



A Level Biology Curriculum Map

FURTHER STUDY

University – biology, biochemistry, medicine, dentistry, nursing, paramedic, pharmacy, sports science midwifery.
Apprenticeships – science, medical, sports.

CAREER PATHS

Doctor, surgeon, dentist, pharmacist, forensic scientist, ecologist, botanist, nurse, paramedic, science research, midwife, geneticist, science teacher, physiotherapist, chiropractor, conservationist, farming industry.

SKILLS

Research, analysis, practical/investigation, problem-solving, statistics.

INTEREST

A continued passion and love of learning about biology.

THE CONTROL OF GENE EXPRESSION

- Gene expression
- Recombinant DNA technology

Links to GCSE:

Protein synthesis, genetics, cancer, human genome project, stem cells, gene mutations, cloning, tissue culture.

Links to the outside world:

Geneticist, cancer research, medicine, forensics, biomedical scientist, human genome project, pharmacist, drug research, nurse, stem cell research, farming industry, biochemist.

REVISION

REVISION & EXAMS

GENETICS, POPULATIONS, EVOLUTION AND ECOSYSTEMS

- Inherited change
- Populations and evolution
- Populations in ecosystems

Links to GCSE:

Genetics, Punnett squares, genetic disorders, recessive and dominant alleles, evolution, natural selection, speciation, adaptation, competition, predator-prey relationships.

Links to the outside world:

Conservationist, ecologist, geneticist, medicine, marine biologist, botanist, research in genetics, human genome project, pharmacist, drug research.

ORGANISMS RESPOND TO CHANGES IN THEIR ENVIRONMENT

- Response to stimuli
- Nervous coordination and muscles
- Homeostasis

Links to GCSE:

Nervous system, reflex actions, homeostasis, hormonal coordination, human kidney, regulation of blood glucose.

Links to the outside world:

Medicine, dentistry, biomedical scientist, nurse, neurologist, pharmacist, drug research, diabetes research.

ENERGY TRANSFER IN AND BETWEEN ORGANISMS

- Photosynthesis
- Respiration
- Energy and ecosystems

Links to GCSE:

Photosynthesis, respiration, ecosystems, carbon cycle, decay cycle, predator-prey relationships.

Links to the outside world:

Medicine, biomedical scientist, sport scientist, botanist, biotechnologist, ecologist, conservationist, farming industry.

YEAR 13

GENETIC INFORMATION, VARIATION AND RELATIONSHIPS

- DNA, genes and protein synthesis
- Genetic diversity and adaptation
- Biodiversity

Links to GCSE:

Protein synthesis, structure of DNA, genetics, natural selection, evolution, meiosis, inheritance, extinction, classification.

Links to the outside world:

Conservationist, ecology, medicine, dentistry, geneticist, evolutionary science, biotechnologist, cancer research, forensics, archaeologist.

YEAR 12 MOCKS

ORGANISMS EXCHANGE SUBSTANCES WITH THEIR ENVIRONMENT

- Gas exchange in animals and plants
- Digestion
- Transport of oxygen in mammals
- Circulatory system of a mammal
- Transport in plants

Links to GCSE:

Organisation and the digestive system, blood, blood vessels, the heart, gas exchange, transpiration

Links to the outside world:

Sport scientist, sport therapist, medicine, dentistry, botanist, research scientist, pharmacist, environmental scientist, biotechnology, cardiologist, gastrologist.

CELLS

- Cell structure, cell cycle and studying cells
- Transport across cell membranes
- Immune system and immune response

Links to GCSE:

Animal cells, plant cells, bacterial cells, mitosis, diffusion, active transport, osmosis communicable diseases

Links to the outside world:

Immunologist, medicine, dentistry, nurse, biomedical scientist, microbiologist, virologist, pathologist, pharmacist, cancer research.

BIOLOGICAL MOLECULES

- Carbohydrates, Lipids, Proteins
- Enzymes
- DNA, RNA
- ATP
- Water

Links to GCSE:

Digestive system, Respiration, Genetics

Links to the outside world:

Biomedical scientist, sport, medicine, research scientist, biochemistry, biotechnology, food science, forensic science.

YEAR 12

A01

Demonstrate knowledge and understanding of scientific ideas, processes, techniques and procedures

A02

Apply knowledge and understanding of scientific ideas, processes, techniques and procedures

A03

Analyse, interpret and evaluate scientific information, ideas and evidence