

1 – Blood Vessels	
Arteries	Carry blood away from the heart . Thick muscle and elastic layer in walls to withstand high pressure .
Capillaries	Allow exchange of substances between blood and cells . Tiny with thin permeable walls (one cell thick).
Veins	Carry blood back to heart . Valves to prevent backflow of blood . Larger lumen as blood at lower pressure .
2 – Parts of the Blood	
Red blood cells	Carry oxygen . Biconcave disc shape . No nucleus . Contain haemoglobin -> binds to oxygen -> forms oxyhaemoglobin .
White blood cells	Fight infections . Can engulf and digest pathogens (phagocytosis). Can produce antibodies and antitoxins .
Platelets	Small fragments of cells . Clot the blood and form scabs by producing fibrin fibres . Stops bleeding .
Plasma	Liquid part of the blood -> carries blood cells , platelets , glucose , amino acids , carbon dioxide , urea , hormones .
3 – Cardiovascular Diseases	
Cardiovascular diseases	Diseases of the heart and blood vessels .
Coronary artery	Supplies heart muscle tissue with oxygenated blood .
Coronary heart disease	Fatty deposits build up -> narrows coronary artery -> heart tissue supplied with less blood -> can cause heart attack .
Stents	Wire mesh tube -> keeps arteries open .
Statins	Lowers bad cholesterol -> slows down rate of formation of fatty deposits .
4 – Causes of Disease	
Communicable diseases	Caused by pathogens -> can spread between people / animals . E.g. measles , malaria , HIV , salmonella .
Non-communicable diseases	Not caused by pathogens -> cannot spread . Often last a long time and get worse . E.g. asthma , cancer , heart disease .
Risk factors	Increase your chance of getting a disease .

5 – Tumours and Cancer	
Tumour	Changes in cells -> uncontrolled cell division -> forms a tumour (a mass of cells).
Benign tumours	Not cancerous . Stay in one place .
Malignant tumours	Cancerous . Cells can break off -> travel in blood -> form secondary tumours .
Cancer risk factors	Smoking , obesity , UV exposure , viral infection , genetics .
6 – Plant Tissues	
Palisade mesophyll tissue	Where most photosynthesis occurs -> tightly packed palisade cells -> contain many chloroplasts .
Spongy mesophyll tissue	Loosely packed cells -> air spaces to allow gas diffusion .
Epidermal tissue	Covers plant -> coated in waxy cuticle -> reduces water loss .
Phloem tissue	Forms tubes that carry food substances (dissolved sugars). Columns of living cells with small pores in end walls.
Xylem tissue	Forms tubes that carry water and mineral ions . Columns of dead cells with no end walls . Strengthened with lignin .
Meristem tissue	Found at growing tips of shoot and roots . Contain stem cells .
7 – Transpiration and Translocation	
Translocation	Movement of dissolved sugars in phloem tubes .
Transpiration stream	Movement of water from the roots , through xylem tubes and out of the leaves (by evaporation and diffusion).
Transpiration rate	Increased by : higher light intensity , higher temperature , faster air flow , lower humidity .
Potometer	Used to estimate rate of transpiration by measuring uptake of water by a plant.
Stomata	Tiny holes in lower epidermis . Guard cells control opening and closing . Allow gas exchange and water loss .

GCSE Science

Biology B2 – Cell Organisation Part 2