

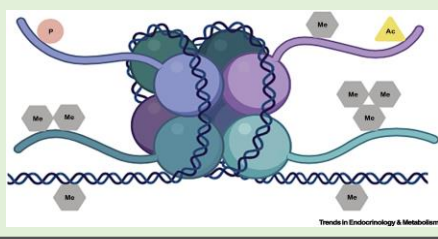


THOMAS ALLEYNE'S HIGH SCHOOL

A-LEVEL BIOLOGY: LEARNING JOURNEY

All 3 exams take place in May/June of Year 13.
 Students are assessed on their competency in 3 main objective areas:
 AO1: Demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures
 AO2: Apply knowledge and understanding of scientific ideas, processes, techniques and procedures
 AO3: Analyse, interpret and evaluate scientific information, ideas and evidence
 Paper 1 covers year 12 material, paper 2 covers year 13 material, and paper 3 is a synoptic paper which includes an essay question

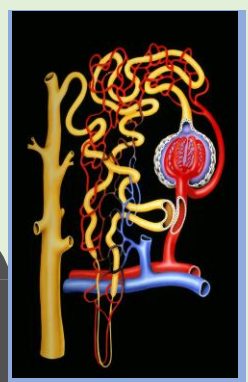
Students learn about the increasing uses of genetic technologies in gene therapy and medical diagnosis.



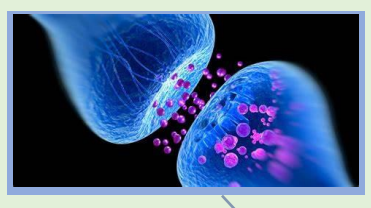
We learn about the control mechanisms in the expression of genes and how this is affected by mutations and environmental factors.

POST-18 PATHWAYS

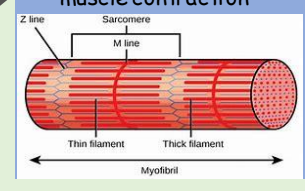
GENE EXPRESSION



Homeostasis
 We learn how organisms maintain a constant internal environment through feedback mechanisms.



Muscles
 The sliding filament theory explains the mechanism of muscle contraction



Final Exams

Gene Technology

Stem Cells, Mutations, Cancer

Regulation of Gene Expression

Degree/Apprenticeship/Employment

We look at population sizes and factors that affect them, investigate the process of succession, and look at methods of conservation.



Students investigate simple responses in animals, including reflexes, taxes and kinesis, before looking at the role of receptors in the eyes.

RESPONSES IN ORGANISMS

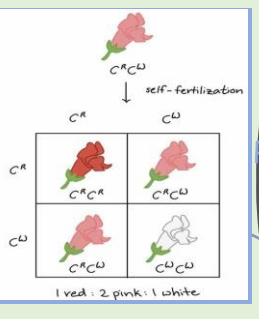
Simple Responses in Animals and Plants

Receptors, neurones and the Action Potential

Ecosystems

Students build on their understanding of evolution by natural selection and also look at population genetics.

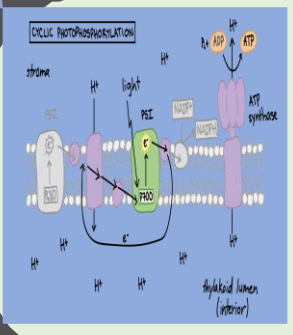
Evolution



Populations

Inheritance

Students learn about the genetic inheritance of characteristics



Students learn about the Light Dependent and Light Independent reactions of photosynthesis, as well as the stages of respiration.

Students carry out chromatography to identify photosynthetic pigments found in plants, as well as investigations into the rate of photosynthesis and respiration



Students study how energy flows through an ecosystem, how farming practices affect this transfer of energy, and look at several nutrient cycles

GENETICS, EVOLUTION AND ECOSYSTEMS

Photosynthesis and Respiration Cycles

Energy Transfers Through Ecosystems

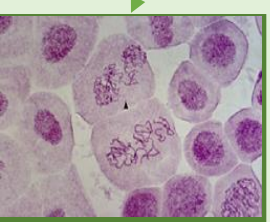
ENERGY TRANSFERS

Year 13



Required Practical sampling biotic and abiotic factors at Formby beach - end of year 12

Students carry out a required practical and apply their understanding of mitosis to identify the stages of cell division as seen under a microscope



Students continue to study the foundations of Biology by developing their knowledge of sub-cellular structures

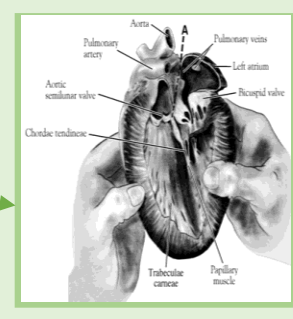


Students will build evidence of their progress in developing their practical techniques and evaluative skills in a practical lab book

Students develop a deep understanding of the complexities of the immune system, and learn how antibodies can be used in diagnostic and therapeutic contexts.

We look at adaptations of fish gills, the tracheal systems of insects, and mammalian respiratory systems

Heart dissection required practical



Y12 assessments

EXCHANGE AND TRANSPORT

Gas Exchange Surfaces

VARIATION AND RELATIONSHIPS BETWEEN ORGANISMS

Evolution

Taxonomy and Biodiversity

Students develop their understanding of evolution by natural selection, as well as other processes, and build a foundation for further study of the process in year 13

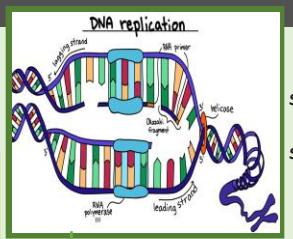
CELLS

Cell Division

Cell Structure and Microscopy

Ions, Water and ATP

Genes and Protein Synthesis

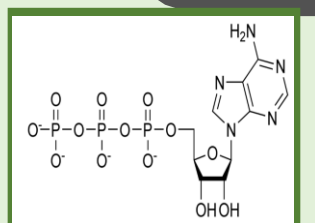


DNA and Replication

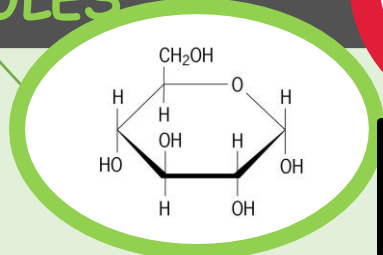
Monomers and Polymers

BIOLOGICAL MOLECULES

Similar to GCSE, students will carry out and analyse a series of required practical activities throughout the course. Successful completion leads to the award of a Practical Endorsement Certificate. Students are assessed on these in the exams.



Students begin their Biology journey in A-Level Biology by studying the fundamental biological molecules that form the basis of all organisms on Earth. Initially, students study carbohydrates, lipids and proteins (including enzymes)



Year 12

Y11 Taster Sessions / Transition days

In Biology we study the AQA syllabus in the 6th Form as a logical and thematical continuation of the GCSE course