

# ANIMALS INCLUDING HUMANS

## Prior knowledge

Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans)

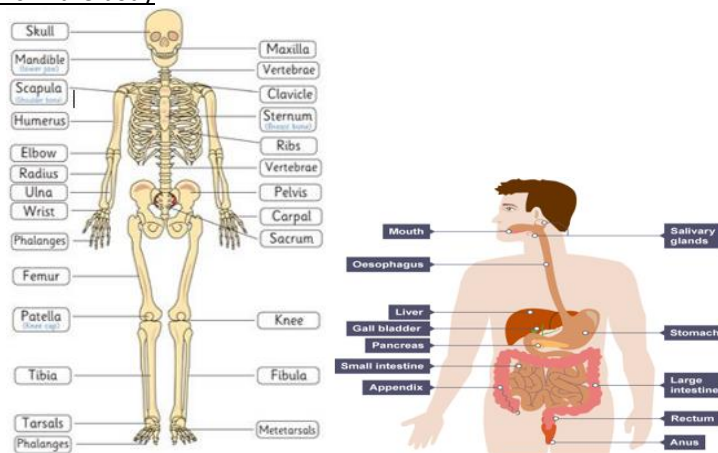
Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. (Y3 - Animals, including humans)

Describe the simple functions of the basic parts of the digestive system in humans. (Y4 - Animals, including humans)

Identify the different types of teeth in humans and their simple functions. (Y4 - Animals, including humans)

## Key Knowledge

### Bones in the skeleton and organs in the body



### Circulatory system

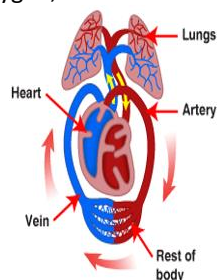
The main parts of the human circulatory system – heart, blood vessels and blood.

The role of the heart is to pump the blood through the blood vessels so that food and oxygen can get to all the parts of the body. The role of the blood vessels is to carry the blood around the body.

There are three main types of blood vessels:

- Arteries – carry the blood away from the heart
- Capillaries – enable the actual exchange of energy between the blood and the tissues
- Veins – carry blood from the capillaries back toward the heart

The role of the blood is to move/transfer food, oxygen, nutrients and water around the body.



### Healthy lifestyle

Humans need to be healthy by:

- Having a balanced diet of the right amount of different types of food and drink
- Exercising regularly
- Being hygienic

Knowing what a balanced diet is



Health risks that can damage the body include smoking, drugs, alcohol and obesity.

Understand the importance of exercise as it keeps our heart, mind and body healthy. Look at different forms of exercise and those that increase the heart rate most.

These dangers include:

Smoking – addictive and can cause heart disease/cancer.

Drugs – addictive and can damage the brain/cause death.

Alcohol – can damage liver, heart and stomach.

Obesity – can cause heart disease/lead to cancer.

### Key Vocabulary

Prior vocabulary

carnivore, herbivore, omnivore, invertebrate, vertebrate, amphibian, reptiles, mammals, fish, bird, insects, growth, offspring, skeleton, organ, offspring, growth, pupa, baby, toddler, child, teenager, adult, fluids, habitat, reproduction, nutrients, consumption, survival, temperature, hygiene, exercise, nutrition, muscles, support, protection, movement, identify, balanced, diet, healthy, contract, relax, energy, vitamin, cartilage, loosen, ribcage, skull, carbohydrates, proteins, fats, fibre, dairy, digestion, intestines, excrete, stomach, teeth, incisors, canines, pre-molars, molars, tooth decay, producer, consumer, predator, prey, foetus, infancy, adolescence, life expectancy, puberty, periods, testicles, sperm, genitals, hormones, ovaries  
 Working scientifically vocabulary – prediction, measurement, enquiry, dependent variable, independent variable, fair test, similar, theory, hypothesis, line graph, relationship, outlier

Arteries	Muscular-walled tubes that transport blood from the heart to other parts of the body
Blood	Red liquid that circulates in arteries and veins, carrying oxygen to and carbon dioxide from tissues of the body
Blood vessel	A tubular structure carrying blood through the tissues and organs
Bones	Hard whitish tissue making up the skeleton in humans and other vertebrates
Circulatory system	The system that circulates blood through the body, including the heart, blood vessels and blood
Heart	A hollow muscular organ that pumps the blood through the circulatory system
Lungs	Pair of organs situated within the ribcage where oxygen can pass into the blood and carbon dioxide be removed
Muscles	A band or bundle of fibrous tissues that have the ability to contract, producing movement in or maintaining positions of parts of the body
Veins	Tubes forming part of the blood circulation system of the body, carrying mainly oxygen-depleted blood towards the heart

Additional vocabulary to discuss across the unit – artery, aorta, atrium, capillary, pulse, ventricle, resting heart rate, cranium, mandible, sternum, vertebrae, femur, tibia, fibula, patella, humerus, obesity

### Key skills

Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary  
 Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.  
 Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.  
 Using test results to make predictions to set up further comparative and fair tests.

Reporting and presenting findings from enquiries, including conclusions, and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations  
Identifying scientific evidence that has been used to support or refute ideas or arguments.

### **Future Learning**

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)

### **Deepening and broadening the knowledge and understanding for GDS learners:**

- knows some of the additional vocabulary: veins, arteries, capillaries, chambers, valves, aorta, oxygenated/deoxygenated blood, oxygen and carbon dioxide
- begins to explain the function of some of the above
- begins to understand the structure of the heart, *e.g. valves to stop blood flowing the wrong way*
- draws and labels a diagram of the circulatory system
- knows about calories and how the amount of calories different people need varies, *e.g. according to age, gender, lifestyle*
- explains how different forms of exercise develop different aspects of fitness, *e.g. muscular strength, aerobic, cardio-vascular fitness, flexibility*
- begins to understand the dangers of recreational drugs
- describes the impact of drugs on the body in more detail, *e.g. how alcohol affects the liver, how tar (smoking) affects the lungs*
- knows that nutrients are absorbed when food passes through the small intestine

### **Key Outcomes**

#### **1. What is the human circulatory system?**

*Children will research, identify and label in a scientific diagram, the main parts of the circulatory system and explain the functions of the heart, lungs, blood vessels and blood within it and why the system is important.*

#### **2. What are the functions and parts of the heart?**

*Children will explore the functions and parts of the heart in animals as well as humans and describe how it keeps us alive.*

#### **3. What are the functions of blood and blood vessels?**

*Children will understand the journey of blood and how it transports nutrients and water around the body and present findings (e.g. through role play, presentation, story) using accurate scientific vocabulary.*

#### **4. How have scientific ideas about a healthy diet changed?**

*Children to look at the work of scientists and scientific research and choose how to record their data. (e.g. James Lind's discovery that led to eradicating scurvy and modern scientific research on nutrition and lifestyle).*

#### **5: How can drugs help and harm?**

*Children will understand the different uses of drugs and the difference between when and how they are used for improving health or harming it as part of a lifestyle and record ideas and explanations in tables and conclusions about the impact on the human body e.g. in a health leaflet describing impact of drugs and lifestyle on the body.*

#### **6. How does exercise affect the heart rate?**

*Children plan a fair test, controlling variables, making predictions, measuring heart-rate and detailing their method for investigating the heart-rate changes that are due to varying exercise. Children to present their findings in a table/line graph. explain conclusions – does evidence from other sources support this?*