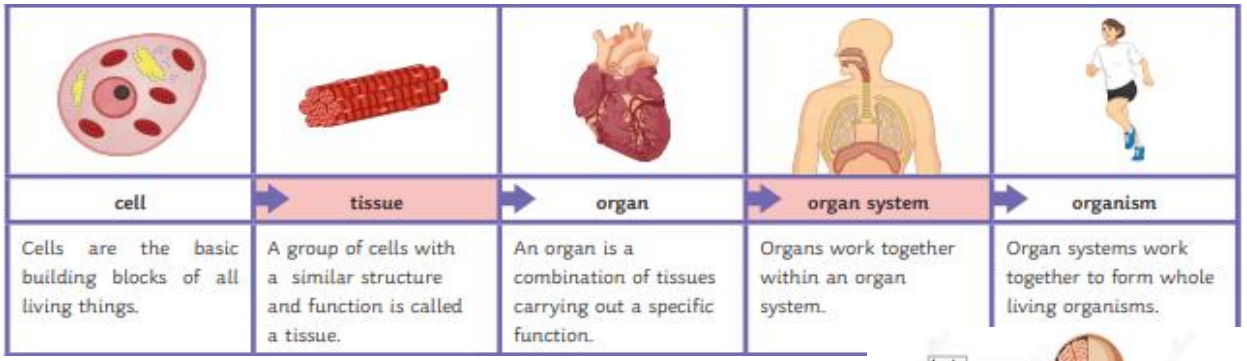
THE KNOWLEDGE Organisms

LINKS:
https://www.bbc.com/bitesize/guides/z9hyvcw/revision/6

Living organisms have certain life processes in common. There are seven things that they need to do to count as being alive. : MRS GREN:

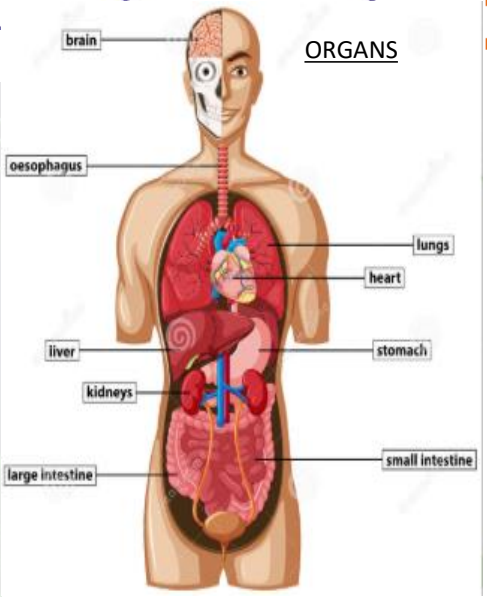
- **M**ovement - all living things move, even plants
- **R**espiration - getting energy from food
- **S**ensitivity - detecting changes in the surroundings
- **G**rowth - all living things grow
- **R**eproduction - making more living things of the same type
- **E**xcretion - getting rid of waste
- **N**utrition - taking in and using food



ORGANS SYSTEMS

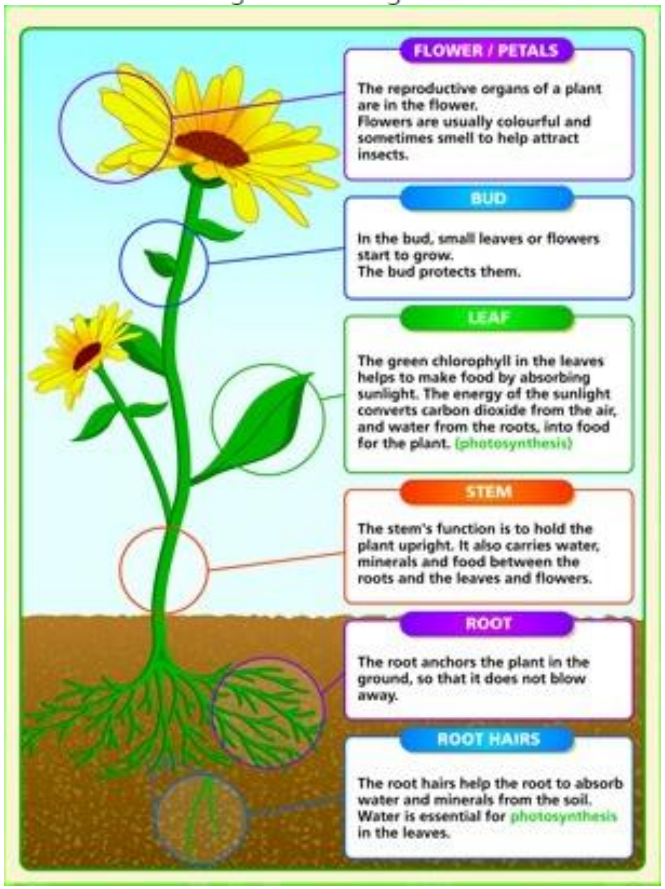
muscular skeletal system	Muscles and bones working together to cause movement and support the body.
reproductive system	Produces sperm and eggs, and is where the foetus develops.
respiratory system	Replaces oxygen and removes carbon dioxide from blood.
immune system	Protects the body against infections.
digestive system	Breaks down and then absorbs food molecules.
circulatory system	Transports substances around the body.

ORGANS



Brain	This organ allows you to process information about your surroundings and make decisions about how to respond. Co-ordinates the whole body. Responsible for memory, thought and intelligence.
Stomach	This is a very muscular organ that churns the food you eat to help break it down.
Large intestine	Converts food waste products into faeces
Small intestine	Absorbs nutrients and minerals from food into the bloodstream

Kidneys	Two bean-shaped organs that extract waste from blood, balance body fluids and form urine.
Liver	Produces bile, which helps carry away waste and break down fats in the small intestine during digestion.
Lungs	These delicate organs are where oxygen enters the blood and CO2 leaves the blood.
Heart	This muscle allows blood to be pumped to every cell in your body delivering nutrients.

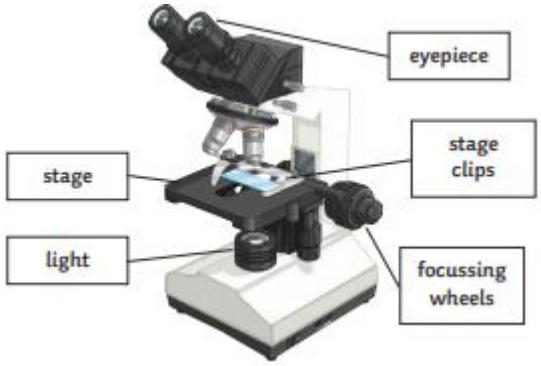


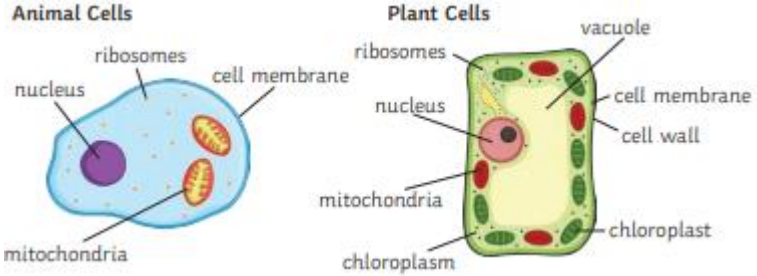
THE KNOWLEDGE CELLS

LINKS: https://www.bbc.com/bitesize/guides/z9hyvcw/revision/3

Plant and animal cells have similarities and differences:

	Animal	Plant
nucleus	✓	✓
cytoplasm	✓	✓
chloroplast	X	✓
cell membrane	✓	✓
permanent vacuole	X	✓
mitochondria	✓	✓
ribosomes	✓	✓
cell wall	X	✓





Part	Function
Cell membrane	Controls the movement of substances into and out of the cell
Cytoplasm	Jelly-like substance, where chemical reactions happen
Nucleus	Carries genetic information and controls what happens inside the cell
Mitochondria	Where most respiration reactions happen
Vacuole	Contains a liquid called cell sap, which keeps the cell firm
Cell wall	Made of a tough substance called cellulose, which supports the cell

SPECIALISED CELLS

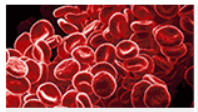
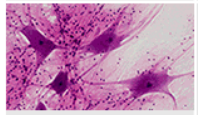
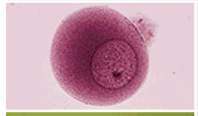
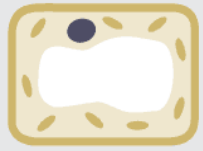
Image	Type of animal cell	Function	Special features
	Red blood cells	To carry oxygen	• Large surface area, for oxygen to pass through • Contains haemoglobin, which joins with oxygen • Contains no nucleus
	Nerve cells	To carry nerve impulses to different parts of the body	• Long • Connections at each end • Can carry electrical signals
	Female reproductive cell (egg cell)	To join with male cell, and then to provide food for the new cell that's been formed	• Large • Contains lots of cytoplasm
	Male reproductive cell (sperm cell)	To reach female cell, and join with it	• Long tail for swimming • Head for getting into the female cell

Image	Type of plant cell	Function	Special features
	Root hair cell	To absorb water and minerals	• Large surface area
	Leaf cell	To absorb sunlight for photosynthesis	• Large surface area • Lots of chloroplasts

CELL GROWTH

Feature	Plant	Animal
Where growth occurs	Mainly at shoot and root tips and in special growth zones like buds	New cells can be made by most tissues
How growth occurs	Size increase often caused by increasing the size (elongation) of cells by absorbing water into the vacuole	Size increase is brought about by increasing the number of cells
Cell specialisation	Most plant cells can differentiate into different cell types	Only stem cells can differentiate into different cell types. Other animal cell functions remain fixed