

Year	6	SCIENCE	Animals, including Humans <i>What would a journey through your body look like?</i>
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Pupils should be taught to:

- 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.

Prior Learning	Future Learning
<ul style="list-style-type: none"> • Describe the changes as humans develop to old age. (Y5) • Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird. (Y5 - Living things and their habitats) • Describe the life process of reproduction in some plants and animals. (Y5 - Living things and their habitats) 	<p>At KS3 pupils will learn:</p> <ul style="list-style-type: none"> • 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. • The consequences of imbalances in the diet, including obesity, starvation and deficiency diseases. • The effects of recreational drugs (including substance misuse) on behaviour, health and life processes. • The structure and functions of the gas exchange system in humans, including adaptations to function. • The mechanism of breathing to move air in and out of the lungs. • The impact of exercise, asthma and smoking on the human gas exchange system.

What Pupils Need To Know Or Do To Be Secure

Key Substantive Knowledge	Key Disciplinary Skills/ Knowledge
<ul style="list-style-type: none"> • 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 our 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. • SCIENTIST: Alexander Fleming (1881 – 1955) Fleming discovered the first antibiotic drug, penicillin. He shared the Nobel Prize for Medicine in 1945. Fleming’s research helped modern antibiotics, which have proved to be effective drugs for the treatment of many diseases, including pneumonia and meningitis. 	<p><u>Working Scientifically:</u></p> <p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables - Given a wide range of resources the children decide for themselves how to gather evidence to answer a scientific question. They choose a type of enquiry to carry out and justify their choice.</p> <p>Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate – children select measuring equipment to give the most precise results and make decisions e.g. whether they need to: take repeat readings (fair testing); increase the sample size (pattern seeking)etc.</p> <p>Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary – They carry out fair tests, recognising and controlling variables. They decide what observations or measurements to make over time and for how long. They look for patterns and relationships using a suitable sample.</p> <p>Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs – Children present the same data in different ways in order to help with answering the question.</p> <p>Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and degree of trust in results, in oral and written forms - In their conclusions, children: identify causal relationships and patterns in the natural world from their evidence; identify results that do not fit the overall pattern; and explain their findings using their subject knowledge.</p>

Lesson Sequence	Curriculum Drivers	Common Misconceptions
<ol style="list-style-type: none"> 1. What is the function of the heart and its role in the circulatory system? 2. Can you identify and compare blood vessels? 3. What is blood? 4. How does the body transport water and nutrients? 5. What affects your heart rate? 6. What is the impact of drugs and alcohol on the body? (Super Scientist) 7. What would a journey through your body look like? (Assessment) 	<p>Developing Oracy- Pupils will be given the opportunity to explore and use scientific vocabulary which is linked to their learning of the human circulatory system.</p> <p>Embracing Cultural Richness- Pupils will have a developed understanding of how diet, exercise, drugs and lifestyle can have an impact on the way our bodies function.</p> <p>Nurturing Social Intelligence- Children will have the opportunity to work independently and in collaboratively when following a line of enquiry. Children will be able to choose how they want to present their understanding of the human circulatory system.</p>	<p>Some children may think:</p> <ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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

Key Vocabulary			
arteries	bacteria	capillaries	deoxygenated
oxygenated	plasma	transpiration	veins