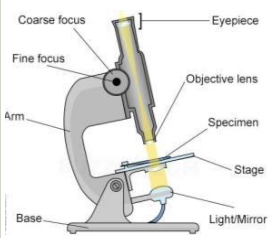


Keyword	Definition
Cell	Basic unit of life. Unicellular organisms only have one cell. Multicellular organisms have many cells.
Cell Membrane	Controls the movement of substances in and out of the cell.
Cytoplasm	Jelly-like substance where chemical reactions take place.
Nucleus	Carries genetic information and controls the cell.
Mitochondria	Where respirations takes place.
Cell Wall	Made of cellulose, provides support to the cell.
Vacuole	Contains cell sap.
Chloroplasts	Contains the green pigment chlorophyll, the site of photosynthesis.
Tissue	Something made from just one type of specialised cell.
Organ	Something made from different groups of specialised cells all working together.
Organ System	When a number of organs work together.
Synovial Joint	A freely moveable joint. Examples include the hip, shoulder, elbow and knee joints.

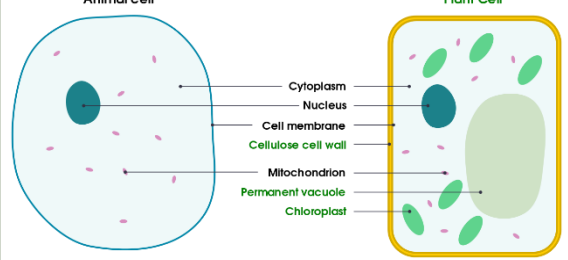
Further Reading:
<https://www.bbc.com/bitesize/guides/z9hyvcw/revision/2>



Light Microscope: A device which uses light and a series of lenses to produce a magnified image of an object.

Magnification = How much bigger a sample/object appears under the microscope than it is in real life.

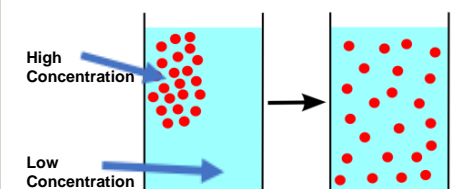
Total Magnification = Eyepiece lens x Objective lens



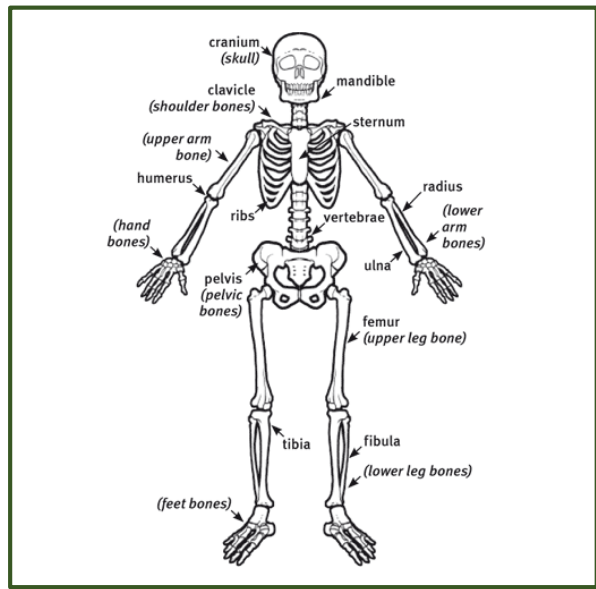
Animal cell (left) and **Plant Cell** (right).

Labels: Cytoplasm, Nucleus, Cell membrane, Cellulose cell wall, Mitochondrion, Permanent vacuole, Chloroplast.

Diffusion: The movement of particles from an area of high concentration to an area of low concentration. Substances diffuse into and out of cells.

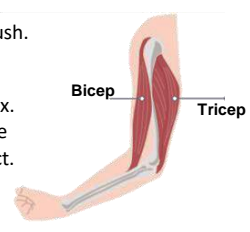



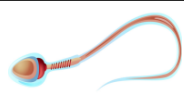
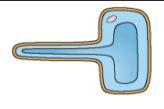

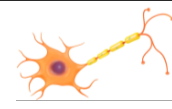

High Concentration → Low Concentration



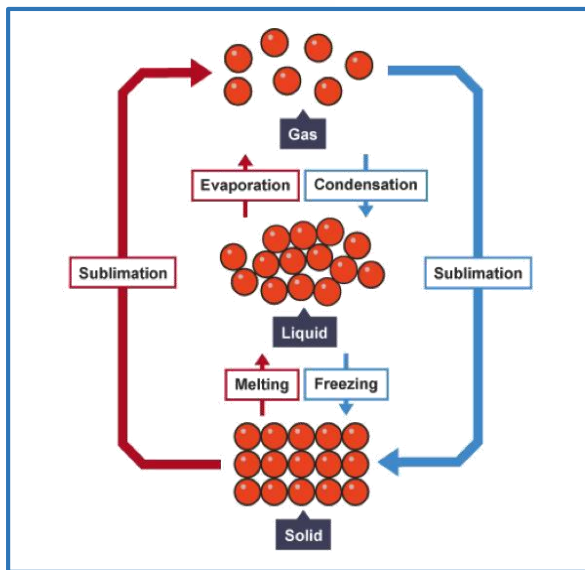
Antagonistic Muscles:

- Muscles work by getting shorter.
- Muscles can only pull and can't push.
- Muscles work in pairs.
- When you raise your forearm, the biceps contract and the triceps relax.
- When you lower your forearm, the biceps relax and the triceps contract.



Red Blood Cell	Sperm Cell	Root Hair Cell	Palisade Cell	Nerve Cell	Egg Cell
					
Carries blood around the body. Adaptations: No nucleus, large surface area and biconcave shape.	Carries the male genes. Adaptations: Tail for swimming, mitochondria for energy, acrosome to break down the egg cell.	Take in water from the soil. Adaptations: Long & thin; large surface area for maximum water absorption. Thin cell walls.	Production of food for the plant. Adaptations: Tall and thin. Lots of chloroplasts to absorb sunlight for photosynthesis.	Carry signals around the body. Adaptations: Long axon. Myelin sheath.	Carries the female genes. Adaptations: Lots of mitochondria. Outer layer hardens once fertilised.

Keyword	Definition
Particle	The general term for a small piece of matter.
State of Matter	The distinct forms in which matter can exist (solid, liquid, gas)
Solid	A substance with a fixed shape and volume.
Liquid	A substance with a fixed volume but not a fixed shape.
Gas	A substance that does not have a fixed shape or volume.
Change of State	The change of a substance from one physical form to another.
Melting	The change of state when a solid changes to a liquid.
Freezing	The change of state when a liquid changes to a solid.
Condensing	The change of state when a gas changes to a liquid.
Evaporation	The change of state when a liquid changes to a gas.
Density	The amount of mass that 1cm ³ of a substance has.
Density (formula)	Density = mass ÷ volume $\rho = m \div v$
Dense	Something which is heavy for its volume.



Forces between particles:

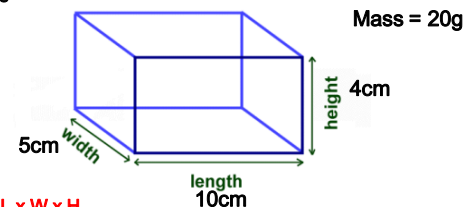
Solid: There are strong forces of attraction between the particles in a solid. Therefore, particles can only vibrate in a fixed position.

Liquid: There are weaker forces of attraction between the particles in a liquid. Therefore, the particles are close together, and are able to move around each other.

Gas: The forces of attraction between the particles are overcome. Therefore, the particles are far apart and move quickly in all directions.

Solid	Liquid	Gas
The particles vibrate in a fixed position.	The particles are close together and move around each other.	The particles are far apart and move quickly in all directions.
The particles cannot move from place to place.	The particles are arranged in a random position.	The particles are arranged in a random way.
Particles have a fixed shape and cannot flow.	The particles flow and take the shape of the bottom of their container.	The particles flow and completely fill their container.
The particles cannot be compressed (squashed)	The particles cannot be compressed.	The particles can easily be compressed.

Calculating Volume:



Volume = L x W x H
Volume = 10cm x 5cm x 4cm
Volume = 200cm³.

Calculating Density:
Density = Mass ÷ Volume
Density = 20g ÷ 200cm³
Density = 0.1g/cm³

Density:
1kg of a gas has a larger volume than 1kg of a solid. There is empty space between particles in a gas, but in a solid, they're tightly packed together.

Further Reading:

<https://www.bbc.com/bitesize/guides/z2wmxnb/revision/1>

<https://www.bbc.com/bitesize/articles/zqpv7p3>

