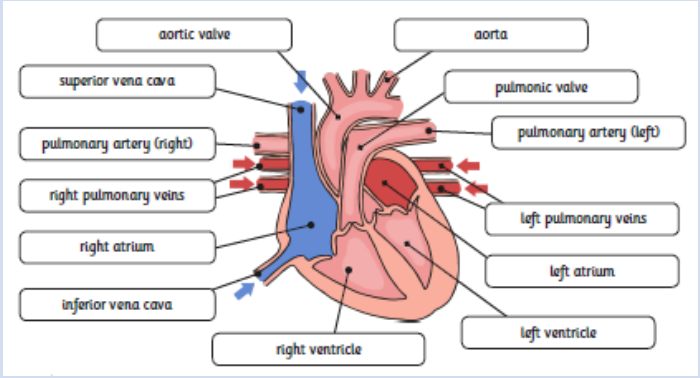
Animals Including Humans| Science | Years 5 & 6 | Spring & Summer Terms 2025-26

National Curriculum Science - Knowledge

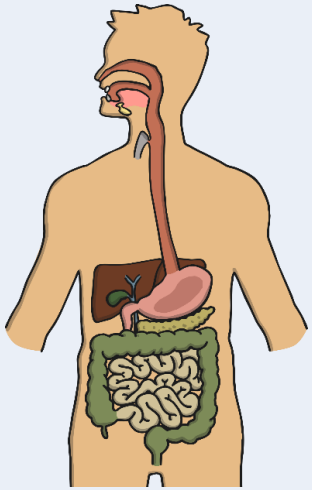
- Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood.
- Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.
- Describe the ways in which nutrients and water are transported within animals, including humans.

Key Learning

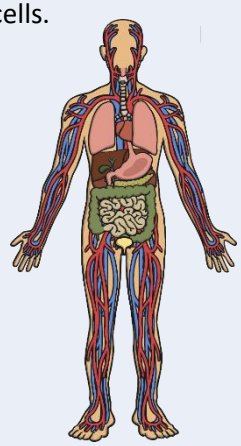
The heart pumps blood in the blood vessels around to the lungs. Oxygen goes into the blood and carbon dioxide is removed. The blood goes back to the heart and is then pumped around the body.



Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed.



Nutrients and water are absorbed in the system in the stomach, small and large intestines. They enter the blood stream – which is circulated throughout the body – and are absorbed by the cells that need them and water is absorbed by all cells.



Vocabulary

Circulatory system: is made up of the heart, lungs and blood vessels. It carries oxygen and nutrients to cells, and removes waste products, like carbon dioxide.
Arteries: carry oxygenated blood away from the heart, except for the pulmonary and umbilical arteries, which carry deoxygenated blood.
Veins: carry de-oxygenated blood toward the heart except for the pulmonary and umbilical veins which carry oxygenated blood to the heart.
Capillaries: the smallest blood vessels in the body and it is here that the exchange between water, nutrients, oxygen and carbon dioxide takes place.
Diaphragm: a dome-shaped muscle that enables breathing as its contraction increases the volume of the thorax and so inflates the lungs.
Alveoli: tiny air sacs in the lungs where gas exchange takes place.
Function: the role or purpose of something.
Nutrients: a substance that provides nourishment essential for life and for growth.
Absorb: take in or soak up.
Transport: take or carry.
Heart rate: the speed at which the heart beats (found by measuring pulse).
Exercise: activity to improve health or fitness.
Drug: a substance which has an effect when it enters the body; medicine or otherwise.
Lifestyle: a way in which a person lives.

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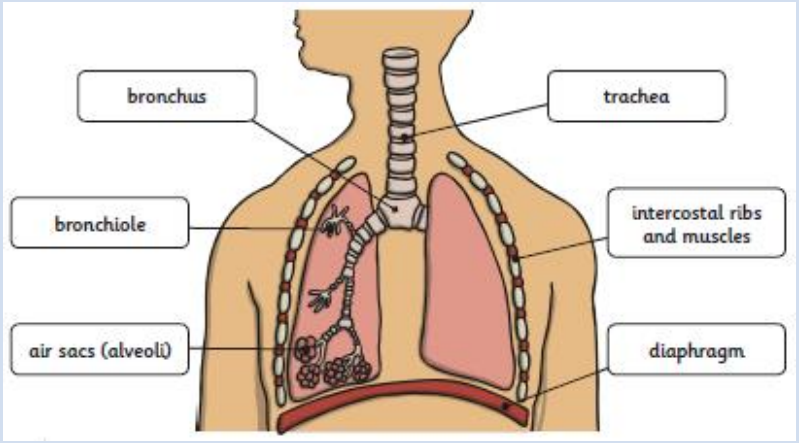
National Curriculum Science – working scientifically

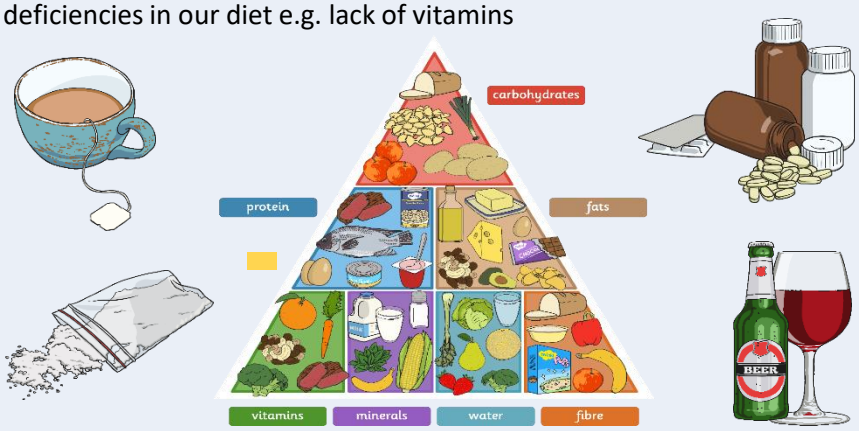
- Plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Take measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Use test results to make predictions to set up further comparative and fair tests.
- Report and present findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms such as displays and other presentations.
- Identify scientific evidence that has been used to support or refute ideas or arguments.

Key Learning continued…

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.



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



Scientific investigations

Does exercise affect heart rate?

- Plan scientific enquiry to answer this question, identifying and managing independent, dependent and control variables, and choosing appropriate type of investigation (e.g. practical enquiry, comparative test, or fair test).
- Record and present observations in format of choice including tabular and graphical formats.
- Conclude on findings, relating them to the impact on the circulatory system and exercise.
- Comment on reliability of results.
- Make recommendations based on results.

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Key Learning: Know how the circulatory system works and the impact of diet, exercise and drugs on our bodies.

1	**Which parts of the human body make up the circulatory system?** Retrieve knowledge of systems within the human body already covered in previous years (skeleton, digestion). Explore current ideas about the human circulatory system. Identify and name parts of this system – including of the heart and lungs – and discuss its purpose in carrying oxygen and nutrients to cells, and removing waste products, like carbon dioxide.
2	**What is the function of the heart?** Recap parts of the human circulatory system from pervious lesson. Take part in an active model to understand and describe the functions of the heart, blood vessels and blood. Recall learning to answer questions and explain the role that the lungs play in this process.
3	**How do the lungs work?** Conduct a practical activity to illustrate how the lungs work in conjunction with the diaphragm to inhale and expel air. Learn how oxygen and carbon dioxide are exchanged between the lungs and blood stream during the process of breathing in and out.
4	**How are water and nutrients transported around the body?** Retrieve knowledge of which nutrients are needed by the body and why from prior learning. Recap parts of the digestive system and its purpose. Learn how the digestive system breaks food down into nutrients and water which are absorbed in the system by the stomach, small intestine and large intestine, where they enter the blood stream and are circulated round the body to the cell that need them.
5 & 6	**Does exercise impact heart rate?** You can measure your heartbeat by measuring your pulse. Your pulse is also known as your heart rate. It is the number of times your heart beats in a minute. Practice finding and measuring pulse. Independently plan, conduct, record and conclude a scientific experiment to investigate the effect of exercise on heart rate and relate this to understanding of the circulatory system.

Note: Diet, exercise, drugs and impact on health and lifestyle covered by Life Education Bus Visits and PSHRE 'Healthy Me' lessons.