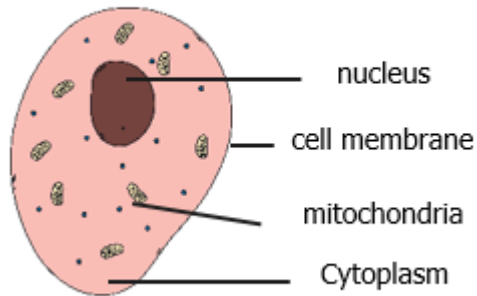


Y9 Organisation of the Human Body Knowledge Organiser





Animal Cell



The components of the cell all have a different function (job).

Cell component (organelle)	Function
Nucleus	Controls the activities of the cell. It contains genetic material (DNA).
Cell membrane	Controls the movement of substances into and out of the cell.
Mitochondria	Where energy is released for the cell.
cytoplasm	A jelly-like substance that fills the cell, where most chemical reactions occur.

Specialised cells: Each function carried out by the organism is performed by different cells. Each type of cell has slightly different features.

muscle cell		To help the body to move.	Contains bands of protein that change shape to contract and relax the muscle. Lots of mitochondria to provide energy for muscle contraction.
nerve cell		To carry nerve impulses around the body.	Long fibres carry electrical impulses up and down the body and branching dendrites at each end connect to other nerves or muscles.
ciliated epithelial cell		To move mucus away from the lungs.	Tiny hairs called cilia to help waft mucus along the airways. Lots of mitochondria release energy for the cilia to move.
Red blood cell		To transport oxygen around the body.	Biconcave shape increases the surface area for the diffusion of oxygen. No nucleus so that there is more room for haemoglobin, which binds oxygen molecules.

Levels of Organisation



A **cell** is the smallest unit of a living organism. It contains structures needed to carry out life processes.



A **tissue** is a group of cells of the same type.



An **organ** is a group of different tissues working together to carry out a job.



An **organ system** is a group of different organs working together to perform a particular function.

Organ systems

Organ system	Function	Example Organs
musculoskeletal	Muscles and bones working together support and move the body.	Muscles Bones tendons
reproductive	Produces sperm (males) and eggs (females). In females, this is where the foetus develops.	Uterus, sperm duct, testes, oviduct
Respiratory	Takes in oxygen from the air and removes carbon dioxide from blood.	Lungs, trachea, bronchus
circulatory	Transports substances around the body.	Heart, arteries, veins
digestive	Breaks down and absorbs food molecules.	Stomach, oesophagus, small intestine