Science – Year 6

Animals, including humans

Does a heartrate always stay the same?

What is the impact of our life choices on our health?

NC objectives - **areas of study**	End point of area of study	Vocabulary		
		Basic	Adventurous	Technical
• 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.	Pupils build on prior learning about main body parts and internal organs, skeletal, muscular and digestive system. They understand how the circulatory system works and allows the body to function. Linked to learning in PSHE, pupils have a good understanding of how to keep themselves healthy with regular exercise and a good diet and realise the impact of drugs and lifestyle on their bodies. Pupils understand how blood transports nutrients around the body.	heart, lungs, blood, oxygen, lifestyle drugs, diet, cycle, carbon dioxide, pulse rate, pumps		transport, Circulatory system, Blood vessels

Knowledge

Substantive Knowledge

- **Retrieval- children know the names of different animals and their young and the lifecycle of some. They are able to identify different types of animals and describe them as herbivores, carnivores or omnivores. They know the basic needs of animals including humans and for humans the importance of a balanced diet, exercise and good hygiene.**
- **Children know the purpose of the skeleton and muscles and the importance of a healthy diet for growth and nutrition.**
- **From Y4 pupils know the different types of teeth, their function and how this links to diet. They are able to describe the process of digestion and the function of the basic parts.**
- **In Y5 pupils know the changes that take place during puberty and the changes from baby to old age.**

Retrieval of working as a biologist when studying plants, living things and habitats throughout science in Y1-Y5

Disciplinary Knowledge

Children work as biologists and pharmacologists to build upon prior knowledge of the way in which the internal organs work effectively to keep humans and other animals healthy.

Similarities and differences

Pupils explore the way the circulatory system works by asking and answering questions using key facts given to them and research. They make comparisons between different animals.

Recording data about fitness and health, they make comparisons between starting points for themselves and end points, linking to the PE curriculum and fitness. They record their own data in tables and line graphs.

Use of evidence

Lesson 1 Heart, pumps, blood vessels, LO To know how blood is transported around the body. Know that the heart beats, pumping blood around the body and that blood vessels carry the blood; arteries carry blood away from the heart; veins carry blood towards the heart; capillaries are tiny blood vessels that connect arteries and veins Lesson 2 Heart, circulatory system LO To know the name of the main parts of the circulatory system. Know that the heart is composed of four chambers: two atria and two ventricles; the aorta is the largest artery in the body and most major arteries branch off from it Know that the understanding of the heart has changed over time and that different scientists/civilisations have held different beliefs. To consider historical beliefs around the heart, and how understanding has changed over time. Lesson 3 Blood, blood vessels, transport, oxygen LO To know how blood transports nutrients around the body. Know that blood travels around the body transporting nutrients that have been absorbed into the bloodstream from digestion; blood also absorbs oxygen from the lungs and carries it around the body which is used to power the body; this use of oxygen to create energy is called respiration; understand the components of blood and their purpose. # Lesson 4 Pumps, pulse rate, LO To know how exercise impacts the heart. Know that when we exercise, our heart beats more frequently so that the oxygen that is used around the body can be replenished; it returns to a	Using diagrams and labels they explain how the heart works and research the work of scientists and scientific research about the relationship between diet, exercise, drug, lifestyle and health. .

resting heart rate afterwards; fitter people tend to have lower resting heart rates Discuss how the heart's design supports its functionality – has this happened through chance, or through divine design. Term 4 Lesson 1 Lifestyle, drugs, diet LO To know the impact of drugs on the human body. Know and explain how drugs can be harmful and helpful to the body- build on prior learning in PSHE. Know that drugs are chemicals that have an impact on the natural chemicals in a person's body; know that drugs can be harmful or helpful, depending on what they are and how they are used; know that all drugs can be harmful if overused Know that paracetamol and aspirin are examples of drugs that can be helpful as a painkiller Develop an awareness of the reasons why drugs are sometimes necessary (medical), and others are harmful or illegal. Lesson 2 Lifestyle, drugs LO To know the impact of drugs on the human body. - visitor to talk about the effects of drugs on the human body. Consider how to show resilience in hypothetical situations where they may be exposed to drug use, and resist peer pressure. Lessons 3 Lifestyle, drugs, LO To know the negative effects of illegal drugs on the body. Know that cannabis and cocaine are examples of illegal drugs that can have serious negative effects Lifestyle, drugs, alcohol, tobacco LO TO know the negative impact of alcohol and tobacco on the body. Know that alcohol and tobacco are examples of drugs that are legal to adults but that can have serious negative effects, such as liver disease and lung disease, respectively.	

Concepts

Biology	Chemistry	Physics	

SKILLS

1. Compare	2. Explore	3. Identify	4. describe	5. classify
6. Question	7. observe	8. test	9. record	10. research

ASSESSMENT

KNOW MORE, REMEMBER MORE, DO MORE...

In this unit of learning, progress has been made when a learner knows more. This 'distance travelled' from the starting point is evidenced through them remembering more and doing more: in books, low stakes quizzes, retrieval, use of mind maps, answering the big question and being able to feel more confident about this unit.