



Year 7 Science knowledge organiser

Module – Organisms

Topic – Movement and cells

Length of topic – Approx. 12 lessons

Method of assessment – Summative assessment

Links to prior learning

KS2 Year 5 Animals including humans topic

- Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood
- Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function
- Describe the ways in which nutrients and water are transported within animals, including humans.

Knowledge to be taught.

- The parts of the human skeleton work as a system for support, protection, movement and the production of new blood cells.
- Antagonistic pairs of muscles create movement when one contracts and the other relaxes.
- Multicellular organisms are composed of cells which are organised into tissues, organs and systems to carry out life processes.
- There are many types of cell. Each has a different structure or feature so it can do a specific job.
- Plant and animal cells share some common features but also have components unique to them.

Skills to be covered

- Use a light microscope to observe and draw cells.

Working scientifically strands covered

Analyse patterns	✓
Discuss limitations	✓
Draw conclusions	✓
Present data	✓
Communicate ideas	✓
Construct explanations	✓
Critique claims	✓
Justify opinions	✓
Collect data	
Devise questions	✓
Plan variables	✓
Test hypothesis	✓
Estimate risks	
Examine consequences	
Review theories	
Interrogate	

Assessment

Summative assessment based on knowledge taught through the topic

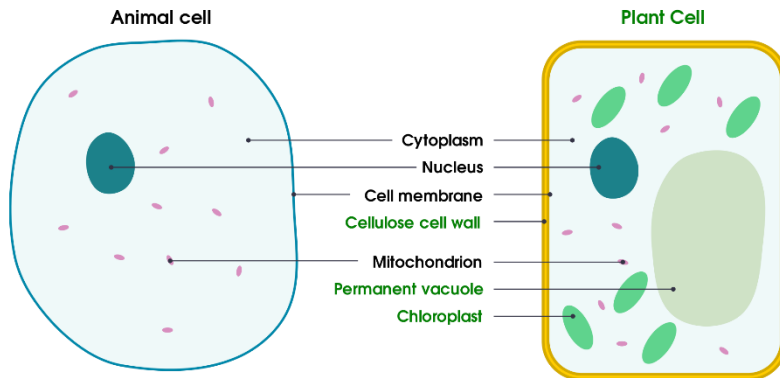


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Facts

Both plant and animal cells have a cell membrane, nucleus, cytoplasm and mitochondria.

Plant cells also have a cell wall, chloroplasts and usually a permanent vacuole.



There are many types of specialised cells. Each has a different structure or feature so it can do a specific job.

Image	Type of animal cell	Function	Special features
	Red blood cells	To carry oxygen	<ul style="list-style-type: none"> • Large surface area, for oxygen to pass through • Contains haemoglobin, which joins with oxygen • Contains no nucleus
	Nerve cells	To carry nerve impulses to different parts of the body	<ul style="list-style-type: none"> • Long • Connections at each end • Can carry electrical signals
	Female reproductive cell (egg cell)	To join with male cell, and then to provide food for the new cell that's been formed	<ul style="list-style-type: none"> • Large • Contains lots of cytoplasm
	Male reproductive cell (sperm cell)	To reach female cell, and join with it	<ul style="list-style-type: none"> • Long tail for swimming • Head for getting into the female cell

Keywords

Antagonistic muscle pair: Muscles working in unison to create movement.

Bone marrow: Tissue found inside some bones where new blood cells are made.

Cartilage: Smooth tissue found at the end of bones, which reduces friction between them.

Cell: The unit of a living organism, contains parts to carry out life processes.

Diffusion: One way for substances to move into and out of cells.

Cell membrane: Surrounds the cell and controls movement of substances in and out

Cell wall: Strengthens the cell. In plant cells it is made of cellulose.

Chloroplast: Absorbs light energy so the plant can make food.

Circulatory system: Transports substances around the body.

Cytoplasm: Jelly-like substance where most chemical processes happen.

Digestive system: Breaks down and then absorbs food molecules.

Immune system: Protects the body against infections.

Joints: Places where bones meet.

Ligaments: Connect bones in joints.

Mitochondria: Part of the cell where energy is released from food molecules.

Multi-cellular: Living things made up of many types of cell.

Muscular skeletal system: Muscles and bones working together to cause movement and support the body.

Nucleus: Contains genetic material (DNA) which controls the cell's activities.

Organ: Group of different tissues working together to carry out a job.

Reproductive system: Produces sperm and eggs, and is where the foetus develops.

Respiratory system: Replaces oxygen and removes carbon dioxide from blood.

Structural adaptations: Special features to help a cell carry out its functions.

Tendons: Connect muscles to bones.

Tissue: Group of cells of one type.

Uni-cellular: Living things made up of one cell.

Vacuole: Area in a cell that contains liquid, and can be used by plants to keep the cell rigid and store substances.