Humans

Science Capital:

Work in the fields of medicine and research

National Curriculum Objectives:

Foundation 1	Foundation 2	Year 1 and 2	Year 3 and 4	Year 5 and 6
		Year 1: • identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. **Year 2:** • notice that humans have offspring which grow into adult • describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.	**Year 3:** • identify that humans need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat • identify that humans have skeletons and muscles for support, protection and movement. **Year 4:** • describe the simple functions of the basic parts of the digestive system in humans • identify the different types of teeth in humans and their simple functions	**Year 5** • describe the changes as humans develop to old age. **Year 6** • identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood • recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function • describe the ways in which nutrients and water are transported within animals, including humans

	**Year 1** SB1.4 know, name, draw and label basic parts of the human body which can be seen SB1.5 know the five senses and which part of the body is associated with each one	**Key scientist** **Coming soon…**

Prior Learning	**Future learning**
• Use all their senses in hands-on exploration of natural materials. (Nursery - Humans) • Name and describe people who are familiar to them. (Reception - Humans)	• Identify that humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. (Y3 – Grouping animals by feature) • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 – Grouping animals by feature) • Describe the life process of reproduction in some plants and animals. (Y5 - Grouping animals by feature) • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - Humans)

Linked texts

Coming soon…

What pupils need to know or do to be secure

Show understanding of a concept using scientific vocabulary correctly

Key Learning

Humans have key parts in common, but these vary from person to person. Humans (and other animals) find out about the world using their senses.

Humans have five senses – sight, touch, taste, hearing and smelling. These senses are linked to particular parts of the body.

Possible Evidence to support teacher assessment

- Can play and lead 'Simon says'
- During PE lessons, can follow instructions involving parts of the body
- Can label parts of the body on pictures and diagrams
- Can explore objects using different senses

Key Vocabulary

parts of the body including those within the school's RSE policy, senses, touch, see, smell, taste, hear, fingers, skin, eyes, nose, ear, tongue

Common misconceptions

Some children may think:

- humans are not animals

Apply knowledge in familiar related contexts

Line of Enquiry – Comparative test

- Make first-hand close observations of parts of the body e.g. hands, eyes.
- Compare two people.
- Take measurements of parts of their body.
- Compare parts of their own body.
- Look for patterns between people e.g. Do people with big hands have big feet?
- Classify people according to their features.
- Investigate human senses e.g. Which part of my body is good for feeling, which is not? Which food/flavours can I identify by taste? Which smells can I match?

Equipment

Possible Evidence to support teacher assessment

- Can use first-hand close observations to make detailed drawings
- Can name body parts correctly when talking about measurements and comparisons e.g. "My arm is x straws long." "My arm is x straws long and my leg is y straws long. My leg is longer than my arm." "We both have hands, but his are bigger than mine." "These people have brown eyes and these have blue."
- Can talk about their findings from investigations using appropriate vocabulary e.g. "My fingers are much better at feeling than my toes" "We found that the crisps all taste the same."

Coming soon…	

	**Year 2** SB2.5 know that humans grow into adults SB2.7 know why exercise, a balanced diet and good hygiene are important for humans	**Key scientist** **Coming soon…**

Prior Learning	**Future learning**
• Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 – Grouping animals by feature) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Humans)	• Identify that humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. (Y3 – Grouping animals by feature) • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 – Grouping animals by feature) • Describe the life process of reproduction in some plants and animals. (Y5 - Grouping animals by feature) • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - Humans)
Linked texts **Coming soon…**	

What pupils need to know or do to be secure

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Key Learning

Humans have offspring which grow into adults. In humans and some animals, these offspring will be young, such as babies or kittens, that grow into adults.

Humans have the basic needs of feeding, drinking and breathing that must be satisfied in order to survive.

To grow into healthy adults, they also need the right amounts and types of food and exercise.

Good hygiene is also important in preventing infections and illnesses.

Possible Evidence to support teacher assessment

- Can describe how humans have offspring which grow into adults, using the appropriate names for the stages
- Can state the basic needs of humans, for survival
- Can state the importance for humans of exercise, eating the right amounts of different types of food, and hygiene
- Can name foods in each section of the Eatwell Guide

Key Vocabulary

offspring, reproduction, growth, baby, toddler, child, teenager, adult, old person, survive, survival, water food, air, exercise, heartbeat, breathing, hygiene, germs, disease, food types (e.g. meat, fish, vegetables, bread, rice, pasta, dairy)

Common misconceptions

Some children may think:

- respiration is breathing
- breathing is respiration.

Apply knowledge in familiar related contexts

Line of Enquiry - Classification

- Explore the effect of exercise on their bodies.
- Classify food in a range of ways, including using the Eatwell Guide.
- Investigate washing hands, using glitter gel.

Equipment

Coming soon…

Possible Evidence to support teacher assessment

- Can describe, including using diagrams, the life cycle of humans and their growth to adults e.g. by creating a life cycle book for a younger child
- Can measure/observe how humans grow.
- Explain how development and health might be affected by differing conditions and needs being met/not met

	**Year 3 - nutrition** SB3.1 know that humans need the right types and amount of nutrition and that they cannot make their own food; they get nutrition from what they eat	**Key scientist** **Coming soon…**

Prior Learning	**Future learning**
• Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Humans) • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Humans)	• Describe the simple functions of the basic parts of the digestive system in humans. (Y4 - Humans) • Identify the different types of teeth in humans and their simple functions. (Y4 - Humans) • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - Humans)

Linked texts

Coming soon…

What pupils need to know or do to be secure

Show understanding of a concept using scientific vocabulary correctly

Key Learning	**Possible Evidence to support teacher assessment**
Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need.	• Can name the nutrients found in food

<table>
<tr><td>Food contains a range of different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre that are needed by the body to stay healthy.

A piece of food will often provide a range of nutrients.</td><td>• Can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients</td></tr>
<tr><td>Key Vocabulary

Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water,</td><td>Common misconceptions
Some children may think:

• certain whole food groups like fats are ‘bad’ for you
• certain specific foods, like cheese are also ‘bad’ for you
• diet and fruit drinks are ‘good’ for you</td></tr>
<tr><td colspan="2">Apply knowledge in familiar related contexts</td></tr>
<tr><td>Line of Enquiry – Classification

• Classify food in a range of ways.
• Use food labels to explore the nutritional content of a range of food items.
• Use secondary sources to find out the types of food that contain the different nutrients.
• Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks?
• Plan a daily diet to contain a good balance of nutrients.
• Explore the nutrients contained in fast food.</td><td rowspan="2">Possible Evidence to support teacher assessment

• Can classify food into those that are high or low in particular nutrients
• Can answer their questions about nutrients in food, based on their gathered evidence
• Can talk about the nutrient content of their daily plan</td></tr>
<tr><td>Equipment
Coming soon…</td></tr>
</table>

	**Year 3 – skeletons and muscles** SB3.2 know that humans have skeletons and muscles for support, protection and movement	**Key scientist** **Coming soon…**

Prior Learning	**Future learning**
• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 – Grouping animals by feature)	• Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - Humans)
Linked texts **Coming soon…**	
What pupils need to know or do to be secure	
Show understanding of a concept using scientific vocabulary correctly	
Key Learning Humans, and some other animals, have skeletons and muscles which help them move and provide protection and support	**Possible Evidence to support teacher assessment** • Can name some bones that make up their skeleton, giving examples that support, help them move or provide protection • Can describe how muscles and joints help them to move
Key Vocabulary	**Common misconceptions**

skeleton, bones, muscles, joints, support, protect, move, skull, ribs, spine	Some children may think: • invertebrates have no form of skeleton.
Apply knowledge in familiar related contexts	
Line of Enquiry – fair test • Use secondary sources to research the parts and functions of the skeleton. • Investigate patterns asking questions such as: Can people with longer legs run faster? ▪ Can people with bigger hands catch a ball better? • Compare, contrast and classify skeletons of different animals.	**Possible Evidence to support teacher assessment** Use their data to look for patterns (or lack of them) when answering their enquiry question • Can give similarities e.g. they all have joints to help the animal move, and differences between skeletons
Equipment **Coming soon…**	

	**Year 4 – Teeth and Digestion** SB4.4 know the simple functions of the basic parts of the digestive system in humans SB4.5 know the different types of teeth in humans and their simple functions	**Key scientist** **Coming soon…**

Prior Learning	**Future learning**
Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 – Grouping animals by feature) • Find out about and describe the basic needs of animals, including humans, for survival (Grouping animals by feature) • Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - 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. (Y3 – Grouping animals by feature and Humans)	• Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. (Y6 - humans) • Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - humans) • Describe the ways in which nutrients and water are transported within animals, including humans. (Y6 - humans)

Linked texts

Coming soon…

What pupils need to know or do to be secure

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Key Learning

Food enters the body through the mouth. Digestion starts when the teeth start to break the food down. Saliva is added and the tongue rolls the food into a ball. The food is swallowed and passes down the oesophagus to the stomach. Here the food is broken down further by being churned around and other chemicals are added.
The food passes into the small intestine. Here nutrients are removed from the food and leave the digestive system to be used elsewhere in the body. The rest of the food then passes into the large intestine. Here the water is removed for use elsewhere in the body. What is left is then stored in the rectum until it leaves the body through the anus when you go to the toilet.
Humans have four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing).

Possible Evidence to support teacher assessment

- Can sequence the main parts of the digestive system
- Can draw the main parts of the digestive system onto a human outline
- Can describe what happens in each part of the digestive system
- Can point to the three different types of teeth in their mouth and talk about their shape and what they are used for

Key Vocabulary

Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars

Common misconceptions

- your stomach is where your belly button is
- food is digested only in the stomach
- when you have a meal, your food goes down one tube and your drink down another
- the food you eat becomes “poo” and the drink becomes “wee”.

Apply knowledge in familiar related contexts

Line of Enquiry – Research using secondary sources

- Research the function of the parts of the digestive system.
- Create a model of the digestive system using household objects.
- Explore eating different types of food to identify which teeth are being used for cutting, tearing and grinding (chewing).

Possible Evidence to support teacher assessment

- Can use diagrams or a model to describe the journey of food through the body explaining what happens in each part
- Can record the teeth in their mouth (make a dental record)
- Can explain the role of the different types of teeth

Equipment **Coming soon…**	

	**Year 5** SB5.3 know the changes as humans develop to old age	**Key scientist** **Coming soon…**

Prior Learning	**Future learning**
• Notice that animals, including humans, have offspring which grow into adults. (Y2 - Humans)	• Reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, menstrual cycle (without details of hormones), gametes, fertilisation, gestation and birth, to include the effect of maternal lifestyle on the foetus through the placenta. (KS3)

Linked texts

Coming soon…

What pupils need to know or do to be secure

Show understanding of a concept using scientific vocabulary correctly

Key Learning	**Possible Evidence to support teacher assessment**
When babies are young, they grow rapidly. They are very dependent on their parents. As they develop, they learn many skills. At puberty, a	• Can explain the changes that takes place in boys and girls during puberty

<table>
<tr><td>child's body changes and develops primary and secondary sexual characteristics. This enables the adult to reproduce.

This needs to be taught alongside the statutory PSHE requirements.</td><td>• Can explain how a baby changes physically as it grows, and also what it is able to do</td></tr>
<tr><td>Key Vocabulary
Puberty – the vocabulary to describe sexual characteristics</td><td>Common misconceptions
Some children may think:
• a baby grows in a mother's tummy
• a baby is "made".</td></tr>
<tr><td colspan="2">Apply knowledge in familiar related contexts</td></tr>
<tr><td>This unit is likely to be taught through direct instruction due to its sensitive nature, although children can carry out a research enquiry by asking an expert e.g. school nurse to provide answers to questions that have been filtered by the teacher.</td><td rowspan="2">Possible Evidence to support teacher assessment
• Can present information about the changes occurring during puberty as an information leaflet for other Y5 children or answers to 'problem page questions'</td></tr>
<tr><td>Equipment
Coming soon…</td></tr>
</table>

	**Year 6** SB6.3 know and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood SB6.4 know the impact of diet, exercise, drugs and lifestyle on the way their bodies function SB6.5 know the ways in which nutrients and water are transported in animals, including humans	**Key scientist** **Coming soon…**

Prior Learning	**Future learning**
• Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 – Grouping animals by their features) • 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. (Y3 - Grouping animals by their features) • Describe the simple functions of the basic parts of the digestive system in humans. (Y4 - Humans) • Identify the different types of teeth in humans and their simple functions. (Y4 - Humans)	• The consequences of imbalances in the diet, including obesity, starvation and deficiency diseases. (KS3) • The effects of recreational drugs (including substance misuse) on behaviour, health and life processes. (KS3) • The structure and functions of the gas exchange system in humans including adaptations to function. (KS3) • The mechanism of breathing to move air in and out of the lungs. (KS3) • The impact of exercise, asthma and smoking on the human gas exchange system. (KS3)

Linked texts

Coming soon…

What pupils need to know or do to be secure	
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Key Learning The heart pumps blood in the blood vessels around to the lungs. Oxygen goes into the blood and carbon dioxide is removed. The blood goes back to the heart and is then pumped around the body. Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed. As they are used, they produce carbon dioxide and other waste products. Carbon dioxide is carried by the blood back to the heart and then the cycle starts again as it is transported back to the lungs to be removed from the body. This is the human circulatory system. Diet, exercise, drugs and lifestyle have an impact on the way our bodies function. They can affect how well out heart and lungs work, how likely we are to suffer from conditions such as diabetes, how clearly we think, and generally how fit and well we feel. Some conditions are caused by deficiencies in our diet e.g. lack of vitamins. This content is also included in PSHE. The new statutory requirements for relationships and health education can be found below: statutory guidance on Physical health and mental wellbeing (primary and secondary)	**Possible Evidence to support teacher assessment** Can draw a diagram of the circulatory system and label the parts and annotate it to show what the parts do • Produces a piece of writing that demonstrates the key knowledge e.g. explanation text, job description of the heart
Key Vocabulary Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle	**Common misconceptions** Some children may think: • your heart is on the left side of your chest • the heart makes blood • the blood travels in one loop from the heart to the lungs and around the body • when we exercise, our heart beats faster to work the muscles more • some blood in our bodies is blue and some blood is red

	• we just eat food for energy • all fat is bad for you • all dairy is good for you • protein is good for you, so you can eat as much as you want • foods only contain fat if you can see it • all drugs are bad for you.
Apply knowledge in familiar related contexts	
Line of Enquiry – fair tests • Create a role play model for the circulatory system. • Carry out a range of pulse rate investigations: ▪ fair test – effect of different activities on my pulse rate ▪ pattern seeking – exploring which groups of people may have higher or lower resting pulse rates ▪ observation over time - how long does it take my pulse rate to return to my resting pulse rate (recovery rate) ▪ pattern seeking – exploring recovery rate for different groups of people. • Research the negative effects of drugs (e.g. tobacco) and the benefits of a healthy diet and regular exercise by asking an expert or using carefully selected secondary sources.	**Possible Evidence to support teacher assessment** • Use the role play model to explain the main parts of the circulatory system and their role • Can use subject knowledge about the heart whilst writing conclusions for investigations • Can explain both the positive and negative effects of diet, exercise, drugs and lifestyle on the body • Present information e.g. in a health leaflet describing impact of drugs and lifestyle on the body
Equipment **Coming soon…**	