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You will already be familiar with many of the topics that you will study, including microscopy, cells, organ systems and ecology.

At A-level, you'll look at these areas in more detail and find out how they are interconnected. You will also learn how to apply this knowledge to real-world problems and explore new areas such as proteins and nucleic acids, biological molecules and biotechnology. Perhaps more importantly, you will develop skills that can be transferred to just about any other area of work, from learning microbiological laboratory techniques to saving the planet.

Even if you don't go on to become a biologist, learning to think like one will help you get to the root of any problem and draw connections that aren't obvious to others.

Biology won't give you all the answers, but it will teach you how to ask the right questions.

Classroom expectations

What you will need

Every lesson you should arrive with a pen, a pencil, a ruler, a scientific calculator and your notebook.

What you need to do

Work hard. A-Levels are difficult for many reasons; the content is advanced, the skills are technical, the level of precision is high and the ability to process all the information whilst making links between topics is essential.

Where you need to be

In the classroom during lessons. The course builds on knowledge over time so you need to be in all lessons so as not to miss critical information that could be the 1 mark difference between grades at the end of the course.

When you need to be there

On time. Punctuality is a very important quality and highly desirable by potential employers. When we come to writing your references this is the type of information that we would like to include. Lessons are designed around you all being ready to work for the full hour and your absence could make things difficult for not only the teacher but the other students.

How you need to conduct yourself

With respect; not only for the teacher but for your peers and yourself. In the classroom you should be attempting all work given and acting on feedback, outside of the classroom you need to be going over notes and reading around each topic to increase your familiarity.

What we will do for you

Lessons will be well planned and structured in a manner than allows all learners to access the content. All specification points will be covered through the course and a range of in class assessments will allow us to track your progress over time. If you are struggling with any concept or have any questions your teachers will be more than happy to help when asked. If we cannot make time immediately we will organise a more convenient opportunity to go through your queries.

Specification Overview

Students must complete all components (01, 02, 03, and 04) to be awarded the OCR A Level in Biology A

<p>Content is split into six teaching modules:</p> <ul style="list-style-type: none"> • Module 1 – Development of practical skills in biology • Module 2 – Foundations in biology • Module 3 – Exchange and transport • Module 4 – Biodiversity, evolution and disease • Module 5 – Communication, homeostasis and energy • Module 6 – Genetics, evolution and ecosystems <p>Component 01 assesses content from modules 1, 2, 3 and 5.</p> <p>Component 02 assesses content from modules 1, 2, 4 and 6.</p> <p>Component 03 assesses content from all modules (1 to 6).</p>	<p>Biological processes (01)</p> <p>100 marks</p> <p>2 hour 15 minutes written paper</p>	<p>37% of total A level</p>
	<p>Biological diversity (02)</p> <p>100 marks</p> <p>2 hour 15 minutes written paper</p>	<p>37% of total A level</p>
	<p>Unified biology (03)</p> <p>70 marks</p> <p>1 hour 30 minutes written paper</p>	<p>26% of total A level</p>
	<p>Practical Endorsement in biology (04)</p> <p>(non exam assessment)</p>	<p>Reported separately (see section 5f)</p>

(Full specification link)

<https://www.ocr.org.uk/Images/171736-specification-accredited-a-level-gce-biology-a-h420.pdf>

Unit Breakdown

Module 1: Development of practical skills in biology

- Practical skills assessed in a written examination
- Practical skills assessed in the practical endorsement

Module 2: Foundations in biology

- Cell structure
- Biological molecules
- Nucleotides and nucleic acids
- Enzymes
- Biological membranes
- Cell division, cell diversity and cellular organisation

Module 3: Exchange and transport

- Exchange surfaces
- Transport in animals
- Transport in plants

Module 4: Biodiversity, evolution and disease

- Communicable diseases, disease prevention and the immune system

- Biodiversity
- Classification and evolution

Module 5: Communication, homeostasis and energy

- Communication and homeostasis
- Excretion as an example of homeostatic control
- Neuronal communication
- Hormonal communication
- Plant and animal responses
- Photosynthesis
- Respiration

Module 6: Genetics, evolution and ecosystems

- Cellular control
- Patterns of inheritance
- Manipulating genomes
- Cloning and biotechnology
- Ecosystems
- Populations and sustainability

Course Structure

Biology A provides a flexible approach to learning. The specification is divided into topics, each covering different key concepts of biology. Teaching of practical skills is integrated with the theoretical topics and they are assessed through the written papers. For A level only, the Practical Endorsement will also support the development of practical skills.

OCR's A Level in Biology A specification aims to encourage learners to:

- develop essential knowledge and understanding of different areas of the subject and how they relate to each other
- develop and demonstrate a deep appreciation of the skills, knowledge and understanding of scientific methods
- develop competence and confidence in a variety of practical, mathematical and problem solving skills
- develop their interest in and enthusiasm for the subject, including developing an interest in further study and careers associated with the subject
- understand how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society (as exemplified in 'How Science Works' (HSW)).

Module 1 of the specification content relates to the practical skills learners are expected to gain throughout the course, which are assessed throughout the written examinations and also through the Practical Endorsement.

Practical activities are embedded within the learning outcomes of the course to encourage practical activities in the classroom which contribute to the achievement of the Practical Endorsement as well as enhancing learners' understanding of biology theory and practical skills.

Subject folder expectations

- Folder can be kept at home but students might be asked to bring in the folders for checking
- Folders divided into clear sections for each topic and teacher
- All resources (notes, homework, assessments, marked work, additional reading) to be filed in folder
- Folder to include a printed copy of the specification
- All notes taken to be dated so that these can be filed easily and in order, with the teacher's cipher at top of the notes
- Each section to include a printed 'Checklist' at the front of each topic

Homework Policy

Frequency, format and duration

Homework will be set at least every two weeks. It can be set weekly or fortnightly.

Homework will be relevant to the scheme of learning, exam specifications and classroom learning. Homework will be engaging and challenging with clear links to the knowledge or skills required with completing the course or undertaking exams.

Setting Homework

Students must write down the homework task and the deadline date. Teachers will also upload the homework and relevant resources onto Google Classroom, to which all students will be assigned.

Feedback

Homework forms an integral part of the learning and specifically the lessons. Homework will be checked as part of a lesson or the product of the homework shall be used in a lesson to ensure that students can see the link between the task and their learning.

Marking

Homework will be marked either in class, by peers, or by the teacher. It is important that students get rapid feedback on their work to avoid learnt misconceptions. Homework should be completed in or stuck into books/included with classwork, so that students can see the value of their work.

Further reading

Books:

Richard Dawkins:

The Selfish Gene

Unweaving the Rainbow

Climbing Mount Improbable

The Ancestor's Tale

Steve Jones:

Y: The Descent of Men

The Language of the genes

Matt Ridley:

Genome: The Autobiography of a Species in 23 Chapters

The Red Queen: Sex and the Evolution of Human Nature

The Language of Genes

Francis Crick: Discoverer of the Genetic Code

Nature Via Nurture: Genes, Experience and What Makes Us Human

James Watson:

DNA: The Secret of Life

The Double Helix: Personal Account of the Discovery of the Structure of DNA

Lewis Thomas:

The Lives of a Cell: Notes of a Biology Watcher.

Charles Darwin:

The origin of species

Daniel Chamovitz:

What A Plant Knows

Websites:

1. <http://www.ibiblio.org/virtualcell/index.htm> – An interactive cell biology site
2. <http://www.accessexcellence.org/RC/VL/GG> – A web site showing illustrations of many processes of biotechnology
3. <http://www.uq.oz.au/nanoworld> – Visit the world of electron-microscopy
4. <http://www.dnai.org/a/index.html> – Explore the genetic code
5. <http://nobelprize.org> – Details of the history of the best scientific discoveries
6. <http://nature.com> – The site of the scientific journal
7. <http://royalsociety.org> – Podcasts, news and interviews with scientists about recent scientific developments
8. <http://www.nhm.ac.uk> – The London Natural History Museum’s website with lots of interesting educational material
9. <http://www.bmj.com> – The website of the British Medical Journal
10. http://www.bbc.co.uk/news/science_and_environment - The BBC news page for Science and the Environment

Kerboodle

Log into Kerboodle and use the online textbook as well as the student resources.

Student Agreement

Attendance

Science staff will plan all lessons expecting a full class; therefore you should attend all lessons promptly and ready to learn. Poor attendance to lessons has the greatest detrimental impact on A-Level grades.

Planned absence

If you know you will not be able to attend a lesson it is your responsibility to ensure you do not miss out on your learning. Teachers will not chase you to get caught up. You must make the teacher aware prior to the lesson (not on the day) that you will not be able to make it and ask for appropriate catch up work.

If the teacher is not able or does not provide you with work you must speak to your course colleagues for the notes/work missed. If you are still concerned speak to the course teacher again directly (not email).

Teaching staff will need at least a week's notice of a planned absence, in order to plan their lesson accordingly.

Unplanned absence

If you are unable to attend a lesson for an unplanned reason you must;

- Email the teacher at the first opportunity to make them aware you are unable to attend the lesson
- Ask the teacher for appropriate catch up work.
- If the teacher is not able or does not provide you with work you must speak to your course colleagues for the notes/work missed. If you are still concerned speak to the course teacher again directly when you are back in school
- **Do not wait until your next lesson with that member of staff.**

Valid reasons for absence.

- Lesson clash - course teachers need to be made aware of this asap
- Educational visit
- University interview/ open day
- Illness, that prevents you from actively partake in the lesson.

Teaching staff will need at least a week's notice of a planned absence, in order to plan their lesson accordingly.

Organisation:

You must bring the following to all sessions:

- Homework
- Notebook
- Pen
- Pencil
- Ruler
- Scientific Calculator
- Protractor

Conduct and Appearance:

The Academy and the Science Department expect the highest standards of professionalism from our 6th Form students. Inappropriate behaviour in the science rooms endangers people and will not be tolerated. Goggles and relevant protective equipment must be worn when conducting any practical activity.

Study Periods

Science students should be conducting at least 5 hours of independent work outside of lessons consisting of either further reading, writing up class notes or exam questions

Deadlines

All classwork and homework needs to be completed on time. Failure to do this will lead to 6th Form referral catch up sessions.

“I agree to meet the expectations of the Science Department as outlined above and will seek to at all times to do my best to further develop myself and my knowledge of my chosen subject.”

SIGNED:

DATE:

Failure to meet the professional standard may result in you being removed from the course.