

Genetic Fingerprinting

Recombinant DNA Technology

Using Genome Projects

Gene Expression and Cancer

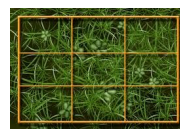
Regulation of transcription and translation

EXAMS

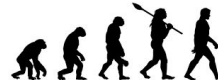
# A-LEVEL BIOLOGY LEARNING JOURNEY



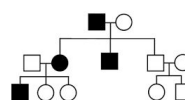
Conservation



Sampling



Populations



Inheritance

## THE CONTROL OF GENE EXPRESSION

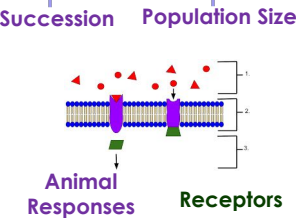
## GENETICS, POPULATIONS, EVOLUTION AND ECOSYSTEMS

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

Most of a cell's DNA is not translated

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



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

Control of Blood Water Potential

Glucose in Urine

Blood Glucose Concentration

Homeostasis & Negative Feedback

Skeletal Muscles

## ENERGY TRANSFERS IN AND BETWEEN ORGANISMS

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

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

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

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



DNA, Genes and Chromosomes

Year 13

## GENETIC INFORMATION, VARIATION AND RELATIONSHIPS BETWEEN ORGANISMS

Biodiversity within a community

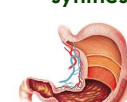
Required Practical 3 - Production of a dilution series of a solute to produce a calibration curve with which to identify the water potential of plant tissue

Genetic Diversity and Adaptation



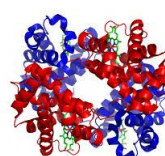
Surface area to volume ratio

DNA and Protein synthesis



Digestion and Absorption

Mass transport in plants



Haemoglobin

## CELLS

## ORGANISMS EXCHANGE SUBSTANCES WITH THEIR ENVIRONMENTS

Methods of studying cells



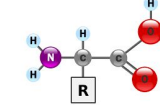
Required Practical 4 - Investigation into the effect of a named variable on the permeability of cell-surface membranes



Structure of DNA & RNA

Cell recognition and the immune system

Gas Exchange



General Properties of Proteins

Mass transport in animals

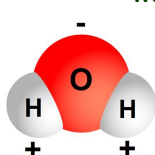


Required Practical 5 - Dissection of animal or plant gas exchange or mass transport system or of organ within such a system

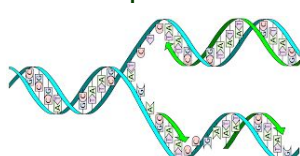


## BIOLOGICAL MOLECULES

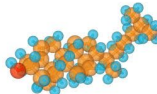
Water



DNA Replication

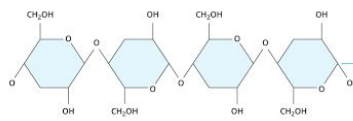


Many Proteins are Enzymes



Lipids

Carbohydrates



Year 12