

Separate HIGHER BIOLOGY Checklist – Paper 1

Green – topics assessed

Black – may appear as low mark question or via ‘linked questions’

Red – topics NOT assessed

Topic 1 - Cell Biology				
4.1.1 - Cell Structure	Eukaryotes and Prokaryotes			
	Animal and Plant Cells			
	Required practical activity 1: use a light microscope to observe, draw and label a selection of plant and animal cells. A magnification scale must be included.			
	Cell specialisation			
	Cell differentiation			
	Microscopy			
	Culturing microorganisms (biology only)			
4.1.2 - Cell Division	Required practical activity 2: investigate the effect of antiseptics or antibiotics on bacterial growth using agar plates and measuring zones of inhibition (Biology only)			
	Chromosomes			
	Mitosis and the cell cycle			
4.1.3 Transport in cells	Stem cells			
	Diffusion			
	Osmosis			
	Required practical activity 3: investigate the effect of a range of concentrations of salt or sugar solutions on the mass of plant tissue			
	Active transport			
Topic 2 - Organisation				
4.2.1 Principles of organisation	Principles of organisation			
4.2.2 Animal tissues, organs and organ system	The human digestive system			
	Required practical activity 4: use qualitative reagents to test for a range of carbohydrates, lipids and proteins			
	Required practical activity 5: investigate the effect of pH on the rate of reaction of amylase enzyme			
	The heart and blood vessels			
	Blood			
	Coronary heart disease: a non-communicable disease			

	Health issues			
	The effect of lifestyle on some non-communicable diseases			
	Cancer			
4.2.3 Plant tissues, organs and systems	Plant tissues			
	Plant organ system			
Topic 3 - Infection and response				
4.3.1 Communicable diseases	Communicable (infectious) diseases			
	Viral diseases			
	Bacterial diseases			
	Fungal diseases			
	Protist diseases			
	Human defence systems			
	Vaccination			
	Antibiotics and painkillers			
	Discovery and development of drugs			
4.3.2 Monoclonal antibodies (biology only) (HT only)	Producing monoclonal antibodies			
	Uses of monoclonal antibodies			
4.3.3 Plant disease (biology only)	Detection and identification of plant diseases			
	Plant defence responses			
Topic 4 - Bioenergetics				
4.4.1 Photosynthesis	Photosynthetic reaction			
	Rate of photosynthesis			
	Required practical activity 6: investigate the effect of light intensity on the rate of photosynthesis using an aquatic organism such as pondweed			
	Uses of glucose from photosynthesis			
4.4.2 Respiration	Aerobic and anaerobic respiration			
	Response to exercise			
	Metabolism			

Separate HIGHER BIOLOGY Checklist – Paper 2

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Topic 5 - Homeostasis and response				
4.5.1 Homeostasis	Homeostasis			
4.5.2 The human nervous system	Structure and function			
	Required practical activity 7: investigate the effect of a factor on human reaction time			
	<i>The brain (biology only)</i>			
	<i>The eye (biology only)</i>			
4.5.3 Hormonal coordination in humans	Control of body temperature (biology only)			
	Human endocrine system			
	Control of blood glucose concentration			
	Maintaining water and nitrogen balance in the body (biology only)			
	Hormones in human reproduction			
	Contraception			
4.5.4 Plant hormones (biology only)	The use of hormones to treat infertility (HT only)			
	Negative Feedback (HT only)			
	Control and coordination			
	Required practical activity 8: investigate effect of light on the growth of newly			
	Use of plant hormones (HT only)			
Topic 6 - Inheritance, variation and evolution				
4.6.1 Reproduction	Sexual and asexual reproduction			
	Advantages and disadvantages of sexual and asexual reproduction (biology only)			
	Meiosis			
	DNA and the genome			
	DNA structure (biology only)			
	Genetic inheritance			
	Inherited disorders			
	Sex determination			
4.6.2 Variation and evolution	Variation			
	Evolution			
	Selective breeding			
	Genetic engineering			
	Cloning (biology only)			
	Theory of evolution (biology only)			

4.6.3 The development of understanding of genetics and evolution	Speciation (biology only)			
	The understanding of genetics (biology only)			
	Evidence for evolution			
	Fossils			
	Extinction			
4.6.4 Classification of living organisms	Resistant bacteria			
	Classification			
4.7 Ecology				
4.7.1 Adaptations, interdependence and competition	Communities			
	Abiotic factors			
	Biotic factors			
	Adaptations			
4.7.2 Organisation of an ecosystem	Levels of organisation			
	Required practical activity 9: measure population size of a common species in a habitat, investigating the effect of a factor on the distribution of this species.			
	How materials are cycled			
	Decomposition (biology only)			
	Required practical activity 10: investigate effect of temperature on rate of decay of fresh milk by measuring pH change.			
4.7.3 Biodiversity and the effect of human interaction on ecosystems	Impact of environmental change (biology only) (HT only)			
	Biodiversity			
	Waste management			
	Land use			
	Deforestation			
	Global warming			
4.7.4 Trophic levels in an ecosystem (biology only)	Maintaining biodiversity			
	Trophic levels			
	Pyramids of biomass			
	Transfer of biomass			
4.7.5 Food production (biology only)	Factors affecting food security			
	Farming techniques			
	Sustainable fisheries			
	Role of biotechnology			

