

# Incredible Ingredients

## Unit Overview

Age 7–8

### Objectives

- To find out about what is in different foods
- To investigate how much sugar there is in fizzy drinks
- To recognise the similarities and differences in the food people eat around the world.

### The Big Questions

- What is in the food we eat?
- How much sugar is there in some of the drinks I like?
- How can different ingredients in our food affect our health?



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### Unit Summary

Learners will explore the nutritional content of food and how humans obtain nutrition from the food they eat. The practical experiment will look at the amount of sugar in different fizzy drinks and what affect this have on whether a can floats or sinks. Learners will explore food choices from different parts of the world.

### Background Information

With processed foods making up 70% of the US diet, the western world is experiencing unprecedented levels of cancer, heart disease and diabetes. Many learners are unaware of which foods are processed and which are not, and what the pros and cons of different ingredients can be. This unit really makes learners begin to question what is in the food we eat and why it is there. By finding out what is in familiar foods, the aim of the activity is for children to begin to think carefully about food in relation to their health.

### Curriculum Links

England Year 3

Animals, including humans

Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.

Working scientifically

Asking relevant questions and using different types of scientific enquiries to answer them.

Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.



Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.

## Wales: Interdependence of organisms

Pupils should use and develop their skills, knowledge and understanding by investigating how animals and plants are independent yet rely on each other for survival.

They should be given opportunities to study the need for a variety of foods and exercise for human good health.

## Northern Ireland KS2 WAU:

Pupils should be enabled to explore:

### Strand 1: Interdependence

How they and others interact in the world.

How living things rely on each other within the natural world.

### Strand 3: Place

How place influences the nature of life.

Ways in which people, plants and animals depend on the features and materials in places and how they adapt to their environment.

### Strand 4: Change over time

How change is a feature of the human and natural world and may have consequences for our lives and the world around us.

## Scotland: Curriculum for Excellence

**First:** Body systems and cells: By researching, I can describe the position and function of the skeleton and major organs of the human body and discuss what I need to do to keep them healthy.

**Second:** Topical science: I can report and comment on current scientific news items to develop my knowledge and understanding of topical science.

## Wider curriculum

**Geography:** Locate the world's countries, using maps to focus on Europe (including the location of Russia) and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities.

**Cooking and nutrition:** Understand and apply the principles of a healthy and varied diet; understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

## Cross-curricular opportunities

**History:** Children could compare the diets of today to those of other peoples in history (e.g. Stone Age man).

**Geography:** Learners will locate different places in atlases and world maps to find out where different people live.



For extra drama opportunities, consider preparing and performing the Theatre of Debate Play-in-a-Day, The Day of Temptations and The Lament of the Green Bean.



# What's It Made Of?

## Lesson Notes 1

### What's It All About?

In this introductory lesson, children will explore the nutritional content of food and begin to understand how humans obtain nutrition from the food they eat.

### Learning Outcomes

- I know how to find out about what is in different foods.

### Working Scientifically

- Asking relevant questions and using different types of scientific enquiries to answer them.
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.

### Big Question

- What is in the food we eat?

### Key Words:

nutrition, protein, carbohydrates, fats, vitamins, minerals



#### Equipment



##### From The Crunch Kit:

Resource Sheet 1: Nutrient Match (Teaching Notes, p52)



##### From The Crunch Website:

Incredible Ingredients PowerPoint (Lesson 1)

##### Other Things You Will Need:

A selection of nutritional content labels from a variety of food packaging (some healthy, some unhealthy)

### Preparation

Cut out (and laminate for durability if required) the matching cards from Resource Sheet 1.

## Appetiser

Display the grid on the Incredible Ingredients PowerPoint. Explain to children that you are going to use this grid to capture what they already know about the food they eat, what they want to know and what they will learn in the lesson.



Ask children to talk in pairs or small groups about the following questions:

Why do we eat? What happens when we don't eat? How do you feel when you haven't eaten for a while? Where does our food come from?

Have children share their responses and note down common themes in the K section of the grid (what they know already). Questions where children do not have ready responses or are unsure can go in the W section (what they want to know).

Circle back to the Why do we eat? question. Talk with children about the fact that we eat for many reasons (cultural, social, etc.), but that today the focus will be on the link between food and health and how humans get nutrition from the food we eat. All food and drink provides us with nutrients but different foods provide different amounts of nutrients.

## Main Course

Organise children into groups and give each group a set of cut out cards from Resource Sheet 1. Use these cards to talk about different nutrients, the food that provides them and how they help our bodies. Children match the food to the nutrient and to the function.

Show children the collection of food packaging. Choose one healthy item and one unhealthy item to look at more closely. (If possible consider selecting two items that seem very similar but where one is a significantly healthier choice than the other.) Draw children's attention to the nutritional information label. Have they seen labels like these on the food their family buys? Ask children to think, pair and share what they think these labels tell us and then to use the information on the labels to work out which item is healthier and why.

Ask the children if they see labels like this on vegetables or fruit. Talk with children about what they understand by the term 'processed food' and establish that a processed food is any food that has been changed in some way from its natural state. Things that are processed may have added salt, sugar or fat.

*List the different categories on the board and discuss each one.*

- Energy
- Fat
- Carbohydrate
- (of which) Sugars
- Fibre
- Protein
- Salt



Draw their attention to the portion or serving information. Through discussion help children to realise that nutrition labels can help you choose between products and keep a check on the amount of foods you're eating that are high in fat, salt and added sugars.

## Dessert

Recap the main points from the lesson with the children:

- All foods provide nutrients.
- Energy is provided by the nutrients carbohydrate, fat and protein. Other nutrients include vitamins and minerals.
- The amount of energy and nutrients provided by food depends on its size, known as a portion.
- Different nutrients have different functions in the body to keep us healthy.

## An Extra Helping

Consider preparing and performing the Theatre of Debate Play-in-a-Day, The Day of Temptations. We are surrounded by unhealthy food and not always encouraged to be very active. What choices can we make to try and be healthy all day?



# Sugar Search

## Lesson Notes 2

### What's It All About?

Much of the food that children in the UK eat is processed, having been altered in some way from its natural state, and one common substance to be added is sugar. It's sometimes hard to really comprehend the amount of sugar that can be added to items. In this lesson, children will conduct an experiment to investigate how much sugar there is in a can of fizzy drink. They will look at the packaging for information and then carry out a practical investigation by comparing what happens to a drink can when placed in water.

### Learning Outcomes

- I can investigate how much sugar there is in fizzy drinks.
- I can read and interpret a nutritional facts label to determine sugar content in drinks

### Working Scientifically

- Asking relevant questions and using different types of scientific enquiries to answer them.
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables.

### Big Question

- How much sugar is there in some of the drinks I like?

### Key Words:

sugar, floating, sinking, dense



#### Equipment



##### From The Crunch Kit:

Resource Sheet 2: Record Keeping Sheet (Teaching Notes, p53)



##### From The Crunch Website:

Incredible Ingredients PowerPoint (Lesson 1)

##### Other Things You Will Need:

A selection of cans of fizzy drinks, some with a high sugar content, and some of the diet variety

Large container, preferably transparent

Access to water



## Preparation

The point of the experiment is to show that there is a difference between cans of high sugar drink and cans of diet drink. This can be demonstrated in one of two ways:

- 1 You can put both cans in a container of water. The high sugar drink should sink as it has a higher density, the diet drink should float. This often works, but be aware that you will need to select the cans carefully, and test first. Some full-sugar drinks will float because they have a lot of gas inside. Try to avoid shaking the drinks and keep them cool. It is advisable to test a few to find the best examples.
- 2 Alternatively, you can weigh the cans. The high sugar can should have a greater mass than the diet can because the sugar makes the drink more dense. This is often a more reliable test.

## Appetiser

Ask the children to look at the grid on the PowerPoint that you started in the previous lesson. Ask: Do we need to add anything to any section?



Recap the points from the previous lesson around the nutrients that food provides and the recommended daily amounts for different things, including fat, sugar and salt. Talk about sugar in particular. Ask children why we like to eat sugar, how does it taste? How can sugar help your body, but what happens if we consume too much? Discuss what foods might contain a lot of sugar. Why do we like those sorts of foods? Reiterate that though they seem healthy, some fruits, fruit juices and cordials are also high in sugar.

## Main Course

Ask the children how we can tell if there is sugar in a drink, when we can't see it. Conduct a small group practical activity to investigate the ingredients in cans of fizzy drink.

Hold up two cans of cola or another fizzy soft drink, for example ginger beer or an energy drink or sports drink. Make sure one of the cans is a diet version of the drink. Ask children what they think will happen if they put the cans into a bowl of water and to give reasons why. Ask them to think about how they could test their hypothesis. Can children think of any other ways of comparing the cans. What would they find if they weighed the cans, will all cans have the same mass? The high sugar can should have a greater mass than the diet can because the liquid inside is more dense. Work with them to build a test plan, incorporating their predictions before starting the investigation. Resource Sheet 2 can be used to help to record the results.

In turn, place the cans in the water, recording whether they sink or float. After testing each can, encourage children to note the amount of sugar in each can. Pass around the cans of fizzy drink, and ask children to look at the nutritional labels. Ask children to think, pair share the differences between different drinks. Establish that by reading the labels, you can see that there is a difference in the amount of sugar in a high sugar can and a diet variety.

Is there a link between the amount of sugar and whether the cans sink or float?

## Dessert

Discuss the children's results. Talk to them about what they found out and what surprised them. Encourage them to give reasons for the results they obtained and to give proof. Establish that although the cans have exactly the same volume, or size, their density differs because of what's in the fizzy drink itself. Some fizzy drinks, such as ginger beer, can have more than 40g of sugar in them, whereas low- or non-sugar varieties have artificial sweeteners which leads to the difference in density. The regular fizzy drink can is denser than water, so it sinks, the non-sugar variety less dense than water, so floats.

## An Extra Helping

Ask children if they can think of a way to make the regular can of fizzy drink float. By adding sugar to the water in which you are putting the can, the density of the water is now higher than the can, so it floats.



# Different Diets

## Lesson Notes 3

### What's It All About?

Children will look at diets from different parts of the world and compare the nutritional content of these.

### Learning Outcomes

- I recognise the similarities and differences in the food people eat around the world.

### Working Scientifically

- Asking relevant questions and using different types of scientific enquiries to answer them.
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions.

### Big Question

- How can different ingredients in our food affect our health?

### Key Words:

food, diet, ingredient, season, nutrition, healthy



#### Equipment



##### From The Crunch Kit:

Mega Map



##### From The Crunch Website:

Incredible Ingredients PowerPoint (Lesson 3)

## Appetiser

Ask: What is your favourite food or meal? Can you think of a food that is thought of as being traditionally 'British'? Talk with children about the fact that food from other countries may be different to food that is traditionally from the UK.

Display the pictures of different food on the Incredible Ingredients PowerPoint and discuss where each dish traditionally comes from.

You could consider discussing the fact that for religious reasons, some people avoid certain meats, or choose a vegetarian diet.



## Main Course

Around the world food is prepared and cooked in lots of different ways. Why is this? Encourage children to think about the seasonality of food and the availability of different ingredients in different countries.

Explain to children that their challenge today will be to investigate the diets of different nationalities and to compare the nutritional make up of these diets. Is one healthier than another?

On the Incredible Ingredients PowerPoint, display six meals and the countries they are associated with, and ask children to find each country on the Mega Map. Organise children into groups and allocate each group two of the meals pictured. Ask children to research these meals, breaking them down into the different ingredients that make up the meals. They investigate the nutritional content and compare the two meals.

Alternatively you can ask children to compare the diet of today with that of, say, 50 years ago.

Ask groups to share their findings with other groups. Talk about the special diets that some people may have, e.g. athletes or astronauts.



## Dessert

Review the grid that you started at the start of Lesson 1. Together as a class fill in the L section (what children have learned in the lesson). Check to make sure that all the questions in the W section were answered. If not, challenge children to find out the answers.

## An Extra Helping

Consider preparing and performing the Theatre of Debate Play-in-a-Day, The Lament of the Green Bean. Explore the effects of food consumption. Where does our food come from, why should we be careful not to waste it, and how can we make sensible and healthy choices?





# Resource Sheet 1

Name \_\_\_\_\_

Date \_\_\_\_\_

## Incredible Ingredients – Lesson 1

### Nutrient Match

Cut out the cards and match each food to the nutrient and its function.

Potatoes	Chicken
Butter	Red meat
Milk	Wholemeal bread
Carbohydrates	Protein
Fats	Iron
Calcium	Fibre
Main source of energy for the body	Needed for growth and repair
Necessary but needed only in small amounts	Keeps blood healthy
Helps build strong bones and teeth	Needed to keep the gut healthy



# Resource Sheet 2

Name

Date

## Incredible Ingredients – Lesson 2

### Record Keeping Sheet

Use this sheet to write up your method and results.

**What I think**

**What I did**

**What I found out**