

Year Group	Y7 Biology					
Term	1	2	3	4	5	6
Topic Title	B1 Observing cells	Structure & function of body systems	Animal Reproduction	Animal development	Plant reproduction	Plant reproduction
Rationale	Understanding what cells do, their requirements, and their specialisation into tissues and organs, helps pupils to understand why complex living organisms are the way they are. It enables them to make greater sense of the organ systems and life processes that they study in some detail at Key Stage 3.	The hierarchical organisation of multicellular organisms: from cells to tissues to organs to systems to organisms. The structure and functions of the gas exchange system in humans, including adaptations to function. The structure and functions of the human skeleton, to include support, protection, movement, and making blood cells. This is a sensible format for progression to build upon knowledge.	Reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive cells and organ system. Follows logically on from a developing knowledge of cells and organ systems so this topic is placed here. Y7 students will have studied Life cycles, so this topic builds upon this concept with the human life cycle for foetal development and birth.		Plant reproduction topic involves plant structures / organ systems for reproduction and the understanding that pollen is the male gametic cell for plant reproduction as compared to a sperm cell. To include forms of pollination and methods of seed dispersal.	
Prior knowledge	Year 6 pupils will have some understanding of life processes & they will also have been taught about micro-organisms and should have some idea that these are too small to be seen easily. Their understanding of just how small that might be is likely to be limited.	Year 3 science: Animals, including humans, focusing on skeletons and muscles.	Year 6 pupils will have some understanding of life processes, such as growth and reproduction, having studied in Y5: Living things including life cycles of a mammal, amphibian, insect and bird. Animals, including humans, focusing on changes from birth to old age.		Year 3 Science covers: Plants, including parts of plants, needs of plants and their life cycle.	
Key knowledge/skills development	Cells as the fundamental unit of living organisms, including how to observe, interpret, and record cell structure using a light microscope. Use appropriate techniques, apparatus, and materials during fieldwork and laboratory work, paying attention to health and safety. Observing cells, plant and animal cells, specialised cells. Movement of substances, unicellular organisms.	The structure and functions of the gas exchange system in humans, including adaptations to function. The mechanism of breathing to move air in and out of the lungs, using a pressure model to explain the movement of gases, including simple measurements of lung volume. The impact of exercise, asthma, and smoking on the human gas exchange system. The structure and functions of the human skeleton, to include support, protection, movement, and making blood cells. Biomechanics: the interaction between skeleton and muscles, including the measurement of force exerted by different muscles. The function of muscles and examples of antagonistic muscles. Interpret observations and data, including identifying patterns and using observations, measurements, and data to draw conclusions. Make and record observations and measurements using a range of methods for different investigations; and evaluate the reliability of methods and suggest possible improvements.	Reproduction in humans (as an example of a mammal), including the structure and function of the male and female reproductive systems, gametes, and fertilisation. Gestation and birth, and the effect of maternal lifestyle on the foetus through the placenta. Reproduction in humans (as an example of a mammal), menstrual cycle (without details of hormones).		Reproduction in plants including flower structure, wind and insect pollination, fertilisation, including quantitative investigation of some dispersal mechanisms. reproduction through insect pollination in human food security.	
National Curriculum/specification links	B1 1.1-1.5 Observing cells: Structure and function of living organisms: B1 2.1 Levels of organisation.	B1 2.2 - 2.6 Gas exchange; Breathing; Skeleton; Movement: joints; Movement: muscles	Structure and function of living organisms: Growth & Reproduction: B1 3.1 Adolescence; B1 3.2 Reproductive systems; B1 3.3 Fertilisation and implantation; B1 3.4 Development of a fetus; B1 3.5 The menstrual cycle		The importance of plants: B1 3.6 Flowers and pollination; B1 3.7 Fertilisation and germination; B1 3.8 Seed dispersal.	
Literacy	Cells H/W DART	Understanding Circulation	Reproduction DART		Pollination DART	
Numeracy	Using simple formula to calculate total magnification	Scale factors / order to structures.	Period: meaning of word in maths & science.			
STEM	Cells & Organ Systems	Skeletal & muscular systems			Plant reproduction	
Cross curricular links		Maths: continuous / discontinuous data (discrete / categoric); PE: Respiration & breathing; Physics: pressure	(PSHE) sex education; Child Development: Human reproduction, gestation & birth		Food technology: fruit / seeds. Biology Y8 Health & digestion	
Key vocabulary	Cell Unicellular Multicellular Tissue Organ Diffusion Structural Adaptations Cell membrane Nucleus Vacuole Mitochondria Cell wall Chloroplast Cytoplasm Immune system Reproductive system Digestive system Circulatory system Respiratory system Muscular-skeletal system	Joints Breathing Trachea Bronchi Bronchioles Alveoli Ribs Diaphragm Lung volume Bone marrow Ligaments Tendons Cartilage Antagonistic muscle pair	Gamete Fertilisation Ovary Testicle Oviduct Uterus Ovulation Menstruation Reproductive system Penis Vagina Foetus Gestation Placenta Amniotic fluid Umbilical cord		Pollen Ovules Pollination Fertilisation Seed Inheritance Fruit, Carpel, stigma style filament ovum (egg cell) petal sepal nectar insect pollination wind pollination germination, seed dispersal	
Catch up Plan / Closing the gaps	<p>KS2 curric usually covered in most primary schools before Christmas, usually intervention to prepare for KS2 SAT's continues after this point. Full use of labs for practical activities resumed.</p> <p>How are you identifying gaps in your subject? Quick starters; retrieval tasks; quick 10 etc... during lessons. Teaching all topics from the ground up, assuming relevant knowledge from KS2 has been missed.</p> <p>We review learning from previous topics as much as possible and refer to Y7 materials. Most of these topics are re-taught in Y9/10 at a higher standard, but will include basic information now as well, from Y7 & 8.</p> <p>How are you and your team capturing evidence so that you as HOF can be confident we are aware of all pupils gaps? Faculty Tracker (detailed) SENECA – topic specific assessments, Q&A sessions, Starters, H/W</p>					

Year 9 Biology						
Term	1	2	3	4	5	6
Topic Title	Cell Structures, what happens in Cells	Respiration, photosynthesis	Inheritance	Natural Selection and Evolution	Feeding the human Race	Monitoring and maintaining health
Rationale	Developing the fundamental knowledge of the most basic building blocks for life on Earth. This provides the ground work for more detailed work which comes later in the course	The two bioenergetic processes which are necessary for all life on the planet to function. The two processes are linked and understanding the process gives students knowledge to build on further in their studies	Looks at the process of how features and characteristic pass from one generation of organism to the next. Gives students an understanding of how they are products of the generations that came before	This topic looks at how life came to be in its most complex forms today from the its simple beginnings. Students develop an understanding of their place in the Earth's ecosystems.	Students look at and understand how it is through different farming innovations how it is that we are able to provide for an ever increasing population on a planet with finite resources.	Topic looks at what is meant by health and disease, how diseases spread and develop, how are they prevented and how we can respond to diseases should we become infected.
Prior knowledge	Y7 work on microscopy and cells	photosynthesis, aerobic and anaerobic respiration	Y8 continuous and discontinuous variation, inheritance	Y8 Natural selection covered, adaption and variation	Y8 relationships to ecosystems	Y8 Nutrition and health. Life style
Key knowledge/skills development	State the difference between eukaryotic and prokaryotic cells. Describe the function of sub-cellular structure in eukaryotic and prokaryotic cells. Name examples of prokaryotes. Describe the function of structures in prokaryotes.	State the word and symbol equation for photosynthesis. Describe the process of photosynthesis. Describe how to test for the products of photosynthesis. State what is meant by a limiting factor. State the word and symbol equation for respiration, state the word equation for anaerobic respiration.	State what is is meant by genetic inheritance. State what is meant by dominant and recessive. Use a punnett square to predict genetic outcomes. Explain what is meant by a genetic disorder. Give probabilities for certain genetic outcomes.	Describe the evidence Darwin used to develop his idea of natural selection. Describe the process of peer review. Describe how animals become extinct and some way in which it can be prevented. State the difference between natural selection and evolution.	Describe the process of selective breeding and genetic engineering. Explain the advantages and disadvantages of selective breeding and genetic engineering. Explain how selective breeding and genetic engineering is used in modern farming techniques.	State what is meant by a communicable and non-communicable disease. Explain how communicable diseases spread. State how we can prevent the spread of communicable diseases. State what is meant by vaccinations and explain how they work. Understand which lifestyle factors can increase the risk of non-communicable diseases. State how we can treat some communicable diseases.
National Curriculum/specification links	B3 3.1-3.4	B3 3.5-3.7	B3 1.1-1.2	B3 2.5 - 2.7	B3 1.8-1.9 and 1.3 - 1.5	B3 2.1-2.4
Literacy	Cells H/W DART	Photosynthesis Literacy task	Mendel's work can be researched	Extinction Lit task & Darwin's Travels can be researched		Research Ebola outbreaks and how they spread
Numeracy	Standard form: converting units; magnification calculations; re-arranging formulae	interpret graphs of factors affecting rate of photosynthesis	Genetic diagrams use logical patterns	Time: geological time		Graphs & data handling for disease / deaths
STEM	Cells	Photosynthesis				communicable disease
Cross curricular links	Y7 Biology, GCSE Biology	Y8 Biology, GCSE biology, GCSE/BTEC P.E.	GCSE Biology, Mathematical skills	GCSE Biology, R.S.	GCSE Biology	GCSE Biology
Key vocabulary	Cell, cell wall, nucleus, Eukaryotic, prokaryotic, mitochondrion, cytoplasm	Aerobic, anaerobic, glucose, oxygen, carbon dioxide, water, energy, photosynthesis.	inherited, environmental, gene, allele, characteristic, dominant, recessive	Natural selection, evolution, Darwin, adaptation, survival, weak	Selective breeding, genetically modified, farming, selection, characteristic	communicable, non-communicable, disease, lifestyle, health, transmission, vector.
Catch up Plan / Closing the gaps	<p>What are the Key skills/concepts/knowledge that each child should have learned (not covered) since march? Adaptation ; inheritance topics; Full use of labs for practical activities resumed.</p> <p>How are you identifying gaps in your subject? Retrieval starters; SENECA; Assessment AP1; Use end of Y8 AP3 test, First AP1 data</p> <p>Catch up methods, Homework – based on content missed, Review type questioning starters, Questions-in-a-month, Going for Gold, 6 mark Q sheets, PLC Booklets review, SENECA</p> <p>Revision materials: Talking ppt, Get-its and Know-its ppt , "Summary" A3 broadsheet learning mats</p> <p>How are you and your team capturing evidence so that you as HOF can be confident we are aware of all pupils gaps? Faculty Tracker (detailed), SENECA – topic specific assessments, Q&A sessions, Starters, H/W</p>					