

# A-LEVEL BIOLOGY LEARNING JOURNEY

EXAMS

**Genetic Fingerprinting**

**Recombinant DNA Technology**

**Using Genome Projects**

**Gene Expression and Cancer**

**Regulation of transcription and translation**

**Gene Therapy**

**Alteration of the sequence of bases in DNA can alter the structure of proteins**

**Required Practical 12 - Investigation into the effect of a named environmental factor on the distribution of a given species**

**Conservation**

**Adaptations**

**Sampling**

**Populations**

**Inheritance**

**Control of Blood Water Potential**

**Glucose in Urine**

**Blood Glucose Concentration**

**Homeostasis & Negative Feedback**

**Skeletal Muscles**

**THE CONTROL OF GENE EXPRESSION**

**GENETICS, POPULATIONS, EVOLUTION AND ECOSYSTEMS**

**Required Practical 7 - Use of chromatography to investigate the pigments isolated from leaves of different plants, e.g. leaves from shade-tolerant and shade-intolerant plants or leaves of different colours**

**Nutrient Cycles**

**Fertilisers & Eutrophication**

**Variation, Evolution & Speciation**

**Required Practical 9 - Investigation into the effect of a named variable on the rate of respiration of cultures of single-celled organisms**

**Succession**

**Population Size**

**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**

**Animal Responses**

**Receptors**

**ENERGY TRANSFERS IN AND BETWEEN ORGANISMS**

**ORGANISMS RESPOND TO CHANGES IN THEIR INTERNAL AND EXTERNAL ENVIRONMENTS**

**Energy Transfer in Ecosystems**

**Photosynthesis**

**Respiration**

**Farming Practices & Production**

**Required Practical 8 - Investigation into the effect of a named factor on the rate of dehydrogenase activity in extracts of chloroplasts**

**Survival & Response**

**Control of Heart Rate**

**Nerve Impulses**

**Synaptic Transmission**

**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**

**Required Practical 6 - Use of aseptic techniques to investigate the effect of antimicrobial substances on microbial growth**

**Year 13**

**GENETIC INFORMATION, VARIATION AND RELATIONSHIPS BETWEEN ORGANISMS**

**Required Practical 2 - Preparation of stained squashes of cells from plant root tips; setup and use of an optical microscope to identify the stages of mitosis in these stained squashes and calculation of a mitotic index**

**All Cells arise from other cells**

**Biodiversity within a community**

**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**

**Genetic Diversity and Adaptation**

**Surface area to volume ratio**

**DNA and Protein synthesis**

**Digestion and Absorption**

**Mass transport in plants**

**Haemoglobin**

**CELLS**

**ORGANISMS EXCHANGE SUBSTANCES WITH THEIR ENVIRONMENTS**

**Structure of prokaryotic cells and viruses**

**Methods of studying cells**

**Required Practical 4 - Investigation into the effect of a named variable on the permeability of cell-surface membranes**

**Cell recognition and the immune system**

**Gas Exchange**

**Mass transport in animals**

**Required Practical 5 - Dissection of animal or plant gas exchange or mass transport system or of organ within such a system**

**Structure of eukaryotic cells**

**Inorganic Ions**

**ATP**

**Structure of DNA & RNA**

**General Properties of Proteins**

**Monomers & Polymers**

**Year 12**

**BIOLOGICAL MOLECULES**

**Required Practical 1 - Investigation into the effect of a named variable on the rate of an enzyme-controlled reaction**

**Water**

**DNA Replication**

**Many Proteins are Enzymes**

**Lipids**

**Carbohydrates**

**TEACHER 1**

**TEACHER 2**