

National Curriculum Objectives:

- 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:

Heart, pulse, rate, pumps, blood, blood vessels, transported, lungs, oxygen, carbon dioxide, nutrients, water, muscles, cycle, circulatory system, diet, exercise, drugs, lifestyle

Lesson 1: The Circulatory System

Identify & Classify



Enquiry Question – What is the human circulatory system?

Show pictures of bike pump, upside down pear, vampire, delivery can, blood bank, cupid & stethoscope and ask the chn what the link is – human circulatory system is the body's delivery system. Discuss the components of the circulatory system – heart, blood vessels & blood. Look at the journey of the blood cells around the body. Play The Circulation Game (Jeans for Genes). Chn to create their own labelled diagram of the circulatory system.

<https://thehumanbodygame.co.uk/#home>

Working Scientifically Skills: Record data and results of increasing complexity using scientific diagrams and label.

Key Knowledge: The circulatory system has three main parts: heart which pumps blood around your body, blood vessels which carry the blood and blood.

Lesson 2: The Heart

Research



Enquiry Question – How does my heart work?

Chn to place their hands over their chest – what can they feel? Chn to jog on the spot for 30 seconds and discuss what is happening to their heart. Do the chn know how big their heart is (size of their fist). Look at the different parts of the heart using a 3D model on the IWB and discuss the different blood vessels and the flow of blood around the heart. Chn to create a model of one of the heart's chambers using a jar, balloon and straw.

Working Scientifically Skills: To present findings in a variety of formats (model).

Key Knowledge: The heart pumps blood in the blood vessels around to the lungs. Oxygen enters the blood, and carbon dioxide is removed. The blood then returns to the heart and is pumped around the body.

Lesson 3: The Heart

Pattern Seeking



Enquiry Question – Which type of exercise has the greatest effect on our heart rate?

Pose the big question to the chn and allow them time to think of an investigation to answer it. Chn to observe how their pulse rate changes after a variety of exercises. They could also investigate how long it takes to recover and return to their resting HR. Chn to make predictions and write about the variables they will change and keep the same. Chn to draw bar chart to show result and write conclusion of experiment.

***child led investigation**

Working Scientifically Skills: To recognise when variables cannot be controlled and pattern seeking will be the best way to answer questions

Key Knowledge: Exercise has an impact on the way the body function. Different types of exercise affect the heart rate in different ways.

Prior learning:

In year 5 the children learnt:

- Y4: Digestive system, teeth, food chains
- Y3: Nutrition, skeletons, muscles
- Y2: Offspring, basic needs of animals, importance of exercise and hygiene
- Y1: Names of animals and how these can be grouped, senses

Future Learning:

In KS3 the children will:

The hierarchical organisation of multicellular organisms. • The tissues and organs of the human digestive system. • Calculations of energy requirements in a healthy daily diet. • The consequences of imbalances in the diet, including obesity, starvation and deficiency diseases. • The effects of recreational drugs (including substance misuse) on behaviour, health and life processes.

Lesson 4: Nutrient and Water Transport

Research



Enquiry Question – What does the blood transport around the body?

Show chn a range of foods and drinks and ask them to think about which have the highest water content. Provide the chn with the resources needed to independently research the role of water in keeping us alive; especially in transporting blood and nutrients around the body.

Chn to create a poster explaining why we need water and how is transported.

Working Scientifically Skills: To use relevant information and data from a range of secondary sources.

Key Knowledge: Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed.

Lesson 5: Lifestyle

Enquiry Question – How can I keep my body healthy?

Recap the functions of the circulatory system. Chn to share their answers – check for correct use of vocabulary and address any misconceptions. Discuss what a good/bad diet looks like and what the benefits and consequences are. Repeat for exercise.

Provide the children with information about different people's lifestyles. They should calculate whether they are eating the right amounts of food and getting the right amount of exercise. Chn to suggest ways in which these people can improve their lifestyles.

Working Scientifically Skills: To report and explain ideas using scientific language.

Key Knowledge: Diet and exercise have an impact on the way our body's 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.

Lesson 6: Lifestyle

Identify and Classify



Enquiry Question – What can damage our health?

Chn to share their answers to the big question. Discuss the impact of smoking, alcohol and drugs. Chn to find effects of smoking hidden around the room and to order these according to how harmful they think they are. Discuss and allow chn to share their thoughts.

Ask the chn why they think people drink alcohol? Do they know about the daily limit and discuss why this is important. Chn to look at the alcohol content of different drink and to sort them into order of strength. Chn to sort the long- and short-term impacts of alcohol on the body.

Drugs to be covered in PSHE.

Working Scientifically Skills: To use secondary sources to identify and classify things.

Key Knowledge: Smoking, alcohol and drugs are harmful to the human body.

Working Scientifically Skills:

- Asking questions
- Making predictions
- Setting up tests
- Observing and measuring
- Recording data
- Interpreting and communicating results
- Evaluating

Things to include each half term:

- 1 x active learning
- 1 x outdoor science lesson
- 3 x experiments/investigations
- 1 x child-led investigation
- 3 x enquiry type lesson

Science Display:

Enquiry types
Photographs
Vocabulary

