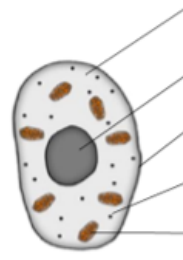



Cell Biology and diffusion L1-7



cytoplasm	<i>site of chemical reactions in the cell</i>	gel like substance containing enzymes to catalyse the reactions
nucleus	<i>contains genetic material</i>	controls the activities of the cell and codes for proteins
cell membrane	<i>semi permeable</i>	controls the movement of substances in and out of the cell
ribosome	<i>site of protein synthesis</i>	mRNA is translated to an amino acid chain
mitochondrion	<i>site of respiration</i>	where energy is released for the cell to function

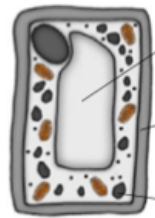


cell membrane	<i>site of chemical reactions in the cell</i>	gel like substance containing enzymes to catalyse the reactions
bacterial DNA	<i>not in nucleus floats in the cytoplasm</i>	controls the function of the cell
cell wall	NOT made of cellulose	supports and strengthens the cell
plasmid	<i>small rings of DNA</i>	contain additional genes
cytoplasm	<i>semi permeable</i>	controls the movement of substances in and out of the cell

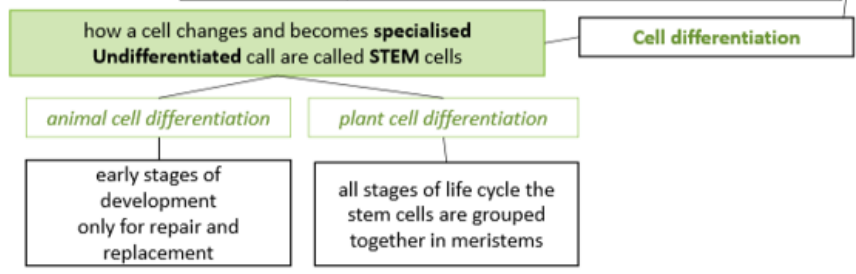
Bacterial cells are much smaller than plant and animal cells



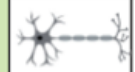





contains all the parts of animal cells plus extras



permanent vacuole	<i>contains cell sap</i>	keeps cell turgid, contains sugars and salts in solution
cell wall	<i>made of cellulose</i>	supports and strengthens the cell
chloroplast	<i>site of photosynthesis</i>	contains chlorophyll, absorbs light energy



Specialised cells

specialised animal cells	nerve		<i>carry electrical signals</i>	long branched connections and insulating sheath
	sperm		<i>fertilise an egg</i>	streamlined with a long tail acrosome containing enzymes large number of mitochondria
	muscle		<i>contract to allow movement</i>	contains a large number of mitochondria long
specialised plant cells	root hair		<i>absorb water and minerals from soil</i>	hair like projections to increase the surface area
	xylem		<i>carry water and minerals</i>	TRANSPIRATION - dead cells cell walls toughened by lignin flows in one direction
	phloem		<i>carry glucose</i>	TRANSLLOCATION - living cells cells have end plates with holes flows in both directions



Cell Biology and diffusion L1-7

Small intestines	<i>Villi – increase surface area, Good blood supply – to maintain concentration gradient, Thin membranes – short diffusion distance.</i>
Lungs	<i>Alveoli– increase surface area, Good blood supply – to maintain concentration gradient, Thin membranes – short diffusion distance.</i>
Gills in fish	<i>Gill filaments and lamella – increase surface area, Good blood supply – to maintain concentration gradient, Thin membranes – short diffusion distance.</i>
Roots	<i>Root hair cells - increase surface area.</i>
Leaves	<i>Large surface area, thin leaves for short diffusion path, stomata on the lower surface to let O₂ and CO₂ in and out.</i>

ADAPTATIONS FOR DIFFUSION – The greater the difference in concentrations the faster the rate of diffusion.

**AQA
Cell Biology**

Transport in cells

Diffusion <u>No</u> energy required	<i>Movement of particles in a solution or gas from a higher to a lower concentration</i>	E.g. O ₂ and CO ₂ in gas exchange, urea in kidneys. Factors that affect the rate are concentration, temperature and surface area.
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