

Year 6 – Animals, including humans - Knowledge Organiser

Pupils should be taught to:

- Identify and name the main parts of the 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

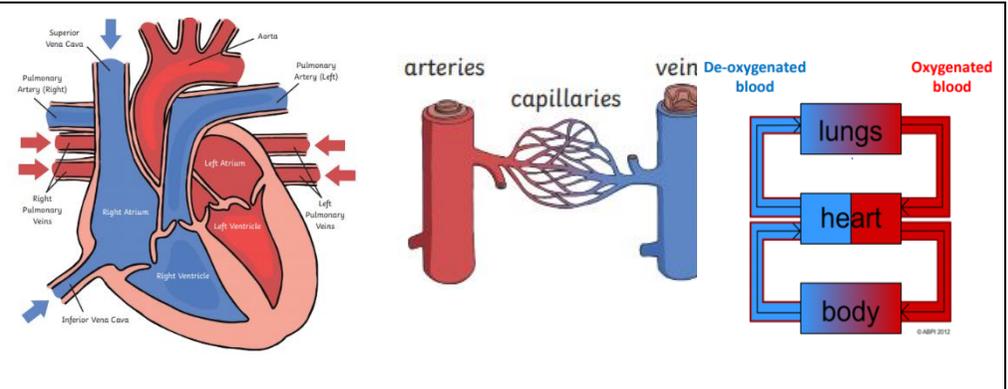
Vocabulary

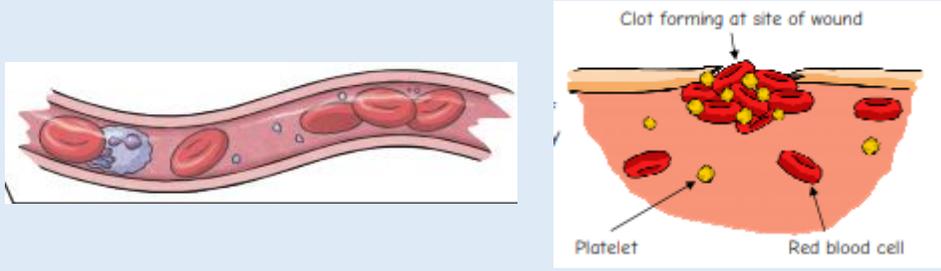
circulatory system the system including the heart, blood vessels and blood that transports substances around the body	organ a group of tissues that has a specific function (e.g. heart, lungs, stomach)	heart a muscular organ in the chest protected by the ribs that pumps blood around the body	blood vessels tubes that carry blood around the body	arteries blood vessels that carry blood away from the heart	veins blood vessels that carry blood into to the heart
capillaries the thinnest blood vessels where the exchange of water, nutrients, oxygen and carbon dioxide take place	blood transports oxygen and nutrients (including water) to organs and removes waste products (including carbon dioxide)	oxygenated blood blood that is rich in oxygen and is pumped by the heart to the rest of the body	deoxygenated blood blood that contains very little oxygen	pulse the rate that your heart pumps is called your pulse	ventricles the lower right and left chamber of the heart
atrium the upper right and left chambers of the heart	valve a one way 'trap-door' that allows blood to flow in one direction only	nutrients substances that help animals and plants to stay alive and healthy	vitamins substances necessary for healthy functioning of our bodies	alcohol liquid in drinks such as wine, beer and spirits. It is a drug that changes how you feel and behave	drugs substances that are not food and affects your body

Knowledge

Circulatory System

- The circulatory system is made up of: heart, blood vessels and blood.
 - The heart pumps blood through blood vessels
 - Arteries carry oxygenated blood from the heart to the rest of the body
 - Veins carry deoxygenated blood from the body to the heart
 - Nutrients, oxygen and carbon dioxide are exchanged via the capillaries
1. Deoxygenated blood flows into the heart from the body through veins
 2. This blood is pumped out to the lungs through the pulmonary artery
 3. Blood then collects oxygen in the lungs (becomes oxygenated)



<ol style="list-style-type: none"> 4. Blood returns to the heart through the pulmonary vein 5. The oxygenated blood is then pumped out of the heart through the aorta 6. The blood travels around the body delivering oxygen and nutrients to the organs 	
<p>Blood</p> <ul style="list-style-type: none"> • Transports: gases (oxygen and carbon dioxide), nutrients (including water), waste products • Blood components: <ul style="list-style-type: none"> - Plasma – the liquid part of blood, contains water and protein - Red Blood Cells – carry oxygen through your body - Platelets – help you to stop bleeding when you get hurt - White blood cells – fight infections when you are ill 	 <p>The diagram on the left shows a cross-section of a blood vessel containing red blood cells, white blood cells, and platelets. The diagram on the right shows a clot forming at a wound site, with labels for 'Platelet' and 'Red blood cell'.</p>
<p>Lifestyle</p> <ul style="list-style-type: none"> • Diet – a healthy diet involves eating the right types of nutrients in the right amounts • Exercise – regular exercise is important for a healthy lifestyle. It strengthens muscles (including the heart), improves circulation, increases oxygen around the body, releases chemicals which help you to feel happy and relaxed, improves sleep, strengthens bones • Drugs, smoking and alcohol – Have negative effects on the body, physically and mentally 	 <p>The infographic is the Eatwell Guide, a circular diagram divided into five colored segments representing different food groups: Vegetables and fruits (green), Starchy carbohydrates (yellow), Protein sources (red), Dairy, eggs and fish (blue), and Oils, nuts and seeds (purple). It includes various food items and text boxes providing dietary advice.</p>

Opportunities for depth:

Websites to use:

<https://www.bbc.co.uk/bitesize/topics/zwdr6yc> - circulatory system

<https://www.youtube.com/watch?v=-s5iCoCaofc> – circulatory system animation

https://www.youtube.com/watch?v=1_22fZdl_vA – circulatory system (song)

<https://www.blood.co.uk/why-give-blood/how-blood-is-used/blood-components/> – blood components (for children’s research)

<https://kidshealth.org/en/kids/blood.html#> - blood components (for children's research)

Working scientifically skills/Enquiry types:

Research using secondary sources – The function of the four components of blood

Research using secondary sources – Relationship between diet, exercise, drugs, lifestyle and health (link with PSHE)

Fair testing/Pattern seeking - How does the length of time we exercise for affect our heart rate? [*WS – making predictions with reason, planning an enquiry, observing and taking measurements, recording results, gathering data, presenting results, drawing conclusions, evaluating*]

Observation over time – How does my heart change before / during / after exercise? [*WS – asking scientific questions, making predictions with reason, observing and taking measurements, recording results, gathering data, evaluating*]