Long Term Plan: Biology Year 7

ARCHBISHOP SENTAMU ACADEMY
CHURCH OF ENGLAND

Half term	Unit title	Key knowledge/ Content to learn and retain	Essential skills to acquire (subject & generic)	Link to subject ethos and driver (rename)	Anticipated misconceptions	Links to previous KS	Links to future KS	Opportunity for stretch for high prior attainers	SMSC & British Values	Cultural Capital	Career Link
One	Cells	The cell as the fundamental unit of living organisms The functions of key organelles The similarities and differences between plants and animal cells The similarities and differences between eukaryotic	Use of microscopes to look at cells Drawing scientific diagrams Changing the subject of, and substituting into, a simple equation with three terms		Organisms grown when their cells get larger, as opposed to duplicating The size of prokaryotic cells compared to eukaryotic cells The hierarchy of atoms > Molecules > Cells	Humans as Animals in KS2 programme of study	The cell cycle and use of stem cells at KS4 GCSE Required practical: Microscopy	Comparison of different specialised cells and links between structure and function	Use of living organisms in science Potential for discussion on the use of stem cells	Different types of plants and animals Use of latin in science	Medical research Sports Science Technician Forensics

		and prokaryotic cells Cell differentiation and specialised cells The hierarchy of organisation									
Two	Cells	The definition of diffusion and its role in cell transport. Independent, Dependent and control variables Identity and use of simple laboratory glassware (HT ONLY) The definitions of osmosis and active transport - and their roles in cell transport	Safely use simple laboratory glassware Collect and record accurate data Present data appropriately, including the use of tables and graphs Draw conclusions from data Evaluate data for accuracy, precision, repeatability and reproducibility.		Confusion between diffusion and osmosis. Referring to diffusion as particles "Spreading out" That diffusion requires energy	Working Scientifically at upper KS2 - use of graphs and recording data	Diffusion, Osmosis and Active Transport at all tiers in KS4 GCSE Required Practical: Using osmosis to determine the sucrose concentration in potato cells	Comparison of diffusion, osmosis and active transport; including where in the body they take place	Use of living organisms in science Potential for discussion on the use of stem cells	Different types of plants and animals Use of latin in science	Medical research Sports Science Technician Forensics

Three	Movement and Breathing	The structure and function of the human skeleton Interaction between muscles and the skeleton The function of muscles and antagonistic action The structure of joints The structure and function of gas exchange systems in humans The mechanism of breathing The effects of asthma and smoking on the human respiratory system	Using models to represent concepts Simple calculations involving two or three terms Using a graph to identify values Reading for comprehensio n		Confusion between the terms "respiration" and "ventilation" Confusion between the function of ligaments and tendons	Lower KS2 - the impact of drugs, smoking and alcohol. CLassification, including if an animal has lungs or gills	Adaption of gas exchange surfaces at KS4, including the use of exchanged substances for respiration	What are exchanged substances used for - push further to consider respiration Adaptations of the alveoli	Organ donation discussion	Different sports as used for exercise Different views on, and the impact of, tobacco usage	Anything in the medical field Sports science and physiotherapy
Four	Movement and Breathing	The structure of the human	Using models to represent		Deoxygenated blood is blue	Year 6 - The function of	The human circulatory	Structure of blood vessels	Organ donation	Different sports as used	Anything in the medical

		heart The double circulatory nature of the human circulatory system The difference between arteries and veins in terms of oxygenation The effect of exercise on breathing and heart rate	concepts Simple calculations involving two or three terms Using a graph to identify values Reading for comprehensio n		Confusion between the aorta and atrium	the heart, blood and blood vessels. Impact of exercise on the body How substances are transported throughout the body	system at KS4, including components of blood. Linking the effect of exercise to respiration during the study of bioenergetics	as relating to function	discussion	for exercise Different views on, and the impact of, tobacco usage	field Sports science and physiotherapy
Five	Reproduction	Structure and function of male and female reproductive system Male and Female gametes Fertilisation Gestation and birth	Drawing and labelling scientific diagrams Extended writing		That sperm are stored in the testes - they in fact are not kept for long but recycled if not used. That babies grow in the mother's stomach	Year 5 - reproduction and life cycles of plants and animals How humans change as they get older, including changes during puberty.	KS4: Sexual and Asexual reproduction Variation and evolution Inheritance, genetics and the production of gametes through meiosis	Impact of maternal lifestyle on pregnancy The science behind contraception and family planning	Impact of maternal lifestyle on pregnancy	Making students more aware of the issues and misconception s surrounding reproduction	Midwifery Gynecology Fertility advisor

Six	Reproduction	Flower structure and function Wind and insect pollination Fertilisation Seed and fruit formation and dispersal	Drawing and labelling scientific diagrams Extended writing		Potential confusion between stamen and stigma Students may believe that fruits are the seed, rather than just contain the seeds. Students sometimes struggle to see the connection between flowers and fruits and see them as totally independent parts of a plant.	Year 5 - reproduction and life cycles of plants and animals	KS4: Sexual and Asexual reproduction Variation and evolution Inheritance, genetics and the production of gametes through meiosis	Comparison of plant and animal reproduction	Impact of maternal lifestyle on pregnancy	Making students more aware of the issues and misconceptions surrounding reproduction	Farmer Botanist Beekeeper