

Science Knowledge Organiser

Southwold Primary School



Topic: Animals including humans

Year: 6

Strand: Biology

What should I already know?

- It is important to have a **healthy lifestyle** (eat healthy food, do enough exercise and have good hygiene).
- Food that we eat goes through our digestive system. Nutrients are taken from food and waste is excreted.
- Muscles can pull together by contraction of the muscle fibers.

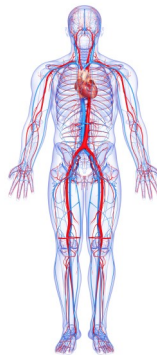
What will I know by the end of this unit?

- Know that our **heart** is a muscle and that its rhythmic constrictions help push **blood** through the body.
- Blood that comes from the **lungs** and towards organs is **oxygenated**, blood that flows towards the heart and the lungs is **deoxygenated**.
- Blood vessels that flow from the heart, are **arteries**.
- Blood vessels that flow to the heart, are **veins**.
- Taking **drugs**, smoking and having an unhealthy diet will have a negative impact on health.
- Link the digestive system and the circular system to understand how nutrient and fluids from food are taken up and transported in a body, and how waste is excreted.

Working Scientifically

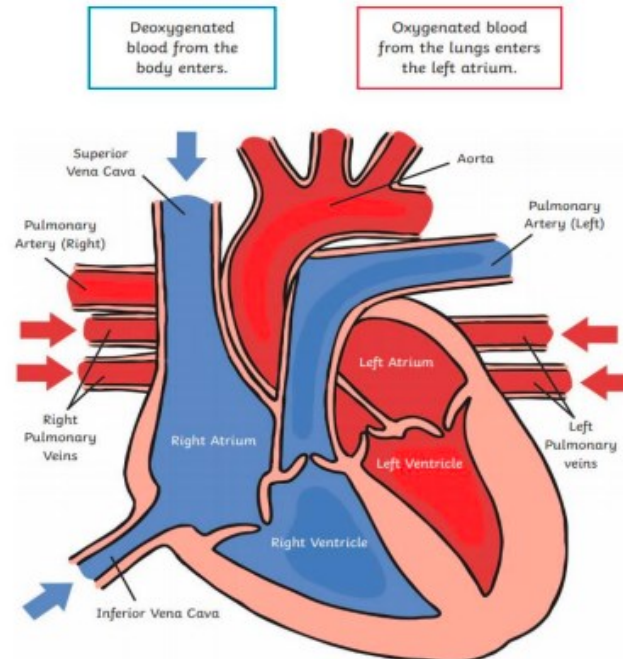
- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
- Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate.
- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.
- Using test results to make predictions to set up further comparative and fair tests.

The Circular System: The Heart

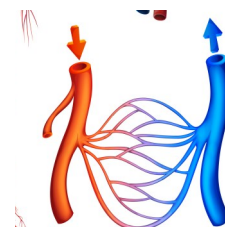


The heart is a muscle. It is protected by the ribcage. The heart muscle contracts and pushes blood out, it fills up with blood which comes from the rest of the body. The heart is a pump.

In rest position, your heart beats 60-100 times per minute.



Blood transports oxygen, nutrients and other chemicals through the body. Oxygen transfer takes place in the capillaries (very small blood vessels).



Vocabulary

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.
capillaries	Microscopic blood vessels found in the muscles and lungs.
carbon dioxide	Carbon dioxide is a gas produced by animals and people when breathing out.
defibrillator	Machine that can shock a heart so it regains a normal heartbeat after a heart attack.
deoxygenated	Not containing oxygen anymore.
drugs	Chemicals that influence the state of a person.
heart	Muscle that pumps blood round the body.
oxygenated	Containing oxygen.
oxygen	A colourless gas that exists in large quantities in the air. All plants and animals need oxygen in order to live.
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.
nutrient	Substances that help a plant or animal grow.
ribcage	Bone structure that protects the heart.
veins	Blood vessel that carry blood to the heart.

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Drugs

Drugs are chemicals that change how our body works.



Some drugs are medicines and they are given to make our body repair itself or reduce an effect like pain or breathlessness.

However, some drugs harm how the body works and should not be taken. Especially because they are not taken to repair the body. They are only taken to experience a certain effect.

Examples are smoking cigarettes or cannabis, drinking alcohol, inhaling gasses or taking naturally and/or chemically produced pills or powders, which have mood changing effects.

Some drug taking can lead to addiction. Some drugs can harm your body but can also affect your mental state.

Smoking

One of the most common drugs are cigarettes.

Cigarettes contain nicotine which is an addictive meaning it is harder to stop using them.



Breathing in smoke will result in less oxygenated air, and as a result the heart will have to beat faster to supply the body with oxygen.

The chemicals that are added to cigarettes, affect the quality of air to the lungs and can cause lung cancer. It also affects the quality of the blood and as a result, a smoker has a higher risk of a heart attack.

Vaping carries some of the same risks and it is not part of a healthy lifestyle.

Nutrient transport



The digestive system helps to break down food into very small particles.

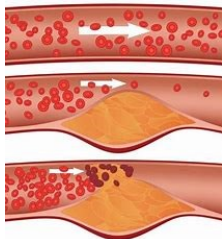
The nutrients from these particles are transferred into the blood stream in the small intestine.

From here they can be transported to where these nutrients are needed.

Healthy diet

The circulatory system is the transport system for nutrient so a body can function well. A healthy lifestyle requires eating the correct types of food in the correct amount and limiting unhealthy foods.

Fatty rich foods can clog arteries and veins, preventing blood from delivering what is needed. This can lead to a heart attack: a **heart attack** occurs due to a blockage. Smoking can also play a negative part in getting a heart attack.



Exercise

When someone becomes more active, their heart rate (Beats per minute) will increase. This is because the muscles need more oxygen to deliver the energy that is needed for the activity. As a result one starts to breath faster and deeper.

Exercise can improve the health of a person by removing fatty deposits from the body. Some exercises are called cardiovascular, and are designed to improve the fitness of the overall circulatory system by strengthening the organs and pulse rate.



Cardiac arrest

A cardiac arrest is **when your heart suddenly stops pumping blood around your body**. Although it's sometimes mistaken for a heart attack, a cardiac arrest is different.

The person will be unconscious, unresponsive, and is not breathing or not breathing normally. Medical support is required (dial 999/112). First Aid needs to be given immediately (CPR).

A defibrillator can help increase a successful outcome.

