



HECKMONDWIKE
GRAMMAR SIXTH FORM

Biology

Exam Board: EDEXCEL

The A Level Biology course at Heckmondwike Grammar School teaches to the Edexcel Biology B specification. The course covers a wide range of subjects including structure and function of biological molecules, animal and plant physiology, microorganisms and their use in industry, evolution and ecology and ecosystems. Students will not only gain knowledge of these areas but also be taught valuable practical skills relevant to a range of laboratory or field based vocations.

Biology

Career Opportunities

Most of our Biology students go on to study medical-related degrees such as medicine, dentistry, veterinary science, radiography, pharmacology, pharmacy, optometry and various biomedical science courses. Many others follow biology-related degrees such as natural sciences, biology, biochemistry, genetics, ecology, microbiology and zoology. Our students go to universities all over the country and even abroad, and each year we send students to Oxford or Cambridge.

Course Content

YEAR 12

Unit 1

Biochemistry

Water, carbohydrates, lipids, proteins, enzymes, DNA, genes, mutations, viruses.

Unit 2

Cells

Eukaryotes, prokaryotes, microscopes, membranes and transport.

Unit 3

Reproduction

Cell cycle, mitosis, meiosis, chromosome mutations, sexual reproduction in mammals, sexual reproduction in plants.

Unit 4

Transport

Gas exchange, circulatory system, heart, blood vessels, haemoglobin, blood clotting, cardiovascular disease, water transport in plants, sugar transport in plants.

Unit 5

Biodiversity

Classification, natural selection, speciation, biodiversity, conservation.

Course Content

YEAR 13

Unit 6

Ecology

Fieldwork, statistics, food chains, populations, matter cycles, energy transfer, succession, human effects.

Unit 7

Metabolism

Aerobic and anaerobic respiration, photosynthesis

Unit 8

Microbes and Disease

Microbiological techniques, growth curves, pathogens, antibiotics, malaria, immune system, vaccination.

Unit 9

Control Systems

The nervous system, synapses, drugs, eye, brain, the endocrine system, homeostasis, the kidney, plant responses.

Unit 10

Genetics and Biotechnology

Variation, genetic crosses, genetic drift, Hardy-Weinberg, control of gene expression, stem cells, biotechnology, gene sequencing, GM crops.

Assessment

Paper 1

1hr 45min written exam on units: 1, 2, 3, 4, 5, 7, 9, 10

90 marks (30% of total A level)

Paper 2

1hr 45min written exam on units: 1, 2, 3, 4, 5, 6, 8, 10

90 marks (30% of total A level)

Paper 3

2hr 30min written exam on all 10 units.

120 marks (40% of total A level)