AQA A-Level Biology specification checklist (7402)

From Medly's guide to the AQA A-Level Biology specification (7402). Tick each numbered heading when you can answer exam questions on it. Each required practical sits under the heading it belongs to, with AQA's full title.

3.1 Biological molecules

AS and A-Level.

Done	Number	AQA's heading
[ ]	3.1.1	Monomers and polymers
[ ]	3.1.2	Carbohydrates
[ ]	3.1.3	Lipids
[ ]	3.1.4	Proteins
[ ]	3.1.4.1	General properties of proteins
[ ]	3.1.4.2	Many proteins are enzymes
[ ]	RP 1	Required practical 1: Investigation into the effect of a named variable on the rate of an enzyme-controlled reaction
[ ]	3.1.5	Nucleic acids are important information-carrying molecules
[ ]	3.1.5.1	Structure of DNA and RNA
[ ]	3.1.5.2	DNA replication
[ ]	3.1.6	ATP
[ ]	3.1.7	Water
[ ]	3.1.8	Inorganic ions

3.2 Cells

AS and A-Level.

Done	Number	AQA's heading
[ ]	3.2.1	Cell structure
[ ]	3.2.1.1	Structure of eukaryotic cells
[ ]	3.2.1.2	Structure of prokaryotic cells and of viruses
[ ]	3.2.1.3	Methods of studying cells
[ ]	3.2.2	All cells arise from other cells

Done	Number	AQA's heading
[ ]	RP 2	Required practical 2: Preparation of stained squashes of cells from plant root tips; set-up and use of an optical microscope to identify the stages of mitosis in these stained squashes and calculation of a mitotic index
[ ]	3.2.3	Transport across cell membranes
[ ]	RP 3	Required practical 3: Production of a dilution series of a solute to produce a calibration curve with which to identify the water potential of plant tissue
[ ]	RP 4	Required practical 4: Investigation into the effect of a named variable on the permeability of cell-surface membranes
[ ]	3.2.4	Cell recognition and the immune system

3.3 Organisms exchange substances with their environment

AS and A-Level.

Done	Number	AQA's heading
[ ]	3.3.1	Surface area to volume ratio
[ ]	3.3.2	Gas exchange
[ ]	3.3.3	Digestion and absorption
[ ]	3.3.4	Mass transport
[ ]	3.3.4.1	Mass transport in animals
[ ]	RP 5	Required practical 5: Dissection of animal or plant gas exchange or mass transport system or of organ within such a system
[ ]	3.3.4.2	Mass transport in plants

3.4 Genetic information, variation and relationships between organisms

AS and A-Level.

Done	Number	AQA's heading
[ ]	3.4.1	DNA, genes and chromosomes
[ ]	3.4.2	DNA and protein synthesis
[ ]	3.4.3	Genetic diversity can arise as a result of mutation or during meiosis
[ ]	3.4.4	Genetic diversity and adaptation
[ ]	RP 6	Required practical 6: Use of aseptic techniques to investigate the effect of antimicrobial substances on microbial growth
[ ]	3.4.5	Species and taxonomy
[ ]	3.4.6	Biodiversity within a community
[ ]	3.4.7	Investigating diversity

3.5 Energy transfers in and between organisms (A-Level only)

A-Level only.

Done	Number	AQA's heading
[ ]	3.5.1	Photosynthesis (A-Level only)
[ ]	RP 7	Required practical 7: Use of chromatography to investigate the pigments isolated from leaves of different plants, eg leaves from shade-tolerant and shade-intolerant plants or leaves of different colours
[ ]	RP 8	Required practical 8: Investigation into the effect of a named factor on the rate of dehydrogenase activity in extracts of chloroplasts
[ ]	3.5.2	Respiration (A-Level only)
[ ]	RP 9	Required practical 9: Investigation into the effect of a named variable on the rate of respiration of cultures of single-celled organisms
[ ]	3.5.3	Energy and ecosystems (A-Level only)
[ ]	3.5.4	Nutrient cycles (A-Level only)

3.6 Organisms respond to changes in their internal and external environments (A-Level only)

A-Level only.

Done	Number	AQA's heading
[ ]	3.6.1	Stimuli, both internal and external, are detected and lead to a response (A-Level only)
[ ]	3.6.1.1	Survival and response (A-Level only)
[ ]	RP 10	Required practical 10: Investigation into the effect of an environmental variable on the movement of an animal using either a choice chamber or a maze
[ ]	3.6.1.2	Receptors (A-Level only)
[ ]	3.6.1.3	Control of heart rate (A-Level only)
[ ]	3.6.2	Nervous coordination (A-Level only)
[ ]	3.6.2.1	Nerve impulses (A-Level only)
[ ]	3.6.2.2	Synaptic transmission (A-Level only)
[ ]	3.6.3	Skeletal muscles are stimulated to contract by nerves and act as effectors (A-Level only)
[ ]	3.6.4	Homeostasis is the maintenance of a stable internal environment (A-Level only)
[ ]	3.6.4.1	Principles of homeostasis and negative feedback (A-Level only)
[ ]	3.6.4.2	Control of blood glucose concentration (A-Level only)
[ ]	RP 11	Required practical 11: Production of a dilution series of a glucose solution and use of colorimetric techniques to produce a calibration curve with which to identify the concentration of glucose in an unknown ‘urine’ sample

Done	Number	AQA's heading
[ ]	3.6.4.3	Control of blood water potential (A-Level only)

3.7 Genetics, populations, evolution and ecosystems (A-Level only)

A-Level only.

Done	Number	AQA's heading
[ ]	3.7.1	Inheritance (A-Level only)
[ ]	3.7.2	Populations (A-Level only)
[ ]	3.7.3	Evolution may lead to speciation (A-Level only)
[ ]	3.7.4	Populations in ecosystems (A-Level only)
[ ]	RP 12	Required practical 12: Investigation into the effect of a named environmental factor on the distribution of a given species

3.8 The control of gene expression (A-Level only)

A-Level only.

Done	Number	AQA's heading
[ ]	3.8.1	Alteration of the sequence of bases in DNA can alter the structure of proteins (A-Level only)
[ ]	3.8.2	Gene expression is controlled by a number of features (A-Level only)
[ ]	3.8.2.1	Most of a cell’s DNA is not translated (A-Level only)
[ ]	3.8.2.2	Regulation of transcription and translation (A-Level only)
[ ]	3.8.2.3	Gene expression and cancer (A-Level only)
[ ]	3.8.3	Using genome projects (A-Level only)
[ ]	3.8.4	Gene technologies allow the study and alteration of gene function allowing a better understanding of organism function and the design of new industrial and medical processes (A-Level only)
[ ]	3.8.4.1	Recombinant DNA technology (A-Level only)
[ ]	3.8.4.2	Differences in DNA between individuals of the same species can be exploited for identification and diagnosis of heritable conditions (A-Level only)
[ ]	3.8.4.3	Genetic fingerprinting (A-Level only)

The full guide, with what each paper tests and what AQA says is not required, is at medlyai.com/uk/exams/blog/aqa-a-level-biology-specification-7402-topics-papers-and-revision-checklist