

<p>Year 6 – Animals including humans</p>	<p>Main Outcomes:</p> <ul style="list-style-type: none"> 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. <p>Please note that this unit of work should be taught in conjunction with E4S.</p>	<p>Focus: Science – biology</p>
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<p>What should I already know?</p> <ul style="list-style-type: none"> The importance of a nutritious, balanced diet. How nutrients, water and oxygen are transported within animals and humans. The names and functions of the organs of the digestive system.
<p>What I will do</p>
<p>I will have weekly or blocked science lessons. In lessons, I will be taught a skill and I will gain knowledge and understanding through the process of scientific enquiry (observing over time; pattern seeking; identifying, classifying and grouping; comparative and fair testing (controlled investigations); and researching using secondary sources).</p> <p><u>Possible lines of enquiry</u></p> <ul style="list-style-type: none"> Building on their learning from years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system), explore and answer questions that help them to understand how the circulatory system enables the body to function. Learn how to keep their bodies healthy and how their bodies might be damaged – including how some drugs and other substances can be harmful to the human body. Explore the work of scientists and scientific research about the relationship between diet, exercise, drugs, lifestyle and health.

Vocabulary	Meaning
addiction/ addictive	a very strong urge to do something that is hard to control or stop
alcohol	a chemical substance that is used in science and manufacturing
analgesic	a painkiller
arteries	the large blood vessels that carry blood away from the heart , around to every part of your body
blood	a constantly circulating red fluid that provides the body with nutrition , oxygen , and waste removal
blood vessels	a system of tubes that carry the blood throughout the body
capillaries	tiny passages that connect the arteries and the veins to the body's tissues
carbon dioxide (CO ₂)	a chemical compound that is usually in the form of a gas
circulatory (or cardiovascular) system	the system that transports substances around the body in the blood
depressant	a substance that slows down the activity of the central nervous system
diet	all of the foods and drink that we consume
diffusion	the movement of a substance from an area of high concentration to an area of lower concentration
disease	a condition that impairs the proper function of the body or of one of its parts
drugs	chemicals or substances that change the way our bodies work
hallucinogens	a group of drugs that distort a person's perceptions, thoughts, and feelings
heart	the organ, or body part, that pumps blood through the body
lifestyle	a way of living or doing things
lungs	bag-like organs used for breathing
medicine	drugs that are used to help someone get better if they're ill
nutrients/ nutrition	substances that a plant or animal needs to live and grow
osmosis	the movement of a solvent (such as water) from a high concentration to a lower concentration through a semi-permeable membrane
oxygen (O ₂)	the most abundant chemical element on Earth; it is essential to all the planet's life forms
stimulant	drugs that increase your heart rate, breathing rate, and brain function
veins	blood vessels that takes blood back to the heart

<p>Resources</p>
<p>Hamilton Science planning: animals including humans https://www.hamilton-trust.org.uk/science/year-6-science/art-being-human/ (all planning also saved on SharePoint).</p>

Knowledge and Skills Map – Science at Estcote School

Knowledge to understand																							
<p>The circulatory system is made up of three parts: the blood, the blood vessels, and the heart.</p>	<ul style="list-style-type: none"> ➤ The blood carries substances around the whole body: <ul style="list-style-type: none"> • oxygen - from the air (via the lungs) • nutrients - from food • water ➤ Our body parts use these substances for energy, and give waste products to the blood. ➤ The blood carries the waste to the lungs and kidneys to be removed. 																						
<p>Blood vessels are found all over the body, and the blood circulates (travels) through them.</p>	<p>There are three types of blood vessels:</p> <ul style="list-style-type: none"> • arteries - carry blood away from the heart • veins - carry blood back to the heart • capillaries - where substances move in and out of the blood 																						
<p>The heart is a double pump. It pumps blood through the blood vessels.</p>																							
<p>We get nutrients from the food we eat.</p>	<p>We need the right amount of each nutrient to stay healthy. We can do this by eating a balanced diet.</p> <table border="1"> <thead> <tr> <th>Nutrients</th> <th>Why they're needed</th> <th>Which foods have them</th> </tr> </thead> <tbody> <tr> <td>Carbohydrates (Starches)</td> <td rowspan="2">For energy.</td> <td>Bread, pasta, potatoes</td> </tr> <tr> <td>Carbohydrates (Sugars)</td> <td>Sweets, cakes, biscuits</td> </tr> <tr> <td>Fats</td> <td rowspan="2">For healthy cells.</td> <td>Meat, dairy, oils</td> </tr> <tr> <td>Vitamins and minerals</td> <td>Fruit, vegetables, dairy</td> </tr> <tr> <td>Proteins</td> <td>For growth and repair.</td> <td>Meat, fish, nuts, beans</td> </tr> <tr> <td>Water</td> <td>To live.</td> <td>Drinks (plus some foods)</td> </tr> <tr> <td>Fibre</td> <td>To help food move through the gut.</td> <td>Fruit, vegetables, wholegrain bread</td> </tr> </tbody> </table>	Nutrients	Why they're needed	Which foods have them	Carbohydrates (Starches)	For energy.	Bread, pasta, potatoes	Carbohydrates (Sugars)	Sweets, cakes, biscuits	Fats	For healthy cells.	Meat, dairy, oils	Vitamins and minerals	Fruit, vegetables, dairy	Proteins	For growth and repair.	Meat, fish, nuts, beans	Water	To live.	Drinks (plus some foods)	Fibre	To help food move through the gut.	Fruit, vegetables, wholegrain bread
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<p>Regular exercise is important for keeping the body healthy.</p>	<p>It strengthens your muscles, heart and lungs. It can prevent the body getting fat by using energy. It improves your coordination. It can help you to sleep at night.</p>																						

Knowledge to understand (continued)	
<p>Drugs are chemicals or substances that change the way our bodies work.</p>	<ul style="list-style-type: none"> ➤ Drugs can be legal or illegal. ➤ They can be dangerous if misused. ➤ Alcohol, cigarettes and solvents (such as glue) can be addictive, and cause a lot of damage to the brain and body: <ul style="list-style-type: none"> • alcohol - can raise blood pressure, slow your reactions, and damage the liver, heart and stomach • tobacco - can cause heart attacks, blocked arteries, cancer and breathing issues • solvents - can cause brain damage ➤ Medicinal drugs can have a positive impact on the body such as easing pain, stopping infections from spreading, and damping down allergies. They need to be taken in the correct dose.

Skills to learn	
<ul style="list-style-type: none"> ➤ 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, and line graphs ➤ reporting and presenting 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 ➤ identifying scientific evidence that has been used to support or refute ideas or arguments 	<p>Cross-curricular (maths)</p> <ul style="list-style-type: none"> ➤ statistics: interpret and present data using line graphs, bar charts, pictograms and tables <p>(computing)</p> <ul style="list-style-type: none"> ➤ select, use and combine a variety of software on a range of digital devices to design and create a range content that accomplishes given goals, including collecting, analysing, evaluating and presenting data and information (blogging) <p>(E4S)</p> <ul style="list-style-type: none"> ➤ take part in drugs education (both legal and illegal drugs, including alcohol) ➤ understand and manage risks and influences

Equipment to become familiar with
Pulse oximeters Stop watches

Evidence of Learning
Science books Photos Videos Pupil conferencing Teaching and learning observations Learning walks Data analysis

How will I know what I've learnt?
See KS2 teacher assessment exemplification for science https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/763065/2018_key_stage_2_teacher_assessment_exemplification_science.pdf
See also Hamilton Science_Assessment_Y6 (saved in planning folder on Sharepoint).
KS2 quizzes: https://gcequiz.com/quiz/ks2-science-quizzes https://churchfieldsjunior.com/test-your-skills-science/