



Science – Animals Including Humans - The Circulatory System

What I should already know

- Which things are living and which are not.
- Classification of animals (e.g. amphibians, reptiles, birds, fish, mammals, invertebrates)
- Animals that are carnivores, herbivores and omnivores.
- Animals have offspring which grow into adults.
- The basic needs of animals for survival (water, food, air).
- The importance of exercise, hygiene and a balanced diet.
- Animals get nutrition from what they eat.
- Some animals have skeletons for support, protection and movement.
- The basic parts of the digestive system.
- The different types of teeth in humans.
- Respiration is one of the seven life processes.
- The life cycle of a human and how we change as we grow.

Sticky Knowledge about the circulatory system

- Your heart will beat about 115,000 times each day and pumps about 2,000 gallons (over 9000 litres) of blood every day.
- The entire trip around your body only takes blood about 20 seconds in total. Blood is what is used to transport oxygen, waste, nutrients, and more throughout the body.
- The circulatory system includes the heart, blood vessels and blood, and is vital for fighting diseases and maintaining proper temperature.
- Because your heart is crucial to your survival, it is important to keep it healthy with a well-balanced diet and exercise, and avoiding things that can damage it, like smoking.
- Your heart affects every part of your body. That also means that diet, lifestyle, and your emotional well-being can affect your heart.

Myths!

- We shouldn't eat any fat – wrong! We need to eat 'good' fats like those found in nuts, avocado and oily fish.
- Low fat food versions are always better – wrong! Manufacturers of such foods often compensate the impact on flavour by lowering the fat with additional sugar. Always check the ingredients!
- Fruit juice is good for us – right and wrong! The form that juice takes means that the fruit sugar has been released and can contribute towards tooth decay. It does contain vitamins though.
- Eating too much fat is the only dietary cause of heart disease – wrong! Scientists have suggested that sugar is also a huge contributing factor to heart disease.
- As long as I do lots of exercise it doesn't matter what I eat – wrong! A poor diet will never be compensated by exercise. You need to do both.
- If it is a prescription, it must be safe; you cannot get addicted to something your doctor prescribes – wrong! Although many medications are perfectly safe, prolonged use can be dangerous and even addictive.
- Legal drugs (cigarettes, alcohol etc.) are not harmful – wrong! They are harmful AND addictive!



Vocabulary

Arteries - Blood vessels that carry blood away from the heart.

Blood Vessels - The narrow tubes through which your blood flows includes the arteries, veins and capillaries.

Carbon Dioxide - A gas produced by animals and people breathing out.

Deoxygenated - To be depleted of oxygen.

Heart - The organ in your chest that pumps the blood around your body.

Lungs - The two spongy organs inside your chest which fill with air when you breathe in. They remove carbon dioxide from blood and add oxygen.

Oxygen - A colourless gas that exists in large quantities in the air. All plants and animals need oxygen in order to live.

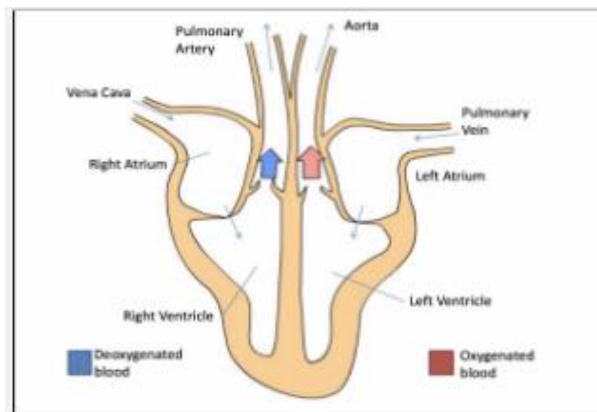
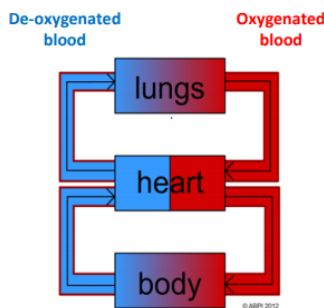
Oxygenated - To be enriched with oxygen.

Pulse - A pulse (or heartbeat) is a throbbing of blood vessels as blood goes through them. You can feel someone's pulse in their wrist, thumb or neck where vessels are closer to the skin.


Ribcage - The bony structure consisting of the ribs and their connective tissue that encloses and protects the lungs and heart.


Veins - Blood vessels that carry blood to the heart.

The Circulatory system
The system that circulates blood around the body.





Components of blood

Plasma 
Transports nutrients, hormones, and proteins. It is a yellow liquid that makes up about 55% of the body's blood volume.

Platelets 
Form clots to stop bleeding. Platelets make up less than 1% of blood.



Red blood cells 
Carry fresh oxygen through the body and remove carbon dioxide. Red blood cells make up about 40 to 45% of blood.

White blood cells 
Part of the body's immune system, detect and fight viruses and bacteria. There are five major types of white blood cells, and they make up less than 1% of blood.

Source: American Society of Hematology