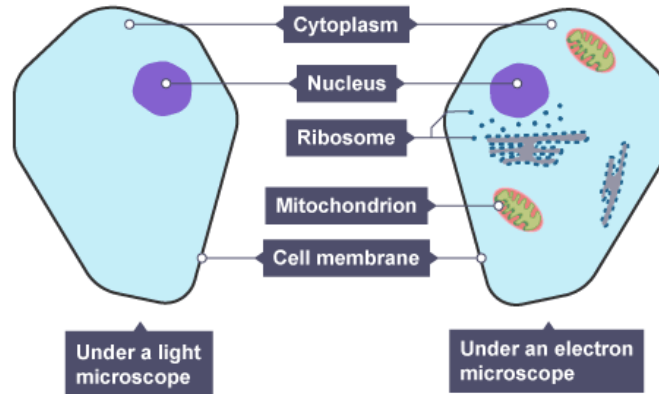


Knowledge Organiser: Y7 Animal Cells

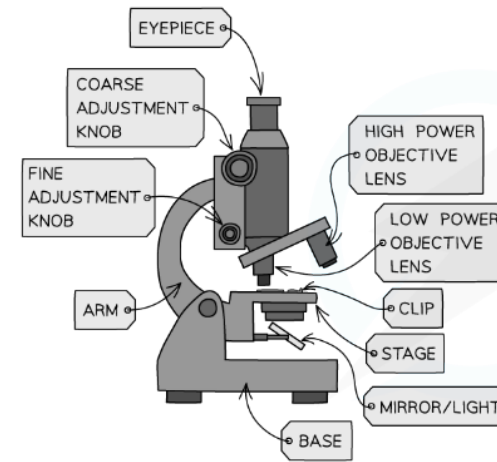
7 Life Processes

Movement
Respiration
Sensitivity
Growth
Reproduction
Excretion
Nutrition

Cell Structure



Using a Light Microscope



TO USE A MICROSCOPE TO LOOK AT A SPECIMEN:

1. CLIP THE SLIDE CAREFULLY ONTO THE STAGE.
2. ENSURE THE LOWEST-POWERED OBJECTIVE LENS IS OVER THE SLIDE.
3. USE THE COARSE ADJUSTMENT KNOB TO BRING THE STAGE UP JUST BELOW THE LENS.
4. LOOK DOWN THE EYEPIECE AND GRADUALLY MOVE THE STAGE DOWNWARDS USING THE COARSE ADJUSTMENT KNOB. STOP WHEN THE IMAGE IS ROUGHLY IN FOCUS.
5. TO BRING THE IMAGE INTO FOCUS, ADJUST THE FINE-ADJUSTMENT KNOB UNTIL A CLEAR IMAGE IS OBTAINED.
6. TO OBSERVE THE IMAGE WITH A HIGHER MAGNIFICATION, CHANGE THE OBJECTIVE LENS TO A HIGHER POWER AND READJUST THE STAGE USING THE COARSE AND FINE ADJUSTMENT KNOBS.

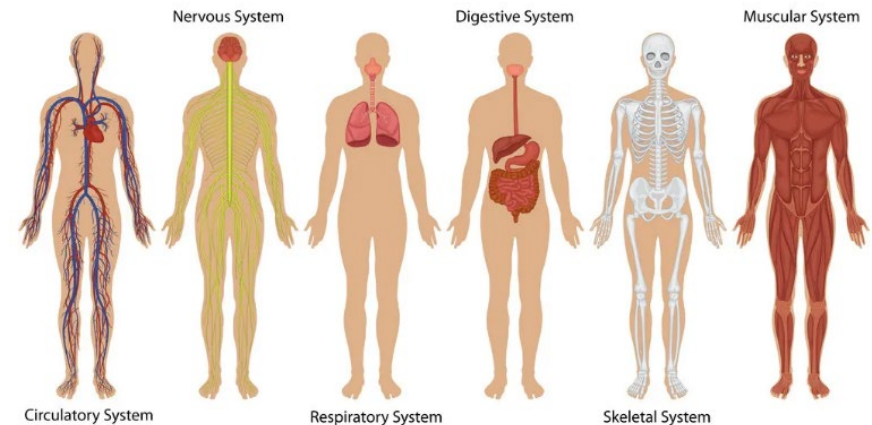
Total Magnification =
 Magnification of the **eyepiece lens** x Magnification of the **objective lens**

Sub-cellular structure	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.
Cytoplasm	A jelly like substance that fills the cell, where most chemical reactions take place.
Mitochondria	The site of aerobic respiration , which releases energy for the cell.
Ribosomes	Where proteins are made (proteins are made by a process called protein synthesis).

Main Human Organs

Heart – pump blood around the body.
 Lungs – allow gas exchange.
 Brain – control the body.
 Kidneys – filter blood.
 Liver – break down toxins.
 Skin – barrier.
 Stomach – digest food.

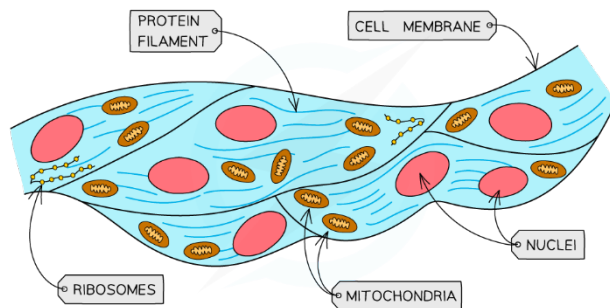
Organ Systems



Knowledge Organiser: Y7 Animal Cells

Levels of Organisation

Structure	Description
Cell	The smallest unit of all living organisms.
Tissue	A tissue is a group of cells with a similar structure and function.
Organ	A structure made up of groups of different tissues, working together to perform specific functions.
Organ system	A group of organs with related functions, working together to perform certain functions within the body.



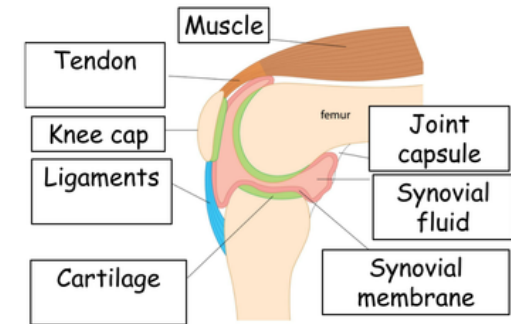
Functions of the Skeleton

- Support
- Protection
- Movement
- Making blood cells

Features of a joint:

Tendons – attach muscle to bone.
 Ligament – attach bone to bone.
 Cartilage – prevents bones from rubbing together.
 Synovial fluid – lubricates the joint to allow smooth movement.

Features of a joint:



Muscles

Muscles work by getting shorter (they contract).
 Muscles are attached to bones by inelastic tendons. When a muscle contracts, it pulls on the bone, and the bone can move if it is part of a joint.
 Skeletal muscles work in pairs called **antagonistic muscles**.

Muscle Cells

Muscles are made from muscle cells.
 Muscle contain **lots of mitochondria** - so they can transfer enough energy (via respiration) to contract.

