Beech Hill Primary School Knowledge Organiser

Topic:	Year group	Term
The circulatory system	6	Spring

Background knowledge

In year 3, the children studied the skeletal system and in year 4, the digestive system. This is the first opportunity the children have had to explore the circulatory system. Healthy lifestyle and eating have been looked at in year 2 and 3 and this will be extended in more detail here.

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 the cycle starts again as it is transported to the lungs to be removed from the body. This is the human circulatory system.

Common misconceptions

- 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.
- Some blood in our bodies is blue and some is red.

What should I already know?

Year 1

I can name the parts of the human body I can see.
I can link the correct part of the human body to each sense.

Year 2

I can explain the basic stages in a life cycle for animals including humans.
I can describe what animals and humans need to survive.

Year 3

I can name different parts of a human skeleton.

I can explain and describe the skeletal system a human.
I can explain the function of muscles.

Year 4
I can identify and name the main parts of the human digestive system.
I can describe the simple functions of the basic organs in the human digestive system.
I can identify and name the different types of teeth in humans.
I can describe the functions of different human teeth.

National Curriculum Objectives / Key Skills	The Journey
• Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. • Describe the ways in which nutrients and water are transported within animals, including humans. **Working scientifically** Explore ideas and raise different kinds of questions (non-statutory). Use relevant scientific language and illustrations to discuss, communicate and justify their scientific ideas (non-statutory). Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. **Scientific enquiry**	1. The circulatory system 2. Blood 3. The heart 4. Blood flow in the heart 5. Oxygenated and deoxygenated blood 6. Dissection of the heart

Outcomes
Working towards: I can identify and name the main parts of the human circulatory system and start to describe the function of the heart, blood vessels and blood. I know that blood transports oxygen, water and nutrients around the body. With support, I can investigate how pulse rate changes over the course of exercise using a pulse meter. I can record my results in a line graph describing what it shows. I can plan a fair test with support to investigate how different exercises affect pulse rate starting to recognise the variables involved. I can read, spell and pronounce scientific vocabulary. Expected: I can identify and name the main parts of the human circulatory system and describe the function of the heart, blood vessels and blood. I know that blood transports oxygen, water and nutrients around the body. I can investigate how pulse rate changes over the course of exercise, measuring accurately using a pulse meter. I can record my results clearly in a line graph explaining what it shows using my scientific knowledge. I can plan a fair test to investigate how different exercises affect pulse rate identifying the variables involved. I can identify if there is a need for repeated readings. I can read, spell and pronounce scientific vocabulary accurately. Exceeding; I can identify and name the main parts of the human circulatory system and describe the function of the heart, blood vessels and blood confidently. I know that blood transports oxygen, water and nutrients around the body explaining the process. I can investigate how pulse rate changes over the course of exercise, measuring accurately using a pulse meter. I can record my results clearly in a line graph explaining what it shows using my scientific knowledge confidently. I can plan a fair test to investigate how different exercises affect pulse rate identifying the variables involved and explaining how to make a test fair. I can state if there is a need for repeated readings. I can read, spell and pronounce scientific vocabulary accurately.

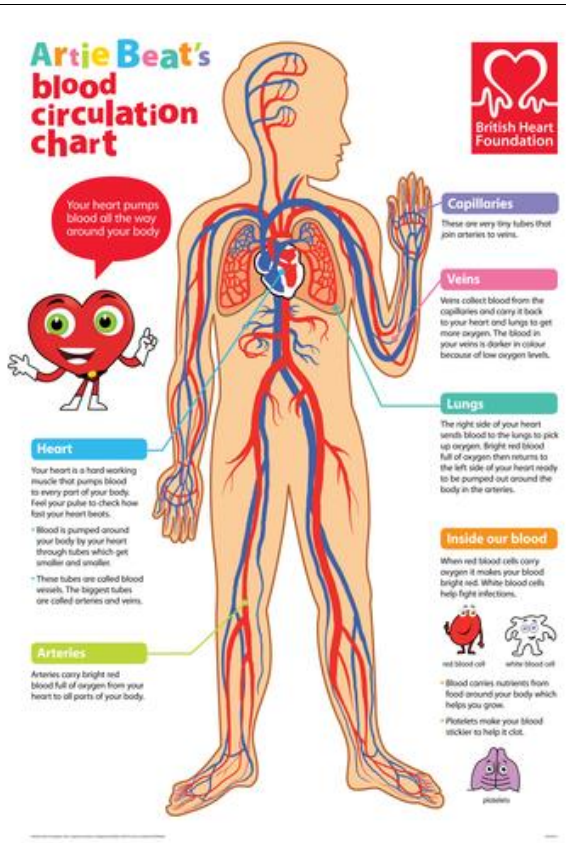
Key Vocabulary	Timeline / Diagrams

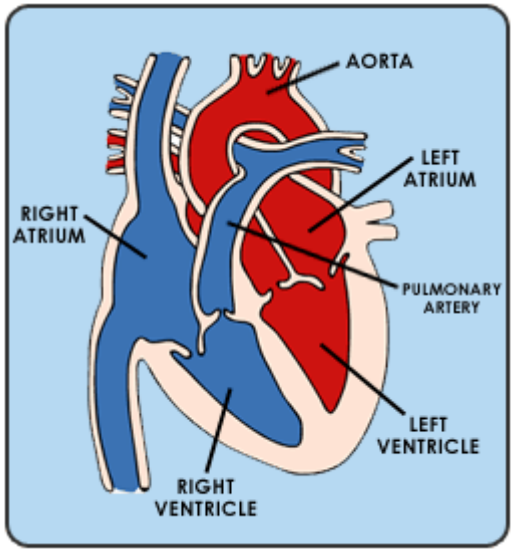
Arteries; blood vessels that carry blood away from the heart.

Blood; a red fluid that is pumped by the heart and supplies the body with nutrients and oxygen.

Blood vessel; the narrow tubes through which your blood flows including the arteries, veins and capillaries.

Red blood cells; part of the blood that carries oxygen and removes waste products.
White blood cells; part of the blood that fights viruses and bacteria.
Nutrients; substances that provide the important nourishment we need for our bodies to grow and repair themselves.
Plasma; part of the blood that carries nutrients.
Ventricles; the bottom two chambers in the heart.
Atria; the top two chambers in the heart.
Capillaries; microscopic blood vessels found in the muscles and lungs.
Carbon dioxide; a gas produced by animals, which is breathed out.
Circulatory system; the system by which blood travels round your body.
Deoxygenated; is depleted of oxygen.
Heart; the organ in your chest that pumps blood around your body.
Lungs; The two spongy organs inside your chest which fill with air when you breathe. They remove carbon dioxide from the blood and add oxygen
Oxygen; a colourless gas that exists in large quantities in the air. Animals need oxygen in order to live.
Oxygenated; contains oxygen.
Veins; blood vessels that carry blood to the heart.





Dissection; the act of carefully cutting part of a body or plant to study it further.	

Key people / places
STEM job; nurse, dietician

Assessment questions / outcomes
How does blood travel around your body? What is the function of the heart, blood vessels and blood? Explain in detail what the heart does. What is the function of the blood? How do you measure your pulse rate? What is your normal resting rate? What happens to your pulse rate as you exercise then rest? Name one exercise that increases your pulse rate rapidly and one which does so more slowly.