

# BIOLOGY



## Course Content

### Key topics on A Level specification:

1. Biological Molecules
2. Nucleic Acids
3. Cell Structure
4. Transport across Cell Membranes
5. Cell Recognition and the Immune System
6. Exchange
7. Mass transport
8. DNA, Genes and Protein Synthesis
9. Genetic Diversity
10. Biodiversity
11. Photosynthesis
12. Respiration
13. Energy and Ecosystems
14. Response to Stimuli
15. Nervous Coordination and Muscles
16. Homeostasis
17. Inherited Change
18. Populations and Evolution
19. Populations in Ecosystems
20. Gene Expression
21. Recombinant DNA Technology

## Skills

Use appropriate apparatus to record a range of quantitative measurements (to include mass, time, volume, temperature, length and pH)

- Use heating equipment and hazardous chemicals safely within the lab
- Use appropriate instrumentation to record quantitative measurements, such as a colorimeter or potometer
- Use laboratory glassware apparatus for a variety of experimental techniques to include serial dilutions
- Use of light microscope at high power and low power, including use of agraticule
- Produce scientific drawing from observation with annotations
- Use qualitative reagents to identify biological molecules
- Separate biological compounds using thin layer/paperchromatography or electrophoresis
- Safely and ethically use organisms to measure: plant or animal responses physiological functions
- Use microbiological aseptic techniques, including the use of agar plates and broth
- Safely use instruments for dissection of an animal organ, or plant organ
- Use sampling techniques in fieldwork
- Use ICT such as computer modelling, or data logger to collect data, or use software to process data

## Complementary Subjects

Students wishing to take the subject further than A Level are advised to consider Chemistry as another A level subject. Other options that combine well with Biology include Physics, Maths, Psychology and Geography. It is recognised that there will also be students for whom Biology will be the only science studied. These pupils should find the course to be a fulfilling and worthwhile challenge in its own right.

## What next?

For those wishing to study a biological science at university, the choice of subject is huge; Biochemistry, Biology, Biotechnology, Cell Biology, Ecology, Environmental Sciences, Genetics, Human Biology, Immunology, Marine Biology, Medicine, Microbiology, Molecular Biology, Nutrition, Pharmacology, Physiology, Psychology, Plant Science, Sports Science and Zoology are some of the most popular options.

Successful study will open up a whole world of careers; Animal Scientist, Conservationist, Dentist, Dietician, Diver, Ecologist, Forensic Scientist, Marine Biologist, Medic, Patent Lawyer, Pharmacologist, Psychologist, Psychiatrist, Science Journalist, Research Scientist, Veterinary Scientist or even Teacher!

## Extension opportunities

All Lower Sixth students will be invited to enter the British Intermediate Biology Olympiad and Upper Sixth students compete in the British Biology Olympiad.

There is a Biological Expedition every other year. Recent expeditions have visited Borneo, Galapagos and the Amazon, South Africa, Mexico, Egypt and Honduras.


Sixth Form students are encouraged to help with the organisation and running of Biology Club and our David Attenborough video club, 'Dave'. Other competitions that Sixth Form students have entered in recent years include the Nancy Rothwell Prize for anatomical drawing, The Price Philip Award and Marsh Prize for zoological research.

All Lower Sixth biologists are encouraged to attend the annual field trip to the English Lake District in June. Studies include sand dune succession, oxygenation in a mountain stream, zonation on a rocky shore and heathland management.

The Grange School  
Bradburns Lane  
Hartford  
Cheshire  
CW8 1LU

T: 01606 539039  
E: [office@grange.org.uk](mailto:office@grange.org.uk)

Head of Department: J Taylor  
J Masters  
A Dostalova  
J Burrows

 @ScienceGrange

[www.grange.org.uk](http://www.grange.org.uk)



All information correct June 2022