



SCIENCE (BIOLOGY) CURRICULUM MAP

FURTHER STUDY

A level Biology; Level 3 BTEC Science

CAREER PATHS

University, Researcher, Forensic Scientist, Biochemist, Chemical Engineer, Education and Training

SKILLS

Critical analysis, scientific investigation, evaluation

Assessment: GCSE Paper 2, 100 Marks

REVISION & EXAMS

REVISION

Exchange

- Parts of the circulatory system
- Energy transfer in electric circuits
- Diffusion and osmosis
- Adaptions of root hair cells
- Calculating heat rate
- Role of stomata
- Adaptions of leaf for gas exchange
- Fick's law
- Stroke volume

Growth and Reactions

- Different groups of elements
- Plant function and cell division
- Enzymes
- Stem cells
- Photosynthesis and respiration
- Equations for plant functions
- How plants and animals grow
- Creating new cells
- Plant tropism

Cycles

- Cell division
- The water, nitrogen and carbon cycles
- Hormones and the menstrual cycle
- Treatments for infertility
- Cycles and real-world problems (drought and global warming)

Assessment: GCSE Paper 1, 100 marks

Assessment: Assessment covering pathogens and risk factors plus previous topic revision

Pathogens

- Communicable and non-communicable disease
- Defences against disease
- Herd immunity
- Vaccines
- How pathogens are spread
- Aseptic technique

Risk Factors

- Risk factors and cardiovascular disease
- Understanding health
- Drug testing and placebos
- BMI and the weight to hip ratio
- Diet and exercise
- Human genome project

Survival

- understanding food chains and webs
- Living and non-living factors influence ecosystems
- Ecosystems – change and the environment
- Energy transfers

YEAR 11

Assessment: End of year exams - GCSE past paper. 100 marks on the topics from GCSE paper 1, plus ecosystems

Assessment: Covering key concepts from Y9 and Y10

Evolution

- Theory of evolution
- Organisms adapting to their environment
- Evolution and bacteria
- Classification
- Antibiotics
- Darwin and Wallace
- The 5 kingdoms and the domain method
- Evolution and the pentadactyl limb

Inheritance

- The structure of DNA
- Genes and alleles (including ratio and probability) and how this affects appearance
- Inheritance and variation
- Genes and the sex chromosomes
- Selective breeding and genetic engineering
- Codominance in blood groups

Response

- Nerve impulses, the body and hormones
- Thermoregulation and gluco-regulation
- Understanding how stimuli are detected
- Blood glucose variation

YEAR 10

Assessment: Evolution, Inheritance and some questions on response and Y9 Topics

Assessment: Response and Y9 Topics (cells, digestion, enzymes, cardiovascular system, plants and microscopes)

SCIENCE SKILL

Scientific knowledge and conceptual understanding

SCIENCE SKILL

The nature, processes and methods of science

SCIENCE SKILL

Analysis, evaluation and measurement

SCIENCE SKILL

Experimental skills and investigations