

1 – Cell Organisation			
Cells	Building blocks of life.		
Tissue	Group of similar cells that work together.		
Organ	Group of different tissues that work together.		
Organ System	Group of organs that work together.		
Organism	Group of organ systems that work together.		
2 - Enzymes			
Enzymes	Biological catalysts -> increase the speed of a reaction without being changed or used up . They are proteins .		
Substrate	Molecule that binds to the active site of an enzyme . Forms an enzyme-substrate complex .		
Lock and Key Model	Only one type of substrate can fit in the active site of an enzyme.		
Denaturing	Active site changes shape -> due to high temperatures or extreme pH -> substrate can no longer bind.		
3 - Digestive Enzymes			
Enzyme	Function	Site of production	Site of action
Carbohydrase e.g. amylase	Carbohydrates -> simple sugars e.g. starch -> maltose	Salivary glands Pancreas Small intestine	Mouth Small intestine
Protease e.g. pepsin	Proteins -> amino acids	Stomach Pancreas Small intestine	Stomach Small intestine
Lipase	Lipids -> fatty acids and glycerol	Pancreas Small intestine	Small intestine
4 - Other Digestive Chemicals			
Bile	Made in liver -> stored in gall bladder -> released into small intestine . Two functions: 1. Alkaline so neutralises acidic food from stomach. 2. Emulsifies lipids (breaks into smaller droplets) -> larger S.A. .		
Hydrochloric acid	Found in stomach . Two functions: 1. Kills pathogens . 2. Provides optimum pH for pepsin enzyme.		

5 – Food Tests	
Prepare sample	Crush food -> add water -> mix -> filter out solid bits.
Test for sugars	Benedict's solution -> put in water bath at 75 °C -> turns from blue to green, yellow or brick-red .
Test for starch	Iodine solution -> turns from brownish-orange to blue-black .
Test for proteins	Biuret solution -> turns from blue to pink or purple .
Test for lipids	Sudan III solution -> forms a bright red top layer . Or shake with ethanol -> forms a cloudy emulsion .
6 - Lungs	
Structure	Trachea (windpipe) -> bronchi -> bronchioles -> alveoli
Oxygen	Diffuses from alveoli into red blood cells in capillaries .
Carbon dioxide	Diffuses from blood plasma in capillaries into alveoli .
Adaptations of alveoli for gas exchange	1. Many small alveoli -> large surface area . 2. Thin walls -> short diffusion pathway . 3. Good ventilation and capillary network -> steep concentration gradient maintained.
7 - Heart	
Double Pump	Right side pumps blood to lungs . Left side pumps blood to body cells .
Vena cava	Carries deoxygenated blood from body cells into right atrium .
Pulmonary artery	Carries deoxygenated blood from right ventricle to lungs .
Pulmonary vein	Carries oxygenated blood from lungs to left atrium .
Aorta	Carries oxygenated blood from left ventricle to body cells .
Pacemaker	Cells in right atrium wall that control resting heart rate . Produce a small electrical impulse -> makes muscle cells contract .

GCSE Science

Biology B2 – Cell Organisation Part 1