbes in the soil, and in the plants and animals which humans eat.

The use of chemical fertilisers, pesticides, herbicides or fungicides to protect crops against harmful microbes can kill good microbes in soils and plants, reducing the health of the ecosystem as a whole. Many farmers in the UK are trying to reduce the amount of chemicals they use to help create more healthy ecosystems, both inside and outside our bodies.



**What factors affect your gut microbiome?**



### Activity Sheet One

# Design a microbe-boosting lunch

My lunch is...

My gut bacteria will love it because...



### Activity Sheet One

# Name and Shame Fad Diets

My examples are...  
(include images if you wish)

- 1.
- 2.
- 3.

My gut bacteria will not like these diets  
because...

## Still curious? Here's some further resources



### British Nutrition Foundation (BNF)

BNF aim to generate and communicate clear, accurate, accessible information on nutrition, diet and lifestyle, which is impartial and relevant to the needs of diverse audiences

### [exploringnature.org](https://www.exploringnature.org)

This website provides resources on a whole range of science topics, including nutrition and it has a selection of worksheets, activities and investigations to explore.

### World Microbiome Day

World Microbiome Day website provides fun facts about the microbiome generally, ongoing microbiome research and a selection of microbiome themed activities



## Conscious Consumers Topics

Now that you have completed the Personalised Nutrition topic, why not try one of the other Conscious Consumers topics?



**Animal Welfare**



**Plant-based Diets**



**Food Miles**



**Rewilding**



**Personalised Nutrition**



**Climate Change**