

Scheme of Learning: Cells & Organisation

Topic Sequence:

1	2	3	4	5	6	7	8	9	10
Lab Skills	Particles and Separation Techniques	Forces	Cells and Organisation	Elements and the Periodic Table	Energy	Health and Human Body	Chemical Reactions	Electricity and Magnetism	Reproduction

Topic Overview:

The national curriculum requirements for this topic are to cover the following:

- cells as the fundamental unit of living organisms, including how to observe, interpret and record cell structure using a light microscope
- the functions of the cell wall, cell membrane, cytoplasm, nucleus, vacuole, mitochondria and chloroplasts
- the similarities and differences between plant and animal cells
- the role of diffusion in the movement of materials in and between cells & the structural adaptations of some unicellular organisms
- the hierarchical organisation of multicellular organisms: from cells to tissues to organs to systems to organisms
- 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.

Lesson Sequence:

Starting with learning the new skill of using a microscope, we move onto learning the parts and functions of animal and plant cells and how they differ from microbes and specialised cells. We then build up from cells to tissues to organs then organ systems. We focus on the muscle and skeletal systems as an example of an organ system.

Sequence of Lessons:

1	Using a microscope
2	Animal cells
3	Plant cells
4	Specialised cells
5	Microbes
6	Cells to Organisms
7	Skeletal system
8	Muscles & chicken dissection
9	Antagonistic muscles
10	Assessment

Resources:

1	Microscopes, Pre-prepared microscope slides
2	Microscopes, Slides, Cover slips, Cotton buds, Disinfectant pot for used slides Methylene blue dye
3	Microscopes, Slides, Cover slips, Iodine Onions, Knives, White tiles
4	Specialised cells info sheets and table for pupils to complete (laminated in cabinet)
5	Microbe fact sheets and question sheet (laminated in cabinet)
6	n/a
7	Skeleton model, Joints fact sheet, (laminated in cabinet),
8	Chicken wings, Dissection tools, Bin bag for remains Disinfectant and extra paper towels to clean up after.
9	Arm muscle template printed onto card. Split pins, String, Enough scissors if not enough in classroom
10	In folder

Supportive Reading:

Comprehension activity	Unicellular organism comprehension sheets
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Assessment:

Knowledge:	20 question multiple choice knowledge test
Application of Knowledge:	Extended writing answer comparing plant and animal cells.