Clapgate Primary School
Inspiring Young Minds

Year 6 - Animals, including humans (Biology)

Knowledge Spark Humanity Grit Team

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 van, blood bank, cupid & stethoscope and ask the chn what the link is – human circulatory system is the body's delivery system. Discuss the components and functions 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:

asking questions	1
recording data	1

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

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. Chn to demonstrate their model and discuss the role of the heart in the circulatory system. They should note that blood does not travel in a continuous smooth flow, but in a steady pulse as valves open and close.

Working Scientifically Skills:

gathering data	1
recording data	1
presenting data	1

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 – What happens to our heart rate after exercise?

Recap learning from Y2&3 (importance of exercise, eating the right amount of different types of food and hygiene). Discuss which activity will raise the heart rate the most and why. Chn to sit quietly for 2 minutes. Chn to measure heart rate for 30s then multiply by 2 and write this value in a chart. Chn to do 1 min of vigorous exercise. Repeat heart rate measurement. Chn to sit quietly and recover for 3 min. Repeat heart rate measurement. Repeat for different exercises. Chn to draw line graph show result and write conclusion of experiment. Return to predictions and discuss.

*child led investigation

Working Scientifically Skills:

asking questions	
planning an enquiry	
making predictions	
gathering data	1
recording data	4
presenting data	1
drawing conclusions	1, 3
evaluating an enquiry	2

Key Knowledge: Exercise has an impact on the way the body functions. When the pulse goes up, the heart is beating faster. Different types of exercise affect the heart rate in different ways. Diet, exercise drugs and lifestyle affect the way our bodies function.

*link to maths – draw line graph to show results

Lesson 4: Nutrient and Water Transport

Research

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

Recap learning from Y4 (digestive system). Chn to understand that water and nutrients that travel through our body are used for growth and energy. Chn to make their own sample of blood and learn about what it contains. Chn to have a diagram of the

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

Prior learning:
Y5:

- Describe the changes as humans develop to old age

Future Learning:
KS3:

- 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 structure and functions of the gas exchange system in humans, including adaptations to function
- The effects of recreational drugs (including substance misuse) on behaviour, health and life processes.

Working Scientifically Skills:

- Asking questions
- Planning an enquiry
- Making predictions
- Gathering data
- Recording data
- Presenting data
- Drawing conclusions
- Evaluating an enquiry

circulatory system. They should draw arrows to show the movement of nutrients and water then write about what blood contains and the journey around the body. **Working Scientifically Skills**: asking questions 1 recording data 1 presenting data 1 **Key Knowledge**: Nutrients, water and oxygen are transported in the blood to the muscles and other parts of the body where they are needed.	exercise. 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. 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 drinks. Provide the children with information about different people's lifestyles – have a range of healthy and unhealthy lifestyles discuss how ideas have changed over time due to scientific research. Discuss these lifestyles and whether they could be improved. Chn to have the chance to do their own research about how ideas have changed and how to stay healthy. Chn to create poster about how to stay healthy/what can damage our health. **Working Scientifically Skills**: recording data 1 presenting data 1 drawing conclusions 1 3, 4, **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. Smoking, alcohol and drugs are harmful to the human body.		

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Year 6 Medium Term Science Planner
Animals, including Humans (Biology) – Formative Assessment

Knowledge Spark Humanity Grit Team

National Curriculum Objectives:

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- 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

Enquiry Question 1:
What is the human circulatory system?
Working Scientifically Skills:

asking questions	1
recording data	1

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

Below:

Absent:

Enquiry Question 2:
How does my heart work?
Working Scientifically Skills:

gathering data	1
recording data	1
presenting data	1

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.

Below:

Absent:

Enquiry Question 3:
What happens to my heart rate after exercise?
Working Scientifically Skills:

asking questions	
planning an enquiry	
making predictions	
gathering data	1
recording data	4
presenting data	1
drawing conclusions	1, 3
evaluating an enquiry	2

Key Knowledge: Exercise has an impact on the way the body functions. When the pulse goes up, the heart is beating faster. Different types of exercise affect the heart rate in different ways. Diet, exercise drugs and lifestyle affect the way our bodies function.

Below:

Absent:

Enquiry Question 4:
What does the blood transport around the body?
Working Scientifically Skills:

asking questions	1
recording data	1
presenting data	1

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

Below:

Absent:

Enquiry Question 5:
How can I keep my body healthy?
Working Scientifically Skills:

recording data	1
presenting data	1
drawing conclusions	1 3, 4,

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

Below:

Absent:

Notes:
TAPS Assessment
Heart rate when stationary
Y6plan-Heartrate-pose-Plan.docx