

AMAZING BODIES

INTRODUCTION

In this module children will build on their knowledge of the human body developed in Key Stage 1. They will revisit the importance of eating the right amounts of different types of food, but will extend this knowledge to understand that the food we eat provides us with the nutrition that our bodies require to remain healthy. They will learn about the range of nutrients that humans need to consume in the correct amounts and the role that these nutrients play in keeping our bodies healthy. They will also learn that humans and some other animals have skeletons and muscles for support, protection and movement.

When working scientifically children will ask and answer their own questions about the human body and diet through classifying, pattern-seeking investigations and by carrying out research using secondary sources. They will have opportunities to gather data and record and present these in a range of ways.

Key vocabulary:

stay alive, survive, food, balanced diet, nutrition, nutrients, fruit and vegetables, carbohydrates, protein, roughage, fibre, sugar, fat, dairy, skeleton, bones, protect, support, move, muscles, joints, ribs, heart, skull, brain, backbone, spine, spinal column, vertebrate, footprint, trail, vitamins, minerals, question, classify, investigation, survey, measure, pattern, evidence, draw conclusions

FACT FILE:

Nutrition

Humans, like other animals, cannot make their own food. They gain the **nutrition** they need from the **food** they eat. It is important to eat the right type of food in the correct proportions in order to stay healthy.

Different types of food give us different **nutrients**. Most foods contain more than one nutrient and some are much better sources of a particular nutrient than others. For example, meat is a major source of **protein** and **fat**; fruit and vegetables are a source of **vitamins**, **minerals**, some **carbohydrate** and **roughage**. Bread is a source of carbohydrate but it also contains protein and some roughage (especially brown bread).

Carbohydrates give energy to the body which is used for movement and keeping warm. If we do not have enough carbohydrates in our diet we may feel tired. These should make up a third of our diet.

Proteins are essential for healthy growth and repairing our muscles. Without sufficient protein our bodies may not be able to develop strong muscles or repair damaged tissue. These should make up 15% of our diet.

Fats are used to provide energy and to keep us warm, but they are easily stored under the skin and around our internal organs, which can cause obesity and heart disease.

Roughage (or fibre) keeps our digestive system healthy.

Vitamins and minerals keep our body healthy. Vitamin C, for example, is used to keep our gums, skins and joints healthy. The mineral calcium is important in keeping our bones strong.

Water is essential for the body to be hydrated.

The amount of food that a person needs to eat (the nutrition required) depends on a number of factors: age, gender and level of activity. There are recommend daily guidelines known as GDAs (Guideline Daily Amounts). The table below is published by the Food and Drink Federation http://www.gdlabel.org.uk/gda/gda_values.aspx

Guideline Daily Amount Values			
Typical values	Women	Men	Children (5–10 years)
Calories	2,000 kcal	2,500 kcal	1,800 kcal
Protein	45 g	55 g	24 g
Carbohydrate	230 g	300 g	220 g
Sugars	90 g	120 g	85 g
Fat	70 g	95 g	70 g
Saturates	20 g	30 g	20 g
Fibre	24 g	24 g	15 g
Salt	6 g	6 g	4 g

People taking significant amounts of exercise will need to eat more carbohydrates to give them increased energy. People in extreme weather conditions such as the Arctic will need to take in more fats to keep their bodies warm.

Skeleton and muscles

Humans and some other animals have an internal **skeleton** made of **bone**. These animals all have a **backbone** (also known as the **spine**) made up of bones called **vertebrae**. These animals are therefore called **vertebrates**. Mammals, fish, birds and reptiles are all vertebrates.

Insects have an external skeleton (a hard outer covering) which is known as an **exoskeleton**.

The skeleton has three functions. It provides support (maintains the animal's shape), helps with movement and offers protection.

The human skeleton (and that of most other vertebrates) contains a **skull** to protect the brain, **ribs** to protect the heart and lungs, and the **spine** to protect the spinal cord.

The bones in the skeleton are joined at **joints**. There are different types of joints which allow different degrees of movement. These include **fixed joints** (the bones of the skull allow very little or no movement), sliding joints (between the vertebrae), **hinge joints** (in the elbow and knee) and the **ball and socket joint** (the hip).

Common misconceptions:

- Fats and sugary foods are bad for us. In fact, they are not bad for us, we just need to eat them in moderation.
- Only vertebrates have a skeleton. Insects also have a skeleton but it is external, known as an exoskeleton. Shells are not skeletons.

All vertebrates have an internal skeleton made of bones. In fact some vertebrates (the cartilaginous fish which include sharks and rays) have a skeleton made of cartilage to give their bodies some rigidity but great flexibility.

Big Cat book links

Olympic Heroes Jillian Powell 978-0-00-746190-5 Band 5 Green	Find out which athletes have overcome racial inequality, illness and disabilities to earn their medals.
Marathon John Foster 978-0-00-718689-1 Band 6 Orange	Find out all about one of the toughest and popular running events.
Captain Scott: Journey to the South Pole Adrian Bradbury 978-0-00-746199-8 Band 8 Purple	One hundred years ago, the explorer Captain Scott wanted to be the first person to reach the South Pole.
Escape from the Island Michael Butt 978-0-00-733616-6 Band 9 Gold	As five friends paddle around the bay in their dinghy, none of them see a storm coming until it is too late.
Where on Earth? Scoular Anderson 978-0-00-7186334 Band 11 Lime	Learn about many of the great explorers, and some lesser known ones.
True Life Survival Janice Vale 978-0-00-7230780-5 Band 12 Copper	Three people who faced unimaginable danger and survived.
Brown bread and Honey Mark Carthew 978-0-00-722877-5 Band 12 Copper	Playscript. The King loved his food! But he was getting slower and fatter.
The Olympic Games John Foster 978-0-00-723120-1 Band 13 Topaz	When did the Olympics begin? What's it like to compete?
Extreme Sports Adrian Bradbury 978-0-00-733632-6 Band 14 Ruby	Find out about the dangers people face in extreme sports.
My Olympic Story Kwame N. Acheampong 978-0-00-733636-4 Band 15 Emerald	Follow Kwame's amazing life.