

Crossdale Unit Planning Overview: Science



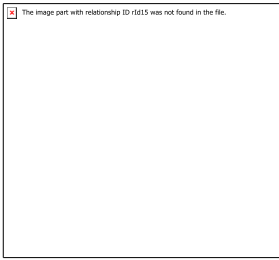
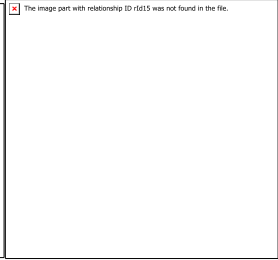
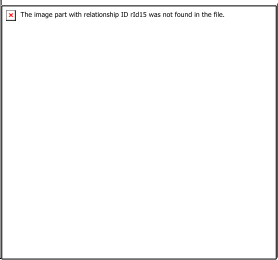
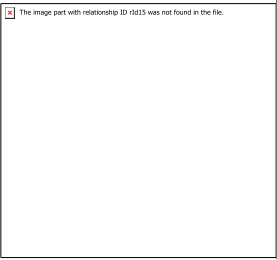
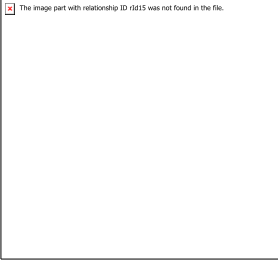
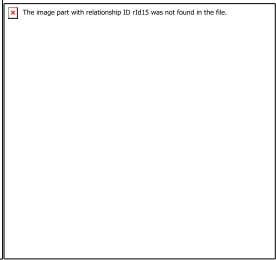
Big Idea: How does our heart keep us alive?

Prior Learning	The importance of exercise and nutrition to maintain a healthy body The structure of the digestive system Heartbeat and exercise.			Misconceptions	Adaptation occurs during an animal's lifetime: giraffes' necks stretch during their lifetime to reach higher leaves and animals living in cold environments grow thick fur during their life.	
Enquiry question	Retrieval activity	Teacher Input (direct teaching)	Activities (modelling and scaffolding)	Key Vocabulary	Pupil Activity /Evidence in books	K2L and Working Scientifically focus
What is blood?	Name the organs on the diagram of the human body	Explain today that we will be learning about the composition of blood. Introduce the main four components: plasma, red blood cell, white blood cell, platelets. Q: how did scientists learn about the role and structure of each component? Discuss the function and appearance of each bit, sharing images of each from the electron microscope. Get the children to describe them to each other, looking at the image. Blood is just a red liquid.	Activity 1: review descriptions by playing 'guess who I am' with a partner. Then match the descriptions to the pictures. Hold up each component for the blood smoothy recipe. What does each ingredient represent? Explain that when we blend the ingredients together, this serves as a model for why the blood is	Platelet Plasma White blood cell Red blood cell Immune system	Verbal output: children discussing the structure and function of each blood component from the images of the electron microscope. Children to match pictures of each component to its name. Challenge: how many functions can you recall of each component?	Using scientific ideas and knowledge

			that colour and style. Make the blood smoothies and enjoy as a class.			
What is the structure of our hearts?	Match the role of each component of the blood to its picture and name	<p>Get chn to put the pieces of a heart jigsaw together in pairs. Show them other images of the heart and ask them to describe it. Look at the diagrams and point out that it is divided into four chambers and is an organ made of powerful muscles and blood vessels (arteries, veins and capillaries) to pump blood around the body to give it energy and oxygen. Ask chn to make a fist and hold it close to their chest in the correct position, just to the left of centre – that is the size of their heart. Watch the BHF video on how the heart works: https://www.bhf.org.uk/heart-health/how-your-heart-works/how-a-healthy-heart-works. What would happen to the body if it stopped working? Explain that chn are going to create their own anatomically-correct sculpture of a heart.</p> <p>The different parts of the heart make it a large organ.</p>	Put together the heart pieces and use this to create a jigsaw model of the heart.	Atrium, atria Ventricle Septum	Correctly labelled diagrams of the heart and accurate sculpture.	Reporting and presenting scientific knowledge
How is water and nutrients transported around the body?	Label the parts of the heart.	Set up the jelly worm and measure it. Place the gummy snake on to the water and leave it overnight to absorb the water. Leave for 24hrs and then	Children to carry out their investigations with the jelly worm / gummy	Dissolve Membrane	Investigations completed successfully.	Taking measurements Making predictions Explaining

		<p>measure the snake once more – how has it changed? Why? Use the term osmosis to describe the way in which water enters different cells in the body. Next, complete an investigation where an egg is exposed to dye. Which parts have changed colour? Why? Explore how diffusion is affected by how permeable a layer is.</p> <p>Nutrients and water enter into our body's cells because they are around them.</p>	snakes to explore the absorption of nutrients and water into the body's cells.			results using scientific knowledge
What is the circulatory system?	Tell a partner: how does water and nutrients enter our cells?	<p>Recap on the function of the heart: it pumps blood around the body which carries all of the things we need around the body. Explain that humans have a double circulatory system, which means that the heart pumps blood to the lungs and back to get rid of CO₂ and to pick up O₂ before pumping the oxygenated blood around the body. Look at the 3 pics of the types of blood vessel (artery, vein, capillary) and explain what their role is. Give chn a few minutes on the tablets to find out 2 interesting facts about each type of vessel to share. Watch the video about the circulatory system as a reminder of how the blood moves to all parts of the body dropping off O₂, nutrients and water, and removing waste for expulsion from the body (gases, water, etc.). Can chn remember</p>	Children are going to draw on all of their learning over the past 3 sessions to make their own video version of the circulatory system.	Artery, vein, capillary	Completed re-enactments of how the heart works, with the children acting out the different parts of the process.	Presenting scientific ideas and evidence.

		<p>the processes used to move nutrients and water across the capillary walls? (Diffusion/osmosis.) Watch the YouTube video and explain that chn are going to create their own drama (a bit like the double circulation one) that may use some of the ideas from this video but that also demonstrates the dropping off of oxygen, nutrients and water and the picking up of waste. Remind chn that a big healthy heart beats slower than a smaller or weaker heart.</p> <p>The vessles travelling around the body, to and from the heart, are all the same.</p>				
What do drugs and alcohol do to our body?		<p>RECAP on DART Autumn 1 (Also revisited in Jigsaw, Healthy Me Spring 2) Cover DART lesson on dangers of alcohol, smoking and drugs.</p>				

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