Unit 1 Cells

Opportunities for Breadth and Challenge: Students get to learn about a range of cells and single cell organisms and learn how to use microscopes. Making comparisons between cell types			
Links to Sequencing for Learning: This unit links to previous work on Cells at KS2 This unit prepares pupils for work in Y9 on Microscopes and Cells			
Section	What we are learning (Key knowledge)	Key words	Assessment
1	**Using lenses**: • To explain how to use a microscope or hand lens to observe and magnify small objects such as an animal or plant cell.	Lens Microscope Magnify, Multiply, Cell	Prior knowledge – pupils may have some prior knowledge of using microscopes or lenses at home or at primary school.
2	**Using microscopes to observe animal cells**: • To know what microscopes do & describe how they work. • To prepare and view cell samples under the microscope and record observations. • To become familiar with and aim to label some structures on animal cells.	Objective lens Eyepiece lens Focussing wheel Cell membrane Nucleus, Cytoplasm Stain, Glass slide	Retrieval Qs of keywords and use of lenses
3	**Using microscopes to observe plant cells**: • Prepare and view cell samples under the microscope and record observations. • To become familiar with and aim to label some structures on animal cells.	Plant cell Cell wall, Chloroplast Vacuole, Iodine Photosynthesis Respiration	Recall practical methods of preparing slides and using microscopes
4	**Specialised Cells:** • Describe examples of specialised animal cells. • Describe examples of specialised plant cells. • Explain how the structure of specialised cells are adapted to the function they carry out. **NB –** An additional lesson may be used to provide time for pupils to present their models and to enable a peer assessment opportunity of their work.	Red blood cell White blood cell Ciliated epithelial cell Root hair cell Neurone, Sperm cell Egg cell	MUM – set task for pupils to make a 3D cell model of a specialised cell of their choice, adding labels (and annotations/information as a stretch)
5	**Diffusion:** • To describe what diffusion is and what it may look like • To name some substances which diffuse into and out of cells	Diffusion Concentration gradient High concentration Low concentration	Prior knowledge, drawing on examples of diffusion in everyday situations

		Oxygen	
6	**Single cell organisms:** • To be able to define the term single-cell organism • To be able to identify two examples of single-cell organisms and their features	Multi-cellular Uni-cellular Amoeba Euglena Pseudopod Flagella	Retrieval Qs of keywords, comparison to known cell types, evaluating similarities and differences
7	Revision		Class assessment sheet
8	End of Unit Test		EUT
9	Test Feedback		Test feedback sheet

Unit 2 Organ Systems

Opportunities for Breadth and Challenge: Challenge pupils to look beyond organ systems they already know about and learn about more common organ systems in more depth.			
Links to Sequencing for Learning: This unit links to previous work on Cells at KS2 and in the first year 7 topic. This unit prepares pupils for work in KS4 where they learn in depth about the circulatory system and respiratory system.			
Section	What we are learning (Key knowledge)	Key words	Assessment
1	**Levels of organisation** • To describe the location of major human organs. • To explain what tissues and organs are.	Tissue Organ Organ system Organism	Assess prior knowledge
2	**Breathing** • To explain the mechanics of how we inhale and exhale air	Trachea Bronchus Bronchiole Lung Diaphragm Alveolus	
3	**Gas exchange** • To describe how the organs of the respiratory system work together for gas exchange • To compare the proportions of gases in the air that we inhale and exhale	Oxygen Carbon dioxide	Using practical investigations to model the gases exhaled or to measure lung capacity

4	**Skeleton** • To know the names of some of the major bones in our body. • To describe the main jobs of the skeleton	Skull Vertebral column Ribcage Humerus Radius Ulnar Tibia Fibula Femur	Check if students can name major bones
5	**Joint Movement** • To describe the role of joints in moving the body • To name the main types of joint • To identify the types of tissue in a moving joint	Fixed, hinge, ball and socket joints Ligament Tendons Muscles	Investigate tissue types
6	**Muscle movement** • Describe the function of major muscle groups • Explain how antagonistic muscles cause movement	Antagonistic pair of muscles	
7	**Organ System Project - Research** • To research an organ system of choice	Organ system of choice	MUM – research and presentation task
8	**Organ System Project – Presentation** • Pupils to present to each other, to teach each other about their chosen organ system		MUM – research and presentation task
9	Revision		Class assessment sheet
10	End of Unit Test		EUT
11	Test Feedback		Test feedback sheet

Unit 3 Reproduction

Opportunities for Breadth and Challenge: Pupils compare how similar and different reproduction is in plants and animals.			
Links to Sequencing for Learning:This unit links to previous work on Cells in Year 7 and Reproduction at KS2 This unit prepares pupils for work in Y9 where they learn about gamete formation and fertilisation. As well as supporting PSHE lessons on puberty, sexual relationships and contraception.			
Section	What we are learning (Key knowledge)	Key words	Assessment
1	**Changes during adolescence** • State the difference between adolescence and puberty • Describe the main changes that take place during puberty	Hormones Adolescence Puberty	Card sort activity to assess prior knowledge
2	**Reproductive Systems** • Name the main reproductive organs in males and females. • Describe the adaptations of egg and sperm cells. • Describe the process of fertilisation	Ovary Uterus, Oviduct Vagina, Cervix Penis Testes, Urethra	Plenary to name major organs
3	**The Menstrual Cycle** • State what the menstrual cycle is • Describe the main stages in the menstrual cycle.	Menstruation Ovulation	
4	**Development of the foetus** • Describe how a foetus develops • Describe the role of the placenta and umbilical cord • Describe the process of birth.	Placenta Umbilical cord Contractions	Group work
5	**Contraception** • To know what contraception is • To consider two different methods of contraception and to understand their effectiveness.	Condom Pill Contraception	Information gathered – analysis and comparison of effectiveness
6	**Flower Structures** • Recall the parts of a flower • Describe the function of parts • Explain how a flowering plant reproduces	Anthers Filament Stigma Style	Dissection of flowers to identify key structures
7	**Seed dispersal** • State the different ways in which seeds can be dispersed • Describe how a seed is adapted to its method of dispersal.	Dispersal Adaptations	Starter quiz to assess recall of flower structures Investigate seed dispersal
8 & 9	**Seed Germination** • Describe the conditions needed for seed germination. • Plan an investigation into seed germination.	Germination	MUM – plan investigation into the factors affecting seed germination.

		Independent, dependent and control variables	Second lesson required if results are to be collected
10	Revision		Class assessment sheet
11	End of Unit Test		EUT
12	Test Feedback		Test feedback sheet