Queen Elizabeth High School

Scheme of Work **SUBJECT - BIOLOGY** **YEAR - 7**

	Cells, tissues, organs and systems	Sexual reproduction in animals	Muscles and bones	Ecosystems
Key concepts	Reminding students about the features of organisms, and then looks at organs, tissues and cells. Organ systems. Comparing what we know now about the structure of organisms with what people believed in the past.	Sexual reproduction in animals, with a central focus for learning on the human reproductive system and sexual reproduction in humans.	Organ systems: the gas exchange system, the circulatory system and the locomotor system. The various effects of drugs on these systems are also considered, together with their effects on the nervous system.	Ecosystems and the factors that affect them. This includes the impact of human activity and the importance of biodiversity.
Themes	Ancient Egypt.	Extinction/endangered species.	Fitness.	Explorers.
Challenge Support	Outcomes, questioning, tasks and worksheets in all lessons. Regular progress checks.	Outcomes, questioning, tasks and worksheets in all lessons. Regular progress checks.	Understanding sentence construction in order to develop sentences that can be used as part of a fluid writing style that communicates information clearly.	Outcomes, questioning, tasks and worksheets in all lessons. Regular progress checks.
Literacy focus	Use conventions in writing (such as ordered subheadings, ordered lists).	Making effective notes from text, including different ways of organising notes depending on purpose.	Angles at joints.	Understanding paragraph construction in order to develop logical and fluid text that communicates information clearly.
Numeracy focus	Use symbols for units.	An understanding of number, size and scale. Using estimations.	Apply mathematical concepts and calculate results.	Data can be presented in bar charts/scatter graphs/frequency diagrams.
Cross-curricular links	History – Ancient Egypt English – Shakespeare and Julius Caesar. Music – discussions of wind instruments	Music – Castrati singers.	PE – fitness, appropriate exercises, breathing rates, injuries, drugs D&T– tubular shapes for strength, designing structures that are strong but light. Art – the importance of human anatomy, especially muscles and bones, in art through the ages.	Art – making masks of lynx and snowshoe hares. Geography – biomes and habitats.
SMSC & MBV	Discuss the issues related to organ transplants and medical research. Consider different views of specific religious groups related to medical procedures and research. Students look at organ transplantation in terms of life changing benefits and reasons why/why not someone would choose to be on the organ donor register	Various group work and problem-solving skills such as investigations and experiments. Consider different views of specific religious groups related to science, medicine and an individual's right to choose. Students consider the work done by zoos on breeding programmes for endangered animals	Various group work and problem-solving skills such as investigations and experiments. Use of legal and illegal substances. Consideration of law related to drugs. The importance of exercise, fitness and nutrition. Explore case studies that discuss muscle mass in relation to BMI.	Various group work and problem-solving skills such as investigations and experiments. Consideration of law related to environment and human rights. Students look critically at the impact that humans have on other species and how we can minimise this negative effect

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ASSESSMENTS	Waterfall assessment 1	Waterfall assessment 2	Waterfall assessment 4	Waterfall assessment 5
Out of school learning	N/A	N/A	N/A	N/A

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Cells, tissues, organs and systems				
Lesson	**Key concepts**	**Learning outcomes**	**Differentiation**	**Resource**
1	Life processes: Explore what makes an organism. Scientists consider something to be alive if it carries out the following processes: movement, reproduction, sensitivity, growth, respiration, excretion & nutrition.	B1: Recall the life processes (MRS GREN) B2: Describe the life processes B3: Explain the differences between organisms and non-living things	Outcomes, questioning, tasks and worksheets in all lessons.	U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Cells, tissues, organs and systems\Lesson 1 - Life Processes
2	Organs: covers plant and animal organs.	B1: Identify and locate important plant and animal organs B2: Describe the functions of important plant and animal organs B3: Describe what happens in photosynthesis		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Cells, tissues, organs and systems\Lesson 2 - Organs
3	Tissues: a tissue is part of an organ, with different tissues making up an organ.	B1: Identify named tissues in humans and plant organs B2: Recall named tissues in human and plant organs B3: Describe the functions of different tissues in an organ		Microscopes U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Cells, tissues, organs and systems\Lesson 3 - Tissues
4	Cells: introduces the idea of cells and the differences between plant and animal cells.	B1: Identify the main parts of animal and plant cells B2: Describe the functions of the main parts of animal and plant cells B3: Compare the parts of animal and plant cells		Microscopes U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Cells, tissues, organs and systems\Lesson 4 - Cells
5	Organ systems: that an organ system is a group of organs working together to perform an important function.	B1: Identify the main organs in the plant water transport system and the main organs in humans. B2: Recall the main organs in the plant water transport system and the main organs in humans. B3: Explain how organs in plants and animals work together for specific functions		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Cells, tissues, organs and systems\Lesson 5 - Organ Systems

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Sexual reproduction in animals				
Lesson	**Key concepts**	**Learning outcomes**	**Differentiation**	**Resource**
1	Animal sexual reproduction: introduction to sexual reproduction in animals (including the concept of gametes and fertilisation).	B1: Define sexual reproduction B2: Describe how egg cells are fertilised in animal sexual reproduction B3: Compare fertilisation and offspring care in fish, birds and animals	Outcomes, questioning, tasks and worksheets in all lessons.	U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Sexual reproduction in animals\Lesson 1 - Animal sexual reproduction
2	Reproductive organs: the basic parts of the human male and female reproductive systems to include the adaptations of gametes.	B1: Name the parts of the male and female reproductive systems, and their jobs B2: Explain how sperm and egg cells are adapted to their functions B3: Explain why ovaries may not release egg cells		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Sexual reproduction in animals\Lesson 2 - Reproductive organs
3	Becoming pregnant: looks at how sexual intercourse leads to the formation of an embryo, its subsequent implantation in the uterus lining and the start of its further development. Brief introduction to IVF	B1: Recall the sexual reproductive organs B2: Describe how sexual intercourse can lead to the implantation of an embryo B3: Describe how an embryo is protected and cared for in the uterus		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Sexual reproduction in animals\Lesson 3 - Becoming pregnant
4	Gestation and birth: covers the gestation period and birth. There is also a brief consideration of how a small baby is fed in the first few months.	B1: Recall the gestation period and list the main stages of labour B2: Describe how a pregnant women should care for her foetus B3: Explain what happens during the gestation period and birth		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Sexual reproduction in animals\Lesson 4 - Gestation and birth
5	Growing up: Exploring how a baby grows into a child and how a child then becomes sexually mature through puberty.	B1: Define puberty, adolescence, menstruation and ovulation B2: Describe adolescence and the menstrual cycle B3: Explain what happens during adolescence and the menstrual cycle		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Sexual reproduction in animals\Lesson 5 - Growing up

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Muscles and bones				
Lesson	**Key concepts**	**Learning outcomes**	**Differentiation**	**Resource**
1	Muscles and breathing: Looking at the role of muscles in ventilation, together with the importance of gas exchange.	B1: Identify the muscles in the gas exchange system B2: Describe how muscles in the gas exchange system allow ventilation B3: Explain what happens during gas exchange in the lungs	Outcomes, questioning, tasks and worksheets in all lessons.	U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Muscles and bones\Lesson 1 - Muscles and breathing
2	Muscles and blood: circulatory system, which includes the contents and function of blood.	B1: Describe the role of muscles in the heart B2: Describe the function of the different parts of the blood and where the different parts are made B3: Explain how muscles help with the circulation of blood cells		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Muscles and bones\Lesson 2 - Muscles and blood
3	The skeleton: looks at bones and their various functions, including the role of joints.	B1: Identify different bones of the skeleton and the location of joints B2: Describe the functions of different bones in the skeleton and describe the structure of a joint B3: Explain the 3 main functions of the skeleton		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Muscles and bones\Lesson 3 - The Skeleton
4	Muscles and moving: Considers how and why they are moved by antagonistic pairs of muscles around a joint. The idea that muscles are controlled by the nervous system is introduced.	B1: Describe how muscles work together in pairs B2: Describe how the bicep and tricep operate as an antagonistic pair B3: Explain how muscles operate and are controlled to allow movement (antagonistic pairs, impulses and mitochondria)		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Muscles and bones\Lesson 4 - Muscles and moving
5	Drugs: Exploring how different drugs can affect the activity of muscles and the nervous system. Drug use by sportsmen and women.	B1: Define recreational drugs, stimulants and depressants B2: Describe how different drugs affect the body B3: Compare a variety of drugs and how they affect our bodies		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Muscles and bones\Lesson 5 - Drugs

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Ecosystems				
Lesson	**Key concepts**	**Learning outcomes**	**Differentiation**	**Resource**
1	Variation: the concepts of habitats and differences between organisms linking to the ideas of continuous and discontinuous variation.	B1:Recall what a species is B2: Describe variation, continuous and discontinuous B3: Explain the difference between continuous and discontinuous variation	Outcomes, questioning, tasks and worksheets in all lessons.	U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Ecosystems\Lesson 1 - Variation
2	Adaptations: Identifying how organisms have developed to suit their environments.	B1: Identify and describe some adaptations for different habitats B2: Describe how inherited variation is caused B3: Explain why there is variation between and within species		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Ecosystems\Lesson 2 - Adaptations
3	Effects of the environment: looks at how changes in the environment affect the organisms living in a habitat. This includes discussion of daily changes, seasonal changes, migration, hibernation, evergreen and deciduous trees, and nocturnal animals.	B1: Define environmental variation B2: Identify causes of environmental variation B3: Describe adaptations to daily and seasonal changes		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Ecosystems\Lesson 3 - Effects of the environment
4	Effects on the environment: focuses on the resources needed by organisms from their habitats and how organisms affect their habitats.	B1: Describe ways in which organisms affect their habitats and communities B2: Describe how organisms compete B3: Use a food web to make predictions		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Ecosystems\Lesson 4 - Effects of the environment 2
5	Transfers in food chains: the flow of energy through food chains, food webs and pyramids of numbers. This includes a look at how some persistent pesticides accumulate in food chains.	B1: Draw pyramids of numbers B2: Describe how energy is lost in a food chain B3: Explain why pesticides need to be used carefully		U:\Subject Areas\Science\Schemes of work\2019 onwards\Year 7\Biology\Ecosystems\Lesson 5 - Transfers in food chains