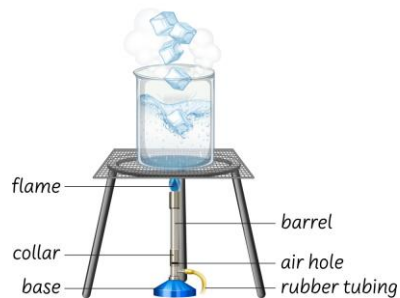


Week 1 and 2

Introduction to Science

- Safety Rules for science lessons
- How to spot hazards
- Using a Bunsen burner safely
- How to plan and carry out a safe investigation

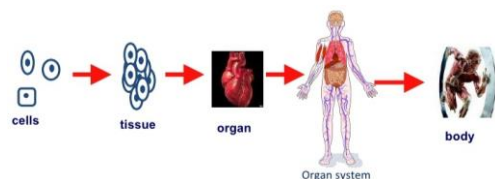
Bunsen Burner



What do the COSHH symbols mean?

Caution - used for less serious health hazards like skin irritation

Longer term health hazards such as carcinogenicity

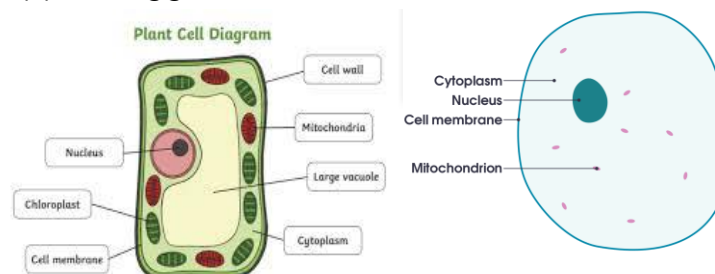


Week 3

Big Picture: Cells

Everything that is alive is made of tiny parts, called cells.

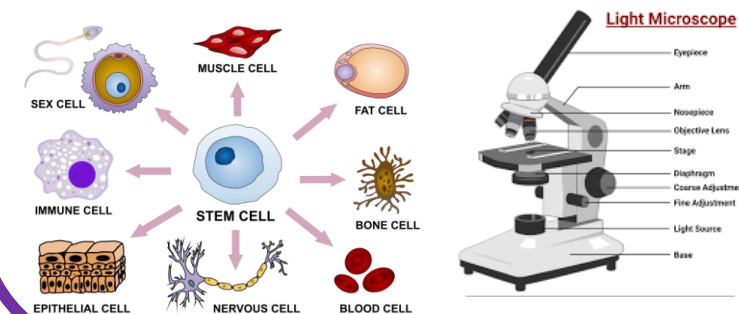
- **Animal Cells** have an irregular shape and contain 4 key components: cell membrane, nucleus, cytoplasm and mitochondria
- **Plant Cells** have a more regular structure and contain the extra components of a cell wall, vacuole and chloroplasts
- **Microscopes** help us to see cells by making them appear bigger



Week 4

Big Picture: Cells

- **Writing methods** help us investigate changing factors in science and allow others to repeat an investigation to ensure results are valid
- **Observing Cells**, calculating magnification and making slides help us compare cells from different organisms
- **Specialised Cells** have particular shapes and features that carry out a job e.g. sperm cell designed to swim up the uterus



Year 7 Science: Term 1 Safe Working, Cells and Matter

Week 5

Big Picture: Cells

- **Organising Cells**
Cells make up tissues, tissues make up organs and organs make up organ systems e.g Nerve cell – nerve tissue – spinal cord - nervous system

Big Picture: Particles

Materials are made up of tiny objects called particles. The particles are too small to see, even with a microscope. There are about 8 400 000 000 000 000 000 000 000 particles in a glass of water. The particle model is a way of thinking how a substance behaves in terms of its tiny moving or vibrating particles. You can use the particle model to explain properties of substances. The properties of a substance depend on 3 things: what its particles are like, how its particles are arranged and how its particles move about.

Week 6

Big Picture: Particles

Water can exist in 3 states, as a solid, liquid or a gas. These are the states of matter. The particles of water in its 3 states are identical. But the properties of ice, liquid water and steam are different. You can use the **particle model** to explain why.

	Solid	Liquid	Gas
Arrangement of particles	Close together Regular pattern	Close together Random arrangement	Far apart Random arrangement
Movement of particles	Vibrate on the spot	Move around each other	Move quickly in all directions
Diagram			

Key words:

Cell - A tiny structure which can be found in all living things

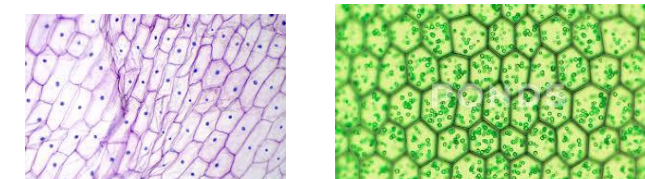
Tissue - A group of similar cells working together.

Microscope - An instrument for observing objects which are too small for the eye to see.

Hazard - an event that has the potential to cause harm

Particle - a very tiny object, such as an atom or molecule that materials are made from

Matter - any substance that has mass and takes up space by having volume made of particles



Week 1 and 2

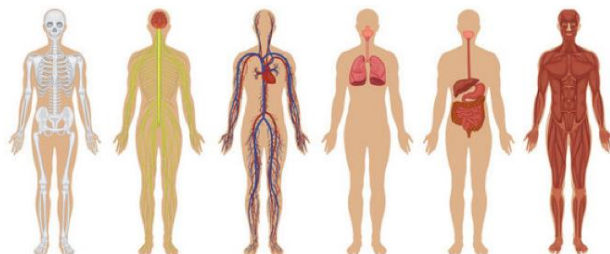
Questions	Answers
What is a hazard?	Something that can cause harm
What is a scientific theory?	An idea used to explain events in science
What is a measurement (in science)	The result of an experiment that can be measured with scientific equipment
Why might we repeat our experiment 3 times	We carry out 3 repeats and find an average in order to identify errors and make our results more reliable
What is an anomaly?	A result that does not fit with the rest of the data

Week 3

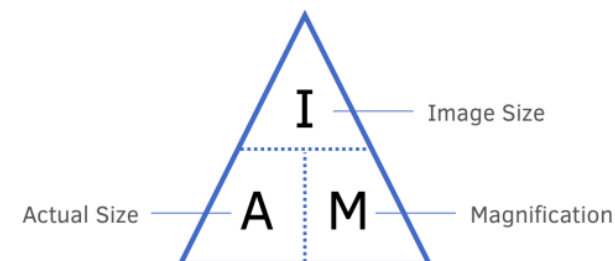
Questions	Answers
Name the 3 key components of animal cells	Nucleus, cell membrane, cytoplasm, mitochondria
Name the extra components in plant cells	Cell wall, chloroplasts, vacuole
What is the function of the nucleus?	It contains genetic material (DNA) which controls the cell's activities
What is found inside a vacuole?	Sap – a liquid to store substances and keep the cell rigid
What is a Stem Cell?	undifferentiated cells that have not yet specialised to perform a specific function

Week 4

Questions	Answers
State 2 things you need to include in an investigation plan	What equipment you will use and why, what method you are going to use and why
What are the 3 types of variables?	Independent = you change Dependent = you measure Control = you keep the same
Who invented the microscope?	Anton Von Leuenhooke. Robert Hooke observed the first cells using a microscope
How do you calculate magnification?	Magnification = $\frac{\text{Image size}}{\text{Actual size}}$
What does specialised cell mean?	A cell whose shape and structure enable it to perform a particular function



Year 7 Science: Term 1 Safe Working, Cells and Matter



Week 5

Questions	Answers
What is a tissue?	A group of specialised cells e.g. muscle cells
What is an organ?	Different tissues that work together to perform a function e.g. the lungs, the kidneys
How does increasing temperature affect movement of particles in a gas?	Heating increased kinetic energy so the particles move faster, in random directions
What is density?	Mass per unit volume, how tightly packed the particles are
What affects diffusion?	The movement of particles from an area of high to an area of low concentration

Week 6

Questions	Answers
What are the properties of a liquid?	Fixed volume, takes the shape of a container, can be poured, cannot be compressed, particles move freely
Describe a solid	A regular pattern of particles, all touching in a fixed position
Can you compress a liquid?	No, because the particles are already touching each other
What is melting?	When a solid becomes a liquid
What is condensation?	When a gas cools to become a liquid

Key words:

Cell - A tiny structure which can be found in all living things

Tissue - A group of similar cells working together.

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Particle - a very tiny object, such as an atom or molecule that materials are made from

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