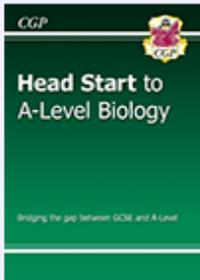


Paget High School



 <p>Head Start to A-Level Biology</p> <p>CGP</p> <p>Bringing the gap between GCSE and A-Level</p> <p>Take a look</p>	<p>Product Details</p> <ul style="list-style-type: none">• UK School Price: £2.50• Retail Price: £4.95• Stock Status: In stock• Subject: Biology• Key Stage: Bridging to A-Level• Level: A*-E (A level)• Exam Board: Generic• Media: Book• No. Pages: 40• Product Code: BBR71• ISBN: 978 1 78294 279 5
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Preparing for A level Biology

You will need a copy of the Head Start guide above and use it to make notes on the learning outcomes below.

Topic areas	Learning outcome	Evidence: page no.	Red	Amber	Green
Proteins	Describe with the aid of a diagram the structure of an amino acid.				
	Explain what is meant by the primary structure of a protein.				
	Describe with the aid of diagrams the bonds involved in secondary and tertiary proteins.				
	Explain with examples what a globular protein is.				
Carbohydrates	Using examples describe the difference between monosaccharides and disaccharides.				
	Using diagrams explain the difference between alpha and beta glucose.				
	Name two polysaccharides and explain how each is adapted to its function.				
Lipids	Describe with the aid of a diagram the structure of a triglyceride.				
	Using a diagram describe the difference between a triglyceride and a phospholipid.				
	Explain the difference between a saturated and an unsaturated fatty acid				
Enzymes	State the function of an enzyme.				
	Explain what 'activation energy' is.				
	Why are enzymes important in allowing reactions to take place in living organisms?				
	Give examples of enzymes that allow anabolic (building-up) and catabolic (breakdown) reactions.				
	Draw and annotate diagrams to explain what is meant by the specificity of enzymes.				
	Explain why a denatured enzyme will not function.				
	Explain how pH changes affect enzyme activity.				
Eukaryotic & Prokaryotic organisms	Compare and contrast, with the aid of diagrams the structure of prokaryotic cells and eukaryotic cells.				
	Draw a table to compare plant and animal cells – the heading for the first column of the table is 'organelle'				
	Explain what the function of mitochondria is.				
Microscopy	Explain why cell and tissues are stained before viewing under the light microscope.				
	List three organelles that can be seen under a light microscope in both plant and animal cells.				
	What is an electron micrograph?				
	What is the level of detail revealed by an electron microscope?				
Functions of the nucleus, mitochondria and cell wall	What is the function of the nucleus?				
	Explain why chromosomes are only visible during cell division.				
	What structural detail does an electron microscope reveal about the nucleus?				
	Using a diagram describe the structure of a mitochondria.				
	What is the word equation for aerobic respiration?				

	Which molecule contains the energy from respiration?				
	Give examples of energy requiring processes.				
	Describe the structure and function of cellulose.				
Cell membranes	Use annotated diagrams to describe the structure of the cell membrane.				
	Define the term 'partially permeable.'				
	Define the term concentration gradient.				
	Describe how particles enter cells by diffusion.				
	Explain what osmosis is.				
	What is meant by the term water potential?				
	Using a diagram describe the process of facilitated diffusion.				
	Explain why active transport requires ATP.				
DNA & Protein Synthesis	Why is DNA described as a double helix?				
	Name the monomer that DNA is built from.				
	Name the four bases found in DNA.				
	Explain what complementary base pairing is.				
	Explain what a gene is and how genes code for different proteins.				
RNA & Protein Synthesis	Explain the function of RNA in protein synthesis				
	Using a diagram explain how a copy of the gene in DNA is made onto mRNA.				
	Give the DNA sequence that would be complementary to mRNA sequence UCAGAACGGCA.				
	Use a diagram to explain how the order of bases in DNA determines the order of amino acids in a protein.				
	Explain what mutations are and how they occur.				
	Why are some mutations harmful?				
Chromosomes	Using a diagram show the relationship between a chromosome, a gene, the nucleus and a eukaryotic cell.				
	Explain what is meant by homologous pairs of chromosomes.				
	Explain what alleles are.				
	Using a diagram explain what a chromatid is and how it is held together.				
Cell Division - mitosis	Give examples of when cells divide by mitosis.				
	Draw annotated diagrams to show how cells divide by mitosis.				
	Why does DNA replication occur before prophase starts?				
	How do homologous chromosomes separate during mitosis?				

Cell Division - meiosis	Explain why sexual reproduction involves meiosis.				
	Draw annotated diagrams to show how cells divide by meiosis.				
	Explain why gametes are haploid.				
	How does meiosis result in the production of four haploid gametes?				
Size and surface area to volume ratio	Describe the relationship between the size of an organism and its surface area to volume ratio.				
	Why must the cell(s) of an organism be able to exchange substances with its environment?				
	Calculate the surface area to volume ratio of a cube animal of side length 2cm.				
Structure of the thorax	Using ideas of size and surface area to volume ratio, explain why very large multicellular organisms have evolved circulatory systems and lungs				
	Using ideas of gas exchange, describe gas exchange at an alveolus.				
	Draw up a table headed 'Feature' and 'How it helps to increase diffusion rate' to show how alveoli are adapted for gas exchange.				
Breathing in and out	Why is breathing important in gas exchange?				
	Explain the relationship between pressure and volume in gas exchange?				
	Draw up a table to show the changes that happen in the lungs during breathing in and breathing out.				
Disease	List the causes of disease and give two examples of diseases for each cause				
	Explain what is meant by the term risk factor .				
	What organs/tissues do 'coronary vascular diseases' affect?				
	List the risk factors associated with coronary vascular diseases.				
	List the diseases caused by excess alcohol intake.				
Immunity	Using diagrams describe how phagocytes engulf pathogens.				
	Using diagrams explain how lymphocytes destroy pathogens.				
	Describe the part played by T-cells in immunity				
	Draw a flow chart to show how vaccinations give you immunity. Research the role of memory cells and add this to your flow diagram.				
The Circulatory system	Explain why large animal need a circulatory system.				
	Either draw or print out an unlabelled diagram of the heart and label it for your notes – colour code the diagram to show how oxygenated and deoxygenated blood flow through the heart.				
	Why are the muscular walls of the ventricles different thicknesses?				
	Describe the route taken by a red blood cell travelling from the kidneys to the liver.				
	List the substances that are exchanged between the blood and the tissues through the capillaries.				

The Heart	The right side of the heart is also known as the pulmonary circuit – draw a flow diagram to where the blood flows from and to through this circuit.				
	Describe the role of the valves in ensuring one-way flow through the heart.				
	Explain why the muscle of the heart does not require nerve impulses from the central nervous system.				
	Describe the role of the sino-atrial node.				
	What is the function of the coronary arteries?				
Blood vessels	Using an annotated diagram describe the role of the blood vessels.				
	Using a diagram, describe the structure of arteries.				
	Why is 'elastic recoil' in arteries important?				
	Explain how arteries control blood flow to particular organs.				
	Draw an annotated diagram to show how capillaries are adapted to their function of allowing exchange of substances at the cells?				
	Explain how veins are adapted to allow gas exchange to occur against gravity in the legs.				
Blood	State the function of blood and describe how red blood cells are adapted for their function.				
	Write a word equation for the formation of oxyhaemoglobin.				
	Explain what is meant by '100% saturated haemoglobin' and what is meant by 'less than 100% saturated haemoglobin'				
	Where does haemoglobin become fully saturated and where does it give up its oxygen?				
	How does the presence of oxygen affect the release of oxygen by haemoglobin?				
	Explain what is meant by the Bohr effect .				
Variation and evolution	Explain why organisms of different species vary considerably from each other.				
	Explain why organisms of the same species only show a little variation from one another.				
	Using the example of polar bears explain the term 'adaptation' – mention the role of alleles in adaptations				
	Using a suitable example, such as long necks in giraffes describe how natural selection occurs.				
Classification	Explain what classification is.				
	What criteria do Biologists use to place animals into groups?				
	Describe how the hierarchical system of classification works.				
	How do Biologists now classify organisms?				
Phloem and Xylem	Draw an annotated diagram to describe the movement of water from the soil, through the cells of a root.				
	Draw a diagram to describe the movement of water through the xylem of a plant – your description must explain the terms – cohesion, tension and adhesion.				
	Explain how phloem is adapted to translocate sugars through a plant.				