CELL STRUCTURE

Tissue -	A group of cells working together to carry out a specific function
Organ -	A group of tissues working together to carry out a specific function out
Organ System-	A group of organs working together to carry out a specific function
Organelles found within animal cells -	- Nucleus -mitochondria - ribosomes -cell membrane - cytoplasm
Organelles found within Plant cells -	-Nucleus -Mitochondria - ribosomes -cell membrane - cytoplasm -permanent vacuole -chloroplasts -cell wall

CHEMICAL ELEMENTS

lipids	- C, H, O (Carbon, Hydrogen and Oxygen)
proteins	- C, H, O, N, S (Carbon, Hydrogen, Oxygen, Nitrogen and Sulphur)
complex carbs like starch and glycogen are made up of	- **simple** sugars
Proteins are made up of	- amino acids
the two molecules that Lipids are made up of	- Glycerol and fatty acid tails

FUNCTIONS OF THE ORGANELLES

Nucleus	- controls the cell -contains genetic material (In the form of chromasomes)
Cytoplasm	- where most of the chemical reactions take place
Mitoch-ondria	- where aerobic respiration takes place
Ribosomes	- the site of protein synthesis
Cell wall	- provides strength and support (Made out of cellulose)
Permanent Vacuole	- supports the cell and contains cell sap (A solution of sugars and salt)
Chloro-plasts	- the site of photosynthesis
Cell Membrane	- controls what enters and leaves the cell - separates the cell from its environment

ENZYMES

enzymes	- biological catalysts that increase rate of metabolic reactions
factors that effect enzyme function	- Temperature -pH - Substrate concentration -Enzyme concen-tration
effect of **temper-ature**	-as temperature increase, rate of reaction increases *UNTIL* the temperature exceeds the optimum and the rate of reaction begins to decrease

ENZYMES (cont)

Why does this happen?	as temperature increase, particles have more kinetic energy, increasing chance of collision between molecules which speeds up the reaction
when the temper-ature exceeds optimum	- active site distorts as the enzyme *denatures* and it no longer fits the substrate
effect of **pH**	- the rate of catalysed reaction is fastest at the optimum pH. If the pH is too high or too low, the enzyme may denature and this affects rate of reaction

STEM CELLS (HIGHER)

Differentiation	- the process by which cells become specialised
Stems cells	- unspecialised cells that can differentiate into lots of different types of cells
ADVANTAGES	-can be used to treat paralysis -possibility to cure degenerative diseases like Parkinson's -Whole new tissues and organs can be grown for drug testing
DISADV-ANTAGES	-use of embryonic cells creates ethical issues -it's expensive -long-term side effects are unknown

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DIFFUSION	
diffusion	- the movement of molecules from an area of high concentration, to an area of low concentration
how does **temperature** affect the rate of diffusion	- as temperature increase, rate of diffusion increases as particles gain kinetic energy and move faster
how does **concentration gradient** affect rate of diffusion	- the greater the concentration gradient (The difference between the two areas), the greater the rate of diffusion
how does **surface area of the membrane** affect rate of diffusion	- as surface area increases, rate of diffusion increases as there is more space for the particles to pass through
OSMOSIS	- **the movement of water molecules from a high water concentration to a low water concentration** (Down the water potential gradient) through a partially permeable membrane.
ACTIVE TRANSPORT	- **the movement of particles from an area of low concentration to an area of high concentration** (Going against the concentration gradient)

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