

AQA

Candidates taking the new AQA AS biology course (to be first taught in 2008) must complete all of Units 1-3. Until the new A2 course is available for teaching (2009), the old A2 specifications apply.

AS Module		Topics in AQA-AS workbook
Unit 1: Biology and Disease		
1.1	Pathogens, diseases caused by pathogens, lifestyle factors and disease.	The Causes of Disease
1.2	The human digestive system, carbohydrate and protein digestion, condensation and hydrolysis reactions, enzymes and enzyme activity, biochemical food tests.	Macromolecules & Human Digestion
1.3	Prokaryote and eukaryote cell structure, organelles, microscopy, cell fractionation. Plasma membranes, membrane transport. Cholera and membrane permeability, oral rehydration solutions.	Cell Structure & Function Processes across Exchange Surfaces
1.4	Structure and function of the human respiratory system, gas exchange surfaces, lung disease (TB, smoking related disease).	Gas Exchange at the Lung
1.5	Structure and function of the human heart, cardiac cycle and control, coronary heart disease and risk factors. Blood vessels	The Human Heart Adaptation & Specialisation
1.6	Immune response, phagocytosis, antigens and antibodies, humoral and cellular responses, antigenic variability, vaccines, monoclonal antibodies	Immunology
Unit 2: The Variety of Living Organisms		
2.1	Species variation, causes of variation. Distribution, mean and standard deviation.	Variation Skills in Biology
2.2	Structure and function of DNA, genes the genetic code, amino acid coding, eukaryotic and prokaryotic chromosomes, meiosis.	The Role of DNA
2.3	Genetic diversity, selective breeding, the founder effect, genetic bottlenecks.	Variety & Complexity
2.4	Biochemical diversity, haemoglobin structure and function, oxygen dissociation curves, effects of carbon dioxide. Plant cell structure and organelles. Carbohydrate structure and function.	Biochemical & Cellular Diversity Macromolecules & Human Digestion
2.5	DNA replication, mitosis and the cell cycle, cancer and the cell cycle.	Biochemical & Cellular Diversity
2.6	Cellular specialisation and organisation, plant and animal tissues, cell differentiation.	Biochemical & Cellular Diversity
2.7	Exchange surfaces, SA:V ratio, animal and plant gas exchange systems, xerophytes. Mammalian circulatory system, structure and function of blood vessels, lymphatic system and tissue fluid. Plant transport system, structure and function of dicot roots, transpiration, translocation.	Adaptation & Specialisation
2.8	Classification, principles of taxonomy.	Classification & Evidence of Phylogeny
2.9	Genetic evidence for classification, DNA hybridisation, immunological evidence, protein comparisons, courtship behaviour.	Classification & Evidence of Phylogeny
2.10	Antibiotic resistance, evolution in bacteria, gene transmission.	Evolution & Biodiversity
2.11	Biodiversity, measuring biodiversity, effects of deforestation and agriculture on diversity.	Evolution & Biodiversity
Unit 3: Investigative and Practical Skills in AS Biology		
3.1 - 3.4	Assessment of planning and implementation of practical work, collection and presentation of raw data, data analysis and evaluation, ability to select and retrieve information and communication skills.	Skills in Biology

A2 Module (<i>Spec A</i>)		Topics in A2 workbook (unless indicated)
Module 5: Inheritance, Evolution and Ecosystems		
14.1 14.2	Meiosis and causes of variation. Mendelian inheritance, use of chi-squared. Polygeny.	Sources of Variation Inheritance
14.3 14.4	Hardy-Weinberg principle. Allele frequencies and selection. Speciation. Species concept and the five kingdom classification.	Population Genetics and Speciation Biodiversity and Classification
14.5	Ecosystem numbers and distribution. Diversity indices. Succession.	Populations and Interactions Practical Ecology
14.6, 14.8	Biochemistry of photosynthesis. Respiration, respiratory quotient, ATP.	Cellular Metabolism
14.7, 14.9	Ecological pyramids. Energy transfer between trophic levels. C and N cycles.	Energy Flow and Nutrient Cycles
14.10	Deforestation and forest conservation.	Populations and Interactions
Module 6: Physiology and the Environment <i>Biology only</i>		
15.1	Dicotyledon water uptake and transport. Potometers, Xeromorphic adaptations.	● TRC: Physiology & the Environment
15.2 15.3	Homeostasis, blood glucose control, thermoregulation. Liver and kidney function.	Homeostasis
15.4- 15.7	Gas exchange, digestion and absorption, metamorphosis and insect nutrition.	● TRC: Physiology & the Environment
15.8- 15.10	Nervous systems, receptors and stimuli, behaviour (reflexes, ANS, taxes, kineses).	Responses & Coordination
Modules 8a/9a: Written synoptic papers		
Modules 8b/9b: Centre assessed coursework		
Practical and investigative work.		Skills in Biology

A2 Module (<i>Spec B</i>)		
Module 4: Energy, Control, and Continuity		
13.1- 13.3	The role of ATP and the biochemistry of photosynthesis and respiration.	Cellular Metabolism
13.4- 13.7	Sensory reception, reflexes, hormones, homeostasis and nervous systems.	Homeostasis Responses & Coordination
13.8	Structure and function of skeletal muscle.	Muscles & Movement
13.9- 13.10	Meiosis and fertilisation, inheritance, sex determination, variation.	Sources of Variation Inheritance
13.11	Natural selection and speciation.	Population Genetics and Speciation
13.12	Taxonomy and the five kingdom classification.	Principles of Classification
Module 5a: Environment		
14.1 14.2	Energy transfer and trophic levels. Carbon and nitrogen cycles.	● TRC: Energy Flow and Nutrient cycles
14.3	Biological and physical sampling methods.	Practical Ecology
14.4	Populations and ecological succession.	Populations & Interactions
14.5	Human environmental impact: hedgerows, monocultures, pesticides, pollution.	Populations & Interactions ● TRC: Human Impact
Module 5b: Coursework		
Candidates will be assessed on planning, implementing, analysis, evaluation, and synthesis of principles and concepts.		AS: Skills in Biology A2: Practical Ecology
Option Modules		
Module 6: Applied Ecology	● TRC: Option Module 6	
Module 7: Microbes and Disease	● TRC: Option Module 7	
Module 6: Behaviour and Populations	● TRC: Option Module 8	