

Subject: Science

Year group: 6

Term: Summer

Unit name: Animals including humans

Prior Knowledge - 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.

Scientific enquiry

Classifying	Not relevant
Observing over time	Observe pulse rates before, during and after exercise.
Pattern seeking	Children generate questions for investigation such as: ▪ Do older people have lower pulse rates? ▪ Do boys have higher pulse rates?
Comparative/fair testing	Complete different activities to compare the impact on their own heart rate.
Researching	Generate questions to research about the human circulatory system. (Children present what they've learned in different ways: create a model, write a song, write a story, create a PPT, etc.)

Spiritual Development

Through this unit, children will build an understanding of the role of the heart and how important it is to look after it. *Proverbs 4:23 – Above all else, guard your heart, for it is the wellspring of life.*

National curriculum:

- Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
- Describe the ways in which nutrients and water are transported within animals, including humans.

Key vocabulary

Aorta	The main artery through which blood leaves your heart before it flows through the rest of your body
Arteries	A tube in your body that carries oxygenated blood from your heart to the rest of your body
Atrium	one of the chambers in the heart
Blood vessels	The narrow tubes through which your blood flows. Arteries, veins and capillaries are blood vessels.
Capillaries	Tiny blood vessels in your body
Carbon dioxide	A gas produced by animals and people breathing out
Circulatory system	The system responsible for circulating blood through the body, that supplies nutrients and oxygen to the body and removes waste products such as carbon dioxide.
Deoxygenated	Blood that does not contain oxygen
Diet	The kinds of food that a person, animal, or community habitually eats.
Drugs	A medicine or other substance which has a physiological effect when ingested or otherwise introduced into the body.
Exercise	Activity requiring physical effort, carried out to sustain or improve health and fitness.
Heart	The organ in your chest that pumps the blood around your body
Lungs	Two organs inside your chest which fill with air when you breathe in. They oxygenate the blood and remove carbon dioxide from it.
Muscles	A band or bundle of fibrous tissue in a human or animal body that has the ability to contract, producing movement in or maintaining the position of parts of the body.
Organ	A part of your body that has a particular purpose.
Oxygen	A colourless gas that plants and animals need to survive.
oxygenated	Blood that contains oxygen.
Pulse	The regular beating of blood through your body. How fast or slow your pulse is depends on the activity you are doing.
Veins	A tube in your body that carries deoxygenated blood to your heart from the rest of your body
Vena cava	A large vein through which deoxygenated blood reaches your heart from the body.
Ventricle	One of the chambers in the heart.

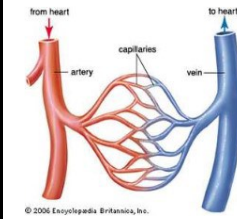
Key Learning Assessment Statements- what will the children know by the end of the unit?

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

Diet, exercise, drugs and lifestyle have an impact on the way our bodies function. They can affect how well our heart and lungs work, how likely we are to suffer from conditions such as diabetes, how clearly we think, and generally how fit and well we feel. Some conditions are caused by deficiencies in our diet e.g. lack of vitamins.

To understand the parts of the circulatory system and how they work.

The circulatory system is made of the heart, lungs and the blood vessels. Arteries carry oxygenated blood from the heart to the rest of the body. Veins carry deoxygenated blood from the body to the heart. Nutrients, oxygen and carbon dioxide are exchanged via the capillaries.



To know that the heart pumps blood around the body.

To understand that oxygen is breathed into the lungs where it is absorbed by the blood

To understand that muscles need oxygen to release energy from food to do work

(Oxygen is taken into the blood in the lungs; the heart pumps the blood through blood vessels to the muscles; the muscles take oxygen and nutrients from the blood.)

To be able to explain the choices that can harm the circulatory system

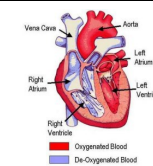
Some choices, such as smoking and drinking alcohol can be harmful to our health. Tobacco can cause short-term effects such as shortness of breath, difficulty sleeping and loss of taste and long-term effects such as lung disease, cancer and death. Alcohol can cause short-term effects such as addiction and loss of control and long-term effects such as organ damage, cancer and death.

To be able to explain why exercise is so important?

Exercise can: * tone our muscles and reduce fat * increase fitness * make you feel physically and mentally healthier * strengthens the heart * improves lung function * improves skin

To be able to name and label the main parts of the heart?

The heart is composed of four chambers; the right atrium, the right ventricle, the left atrium and the left ventricle. How often your heart pumps is called your pulse.



Assessment for Learning

Recapping prior knowledge- beginning of unit- what do children already know?
Beginning of each lesson- focus on recall of previous learning (quick quizzes)

Activity ideas

- Create a role play model for the circulatory system.
- Carry out a range of pulse rate investigations:
 - fair test – effect of different activities on my pulse rate
 - pattern seeking – exploring which groups of people may have higher or lower resting pulse rates
 - observation over time - how long does it take my pulse rate to return to my resting pulse rate (recovery rate)
 - pattern seeking – exploring recovery rate for different groups of people.
- Research the negative effects of drugs (e.g. tobacco) and the benefits of a healthy diet and regular exercise by asking an expert or using carefully selected secondary sources.