



Learning Journey – 7A Cells

Ad Astra

What have I done previously in my learning journey?				
Previously....	You have learnt previously about plants. This has involved: - working scientifically by using magnifying glasses to observe living things closely. - identifying and describing the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers. - identifying that humans and some other animals have skeletons and muscles for support, protection and movement. - describing the simple functions of the basic parts of the digestive system in humans. - identifying and naming the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood			
In this topic...	You will learn about cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope. You will also learn about the functions of the different parts of plant and animal cells.			
We will develop our learning by studying the following each lesson:		British Values	RAG	Skills in Science checklist
7A.01 Animal and Plant Cells - Explain that cells are the fundamental units of living organisms - Identify and describe the functions of the main cell structures (nucleus, cytoplasm, cell membrane, cell wall, chloroplast, vacuole) - Compare and explain key similarities and differences between animal and plant cells - Accurately identify and label cell structures from diagrams and images		☐ Democracy ☐ Rule of law ☐ Tolerance ☐ Individual liberty ☐ Mutual respect		☐ Development of scientific thinking ☐ Experimental skills and strategies ☐ Analysis and evaluation ☐ Scientific literacy ☐ Maths skills
7A.02 The Microscope - Identify and describe the function of the main parts of a light microscope - Use a light microscope safely and correctly to observe specimens - Explain the purpose of magnification in enabling the observation of cells - Record observations using appropriate scientific conventions		☐ Democracy ☐ Rule of law ☐ Tolerance ☐ Individual liberty ☐ Mutual respect		☐ Development of scientific thinking ☐ Experimental skills and strategies ☐ Analysis and evaluation ☐ Scientific literacy ☐ Maths skills
7A.03 Using the Microscope - Prepare and use a light microscope to observe biological specimens safely and systematically - Produce clear, accurate, and labelled scientific drawings from microscope observations - Calculate magnification using images and scale information		☐ Democracy ☐ Rule of law ☐ Tolerance ☐ Individual liberty ☐ Mutual respect		☐ Development of scientific thinking ☐ Experimental skills and strategies ☐ Analysis and evaluation ☐ Scientific literacy ☐ Maths skills
7A.04 Multicellular Organisms - Describe the levels of organisation in multicellular organisms (cells → tissues → organs → organ systems → organisms) - Explain the difference between tissues, organs, and organ systems with relevant examples - Describe how specialised cells are organised to carry out functions within organisms		☐ Democracy ☐ Rule of law ☐ Tolerance ☐ Individual liberty ☐ Mutual respect		☐ Development of scientific thinking ☐ Experimental skills and strategies ☐ Analysis and evaluation ☐ Scientific literacy ☐ Maths skills
7A.05 Specialised Cells - Explain how the structure of specialised animal and plant cells is adapted to their function - Describe examples of specialised cells and link their features to their roles - Explain how unicellular organisms carry out all life processes within a single cell		☐ Democracy ☐ Rule of law ☐ Tolerance ☐ Individual liberty ☐ Mutual respect		☐ Development of scientific thinking ☐ Experimental skills and strategies ☐ Analysis and evaluation ☐ Scientific literacy ☐ Maths skills

Key Words

Cell	Cell membrane	Cytoplasm	Nucleus	Organelle	Eyepiece	Focus	Magnification	Stage	Specimen
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Field of view	Image size	Lens	Resolution	Scale	Organ	Organ system	Organism	Tissue	Unicellular
Adaptation	Function	Nerve cell	Red blood cell	Sperm cell					

Future Learning	At GCSE you will build on your knowledge of cells are the basic unit of all forms of life. You will explore how structural differences between types of cells enables them to perform specific functions within the organism. You will also learn that these differences are controlled by genes in the nucleus. You will build on your knowledge of cell specialisation by learning that for an organism to grow, cells must divide by a process called mitosis producing two new identical cells. If cells are isolated at an early stage of growth before they have become too specialised, they can retain their ability to grow into a range of different types of cells.
In careers	Understanding cells and how they function is important in many careers in science, healthcare and medicine. For example, doctors use their knowledge of cells and tissues to diagnose and treat diseases (average salary £40,000–£126,000+). Biomedical scientists study cells and body tissues to help identify illnesses and develop treatments (average salary £28,000–£50,000+). Knowledge of specialised cells has also led to the development of stem cell research, allowing scientists to grow new tissues that may help repair damaged organs. Research scientists working in biotechnology and medical research use cell biology to develop new medicines and treatments (average salary £30,000–£60,000+). Other careers that rely on understanding cells include pharmacists, who develop and dispense medicines (average salary £43,000–£65,000+), and laboratory technicians, who use microscopes and scientific equipment to investigate samples (average salary £22,000–£35,000+). Studying cells helps develop the scientific knowledge and practical skills needed for a wide range of careers in healthcare, research, biotechnology and medicine.