Subject	Term	Unit
Science - Year 6	Summer	Animals including humans

Intent

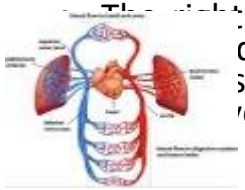
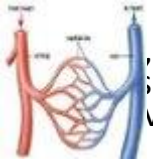
At Hurst Hill, we nurture young scientists by fostering curiosity and developing strong scientific knowledge and enquiry skills. Children learn to investigate, observe and evaluate confidently, understanding how science shapes the past, present and future while building firm foundations for lifelong scientific learning.

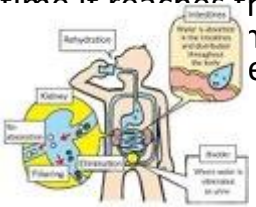
Prior knowledge	National Curriculum
• describe the simple functions of the basic parts of the digestive system in humans • identify the different types of teeth in humans and their simple functions • construct and interpret a variety of food chains, [illegible] producers, predators and prey [illegible] at animals, including humans, need the [illegible] and amount of nutrition, and that they [illegible] ake their own food; they get nutrition [illegible] t they eat [illegible] at humans and some other animals have skeletons and muscles for support, protection and movement	• 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

What?	To look at ways we can keep healthy. To understand how blood moves around our bodies and how nutrients are taken around our body.
Why?	This will help the children link what their bodies need to how their body uses it. It will be helpful for them as they begin to take more care of themselves as they grow up.
How?	Through measurements and observations of their own body. Through models to show how blood is moved around our body.

Vocabulary

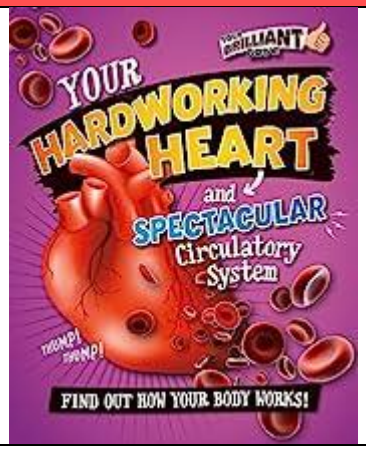
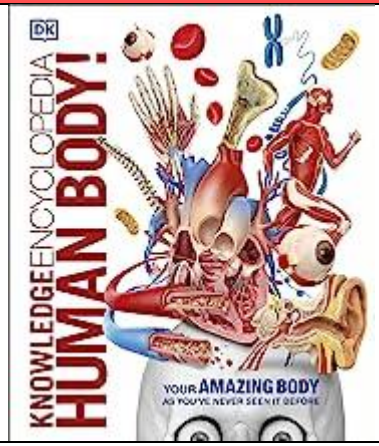
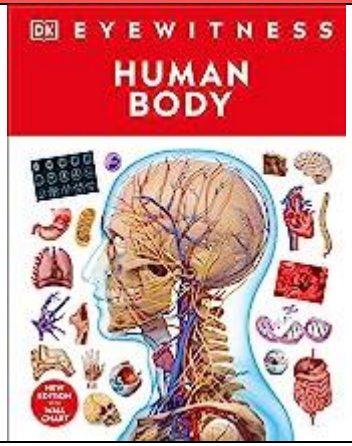
Aorta	The main **artery** through which blood leaves the **heart** before it flows through the rest of the body.
Arteries	Tubes in the body that carry **oxygenated** blood from the **heart** to the rest of the body.
Atrium	One of the chambers of the **heart**.
Blood vessels	The three types of narrow tubes through which blood flows: **arteries**, **veins** and **capillaries**.
Capillaries	Tiny **blood vessels** in the body.
Carbon dioxide	A gas produced by animals and humans breathing out.
Circulatory system	The system responsible for circulating blood through the body, supplying **nutrients** and **oxygen** whilst removing waste products such as **carbon dioxide**.
Deoxygenated	Blood that does not contain **oxygen**.
Heart	The **organ** in a human's chest that pumps blood around the body.
Lungs	Two **organs** inside the chest which fill with air during **respiration**. They **oxygenate** the blood and remove **carbon dioxide** from it.
Nutrients	Substances that help plants and animals to grow.
Organ	A part of the body that has a particular purpose.
Oxygen	A colourless gas that plants and animals need to survive.
Oxygenated	Blood that contains **oxygen**.
Pulse	The regular beating of blood through the body. The speed of someone's **pulse** depends on the activity they are doing.
Respiration	The process of respiring/breathing/inhaling and exhaling air. This process is also known as **ventilation**.

Objective	Learning
Can I name the organs of the body which make up the circulatory system and where they are found?	**Identifying and Classifying** The heart is composed of four chambers: the right atrium, the right ventricle, the left atrium and the left ventricle. How often your heart pumps is called your pulse. The direction in which blood travels through the circulatory system is as follows: • The right atrium collects the deoxygenated blood from the body, via the vena cava. It sends blood to the right ventricle. • The right ventricle pumps the deoxygenated blood to the lungs. Here the blood picks up oxygen and disposes of carbon dioxide. • The lungs send oxygenated blood back to the left atrium, which pumps it to the left ventricle. • The left ventricle pumps the blood to the rest of the body, via the aorta.  Model to the children where they are and get them to recreate and draw.
Can I explain the function of each blood vessel and how it is designed to do its job?	**Identifying and Classifying** There are three types of blood vessel within the human body. Arteries carry oxygenated blood from the heart to the rest of the body. Veins carry deoxygenated blood from the body to the heart. In the capillaries, oxygen and carbon dioxide are exchanged via the capillary walls. The closest blood vessels to the heart are the aorta, the main artery, and the vena cava, the main vein.  Draw each blood vessel and state it's function.
Can I describe the components and functions of the blood?	**Pattern Seeking** There are four main components of the blood, which all have specific roles within the body: • Red blood cells – these are disc shaped and transport oxygen around the human body; • White blood cells – these are a key part of the immune system and help protect the body against disease; • Platelets – these are tiny, oval shaped cells that help the blood to clot and repair cuts to the body; • Plasma – this is a yellowish fluid that carries nutrients and waste products, as well as the three components of the blood. 

Can I explain how water is absorbed into the body?	**Research** As food passes through the digestive system, it is gradually broken down more and more. By the time it reaches the intestines, it is largely liquid, and in the small intestine water is absorbed and the food dries out to become waste. Any excess water and waste in the  emoved in the kidneys and sent to the bladder as urine. How are these organs the specific job of the components of these organs, such as the nephrons in the
Can I explain the relationship between diet, exercise, drugs, lifestyle and our health?	**Research** Our health can be both improved and harmed by the choices we make in our day-to-day lifestyles. Diet, exercise and drugs can have benefits if we think about them appropriately and make decisions that will keep us healthy. However, making poor decisions or choosing not to think about them appropriately can lead to short-term and long-term health problems. Which types of food would help to create a balanced diet and how does the Eatwell Plate help us to understand this? Why are some drugs important for people to take if they want to enjoy good health? What would you expect to happen if you did little, or no, exercise? Do you think you could make unhealthy choices in some areas and still enjoy good health? Why?
Can I explain the affect drugs and exercise have on my organs?	**Identifying and Classifying** Some choices, such as smoking and drinking alcohol, can be harmful to our health. Tobacco can cause short-term effects such as shortness of breath, difficulty sleeping and loss of taste, and long-term effects such as lung disease, cancer and death. Alcohol can cause short-term effects such as addiction and loss of control, and long-term effects such as organ damage, cancer and death. Exercise can have many benefits for the whole body, including toning our muscles, reducing fat, increasing fitness, strengthening the heart, improving lung function, improving skin and making a person feel physically and mentally healthier. Watch videos and create warning posters.
Can I explain which type of exercise has the greatest effect on our heart rate?	**Comparative Testing** There are four different types of exercise: endurance/aerobic, strength to help build muscles, balance and flexibility/stretching. What investigation could be done to test all four of these fairly? What are the variables? How will you record the results? Based on your understanding of these exercise types and what you know about the human body, which type of exercise do you predict will have the greatest effect? Why?
Can I explain why the work of Professor Sir Richard Doll was so ground- breaking?	**Research** Professor Sir Richard Doll (1912-2005) https://www.youtube.com/watch?v=VBWGM630zG0 [Doll's work and reputation] https://www.youtube.com/watch?v=3CmLHeoN6u0 [Interview with Doll] British physician and researcher into the links between smoking and health.

	Find out about his work (not him) and explain how his findings are helping us.
Can I find out why ready meals and convenience foods causing obesity levels to rise?	**Ideas Over Time** Most convenience foods and ready meals have high salt and fat content – this is partly to preserve the food and help it to last longer, but also means that other nutrients and food types are less important and the number of calories (units of energy) in the meal is higher. When we eat and drink more calories than we use up, our bodies store the excess as body fat, which means we may put on extra weight over time. A healthy man needs approximately 2,500 calories a day, whilst a woman needs approximately 2,000 calories. Look at different packaging and find out the salt, fat, calory content. Which are the best to eat and which are the worst?

Websites
https://www.bbc.co.uk/bitesize/topics/zcyycdm https://www.stem.org.uk/resources/community/collection/13109/year-6-animals-including-humans

Recommended Reads		
		

Golden Thread
Animals including humans