

Scientific equipment

Name	Use	Name	Use
Bunsen burner	Heating by burning a gas	Stopwatch	To measure time
Conical flask	To measure volume of liquids	Tongs	To hold hot things (not test tubes)
Beaker	To hold, pour and heat liquids	Thermometer	To measure temperature
Measuring cylinder	To measure precise volume of liquid	Safety Goggles	To protect your eyes
Evaporating basin	To heat and evaporate liquids	Tripod	To hold a beaker above a Bunsen burner
		Gauze	Used to support a beaker

Hazard symbols

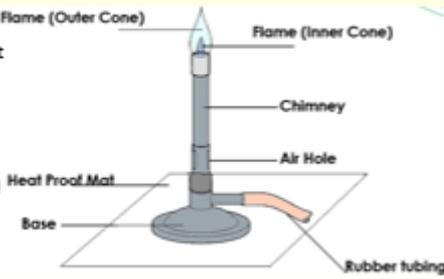


Levels of organisation

1. Cells
2. Tissue
3. Organ
4. Organ System
5. Organism

Bunsen burner

Different flames:
Collar open= Blue flame- used to heat substances
 Temperature= 500 degrees
Collar closed= Yellow flame: used as a safety flame .
 Temperature= 300 degrees

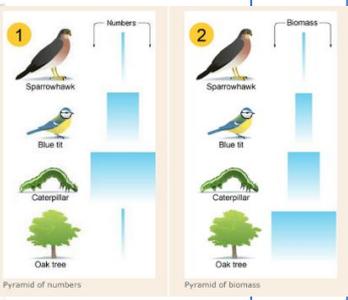
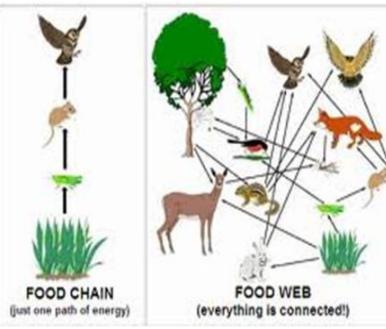


Classification

Animal kingdom is broken into:
 Vertebrates (animals with a backbone)
 1. Mammals (Humans)
 2. Fish (Goldfish)
 3. Reptiles (Lizard)
 4. Amphibians (Frog)
 5. Birds (Parrot)

Food chains and food webs

Food Chain vs. Food Web



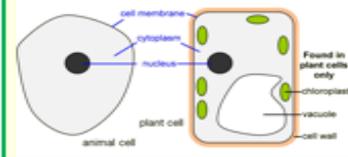
Competition

Plants compete for:
 1.Space
 2.Light
 3.Water
 Animals compete for:
 1.Mates
 2. Food
 3. Water
 4. Space

Specialised cells

Cell	Function	Adaptation
Sperm cell	To carry genetic material	Long tail, pointy head
Egg cell	To carry genetic material	Large, made of a jelly coat
Nerve cell	To send electrical impulses	Long, connections at each end
Red blood cell	To carry oxygen to cells and carbon dioxide to lungs	Biconcave shape, Large surface area, no nucleus
White blood cell	To produce antitoxins to protect the body against disease	Different shapes
Root hair cell	To absorb water and minerals	Long surface area
Palisade cell	To absorb light for photosynthesis	Lots of chloroplasts

Animal and Plant cells



All animals and plants are made of cells.

Functions which animal and plant cells have **in common**:

- Nucleus:** contains genetic material, which controls the cells activities.
- Cytoplasm:** most chemical processes take place here
- Cell membrane:** controls the movement of substances in and out of the cell
- Mitochondria:** where most energy is released by respiration
- Ribosomes:** proteins are made here.

Extra parts of plant cell:
Cell wall: strengthens the cell.
Chloroplasts: contain chlorophyll which absorbs light energy for photosynthesis
Vacuole: filled with cell sap to help keep the cell turgid

Science investigation- key words

Control variables- Variables that must be kept the same.
Independent variables- Variables that are changed by experimenter
Dependent variable- Variables that are measured
Accuracy – Measurements that are close to the true value

Life Processes	Description
Movement	Going from one place to another independently
Respiration	Making energy to keep you active
Sensitivity	How things react and respond to what is happening around them
Nutrition	Taking in food
Excretion	Getting rid of waste substances
Reproduction	Producing new plants or animals.
Growth	Cells multiplying and growing

Kingdom	Description
Plants	Contain chlorophyll and can photosynthesise (make their own food using the sun's energy)
Animals	Multiple animal cells with nervous systems. They eat food for survival.
Prokaryotes	Single celled organisms with no nucleus. E.g. bacteria
Fungi	Made up of decomposers that absorb nutrients for survival e.g. mushrooms, moulds and yeast
Protists	Single celled organisms with a nucleus. Normally live in water. E.g. Amoeba and Algae

Vertebrates	Animals with backbones
Invertebrates	Animals without backbones

Animal Group	Description
Mammals	Give birth to live young, Hair and fur on body, Warm blooded, Live on land and water, Produce milk to feed young
Reptiles	Live on land and water, Leathery eggs, Cold blooded, Dry scaly skin
Amphibians	Live on land and water, Gills, Cold blooded, Webbed feet
Fish	Live in water, Lay soft shelled eggs, Fins, Gills, Wet scales, Cold blooded
Birds	Feathers, Lay hard shelled eggs. Warm blooded, Wings

FOOD CHAINS AND WEBS	
Food chain	Shows the different species in a habitat, and what eats what
Food web	When all the food chains in a habitat are joined up together
The direction of the arrows...	shows the way in which energy is moving.
Energy is transferred along food chains but..	the amount of energy is lost from one stage to the next.
Energy is lost in food chains through..	Movement, Respiration and Waste products

Organism	A living thing
Consumer	an organism that eats another organism
Producer	Uses the sun's light energy to make their own food by photosynthesis e.g. grass, algae.
Carnivore	Carnivore: eats meat e.g. lion
Herbivore	eats only plants e.g. cow
Species	When animals can reproduce to produce fertile offspring/ are of the same type e.g. humans are one species.

Pyramid of numbers	The population of each organism in a food chain.
The more organisms there are...	The wider the bar.
Pyramid of biomass	the mass of living material at each stage in a food chain

