

Year 6: How does the circulatory system keep me alive?

Key Knowledge:

The circulatory system comprises of the heart, lungs and the blood vessels (arteries, veins & capillaries) through which blood flows.

The Heart:

Blood is pumped around the body by the heart.

An involuntary organ, the heart beats continuously around 120,000 a day. It is a muscle about the size of your fist and is located in the chest (slightly to the left) protected by the ribcage.

The heart has 4 chambers (right & left atrium and right & left ventricles). The chambers are separated by valves that ensure the blood circulates in the correct direction.

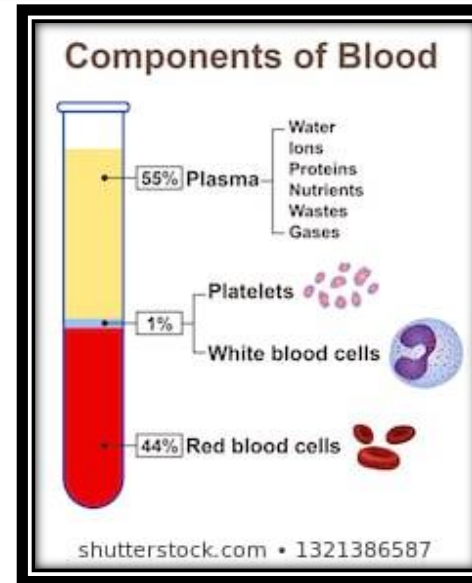
When we exercise, our body needs more oxygen (for energy) so our heart pumps faster to provide this.

Exercise and good nutrition are essential to avoid disease/ keep our heart healthy.

Blood:

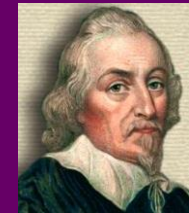
Blood delivers oxygen, nutrients, water, hormones & warmth to the cells of the body and carries away waste products such as carbon dioxide.

Blood is made up of red blood cells (transporting oxygen); white blood cells (that fight infection) and platelets (that prevent excess bleeding).

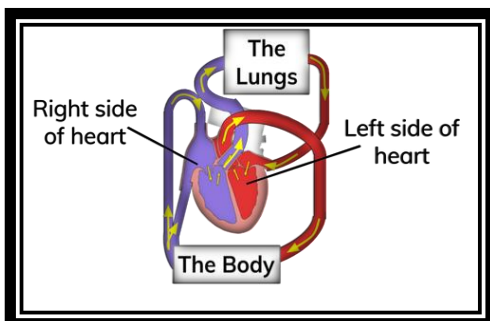


William Harvey (1578 - 1657)

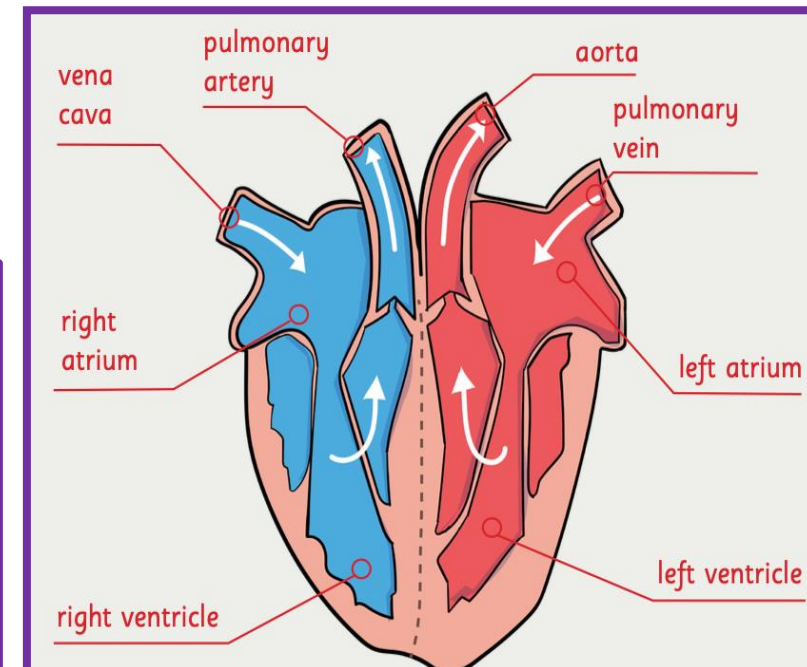
Famous for being the first scientist to accurately describe the blood's circulation in the body.



STRUCTURE OF THE HEART:






Oxygenated blood leaves the left-hand side of the heart and deposits oxygen at each of the cells, where it also picks up carbon dioxide. When it has no oxygen left, it returns to the right side of the heart, where it receives a push to the lungs to collect more oxygen. It then returns to the heart to receive yet another push around the body. The journey starts all over again.




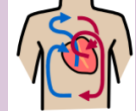




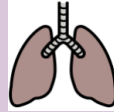

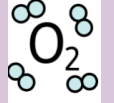

Healthy Diet & Lifestyle:

<p>Things that can harm the circulatory system:</p>	<p>*Smoking and drinking alcohol can be harmful to our health.</p> <p>*Tobacco can cause short term effects such as shortness of breath and loss of taste and long-term effects such as lung disease and cancer.</p> <p>*Alcohol can cause short term effects such as addiction and long-term effects such as organ damage.</p> <p>*A diet with excessive fat can 'block' the arteries.</p> <p>*A diet with excessive sugar can cause diabetes (with the risk of organ damage)</p>
<p>Things that can maintain a healthy circulatory system:</p>	<p>Eating a balanced diet with lots of fresh foods:</p> <p>Exercising to improve health by:</p> <ul style="list-style-type: none"> ➢ Removing fatty deposits from the body ➢ Toning muscles and reducing fat ➢ Increasing fitness (ability to do high intensity exercise for longer) <p>Only taking drugs/ medicines recommended by a doctor.</p>

Working Scientifically:

	<p>How does the length of time we exercise for/ type of exercise affect our heart rate?</p> <p>Which cereal bar is the healthiest 'snack' for maintaining a healthy heart?</p>
	<p>Which organs of the body make up the circulatory system?</p> <p>Where are these organs found?</p>
	<p>Research facts about the heart, blood and the circulatory system.</p>

Vocabulary

<p>Blood vessels:</p>		<p>Narrow tubes that your blood flows through.</p> <p>Veins: take de-oxygenated blood back to the heart.</p> <p>Arteries: take oxygenated blood around the body.</p> <p>Valves: control the direction the blood flows through the vessels.</p>
<p>Circulatory system:</p>		<p>The system responsible for circulating blood through the body that supplies nutrients and oxygen as well as getting rid of waste such as carbon dioxide.</p>
<p>Carbon dioxide:</p>		<p>A gas produced by animals and people during respiration.</p>
<p>Drug:</p>		<p>A natural or man-made substance that affects the body in good or bad ways.</p>
<p>Gaseous Exchange</p>		<p>The process in the lungs where the blood cells collect oxygen and drop-off carbon dioxide for disposal.</p>
<p>Heart:</p>		<p>Organ that pumps blood around your body.</p> <p>Atrium: chamber where blood enters the heart.</p> <p>Ventricle: chamber that send blood to the lungs or around the body.</p>
<p>Lungs:</p>		<p>Two organs in your chest that fill with air when you breath. The oxygenate blood and remove carbon dioxide.</p>
<p>Nutrients:</p>		<p>Substances that help animals and plants to grow.</p>
<p>Oxygen:</p>		<p>A colourless gas that plants and animals need to survive.</p>
<p>Oxygenated blood:</p>		<p>Blood that contains oxygen.</p>
<p>Pulse:</p>		<p>The regular beating of blood through your body. How fast or slow your pulse rate is depends on how active you are.</p>
<p>Respiration:</p>	<p>Glucose + Oxygen → Carbon dioxide + Water</p>	<p>When oxygen reacts with food eaten to produce energy (and the waste product, carbon dioxide).</p>