

Head of Department: Ms K. Broderick

Science is the study of the world around us, both big and small. The study of science enables students to understand both the phenomena that occur within our own bodies, as well as the phenomena of the world in which we live and the universe as a whole. At Barclay Academy, all students study each of the three major scientific disciplines: biology, chemistry and physics. Biology encompasses the study of humans, animals, plants and other living beings, as well as exploring nature and natural habitats. Chemistry is sometimes known as the ‘central science’ because of the way that it helps to connect the physical sciences, like maths and physics, with applied sciences, like biology, medicine and engineering. It is the science of the chemicals, gases and materials which have an impact on everything we do, from the creation of our buildings to the very air we breathe. Physics looks at the movement and phenomena that impact our way of life, and our connection with the universe.

KS3

At Barclay Academy, the Key Stage 3 science course spans Years 7 and 8. Through our science curriculum, we hope to build up our students’ confidence in scientific knowledge and enquiry, with the aim of preparing them for their science GCSEs, and to encourage more of our young people, ultimately, to pick STEM subjects at A-Level and beyond. Students study units from each of the three traditional science options (biology, chemistry and physics), and will study a plethora of exciting scientific phenomena, including life cycles, disease, cellular structure, elements, atomic structure, forces, and energy.

KS4

At Barclay, all students study for a GCSE in science, beginning the course in Year 9. During this initial year, they study introductory modules in biology, chemistry and physics, providing them with a solid grounding in the fundamental ideas and concepts required for success in Years 10 and 11. At the end of Year 9, students then progress to either the triple science or combined sciences GCSE course, with students taking the former receiving GCSEs in each science individually, and with students taking the latter receiving two combined GCSEs.

Our Year 10 and Year 11 students follow the OCR Gateway specification in science. This rigorous course gives them strong foundations in the fields of biology, chemistry and physics. Throughout Key Stage 4, topics explored include cells, genetics, chemical reactions, energy, electricity and radioactivity, alongside the global challenges posed and faced in the fields of biology, chemistry and physics. They also spend time developing their practical skills of scientific investigation and observation.

KS5

Biology

At A-Level, we follow the OCR specification in biology, a rigorous course that develops students' understanding of key biological facts and concepts, and that sees them learn to appreciate their significance in modern scientific investigation. Throughout the two-year course, students will develop their practical investigation skills, consider core topics of biology (such as molecules, cells and enzymes), and explore fascinating areas such as biodiversity, evolution, disease, genetics and ecosystems.

Chemistry

At A-Level, we follow the OCR specification in chemistry, a challenging but rewarding course which helps develop students' problem solving and analytical skills through their accumulation of core chemistry knowledge and concepts alongside the development of their practical skills. Throughout the two years of study, students will explore key themes such as the elements and organic chemistry, as well as participating in practical investigations.

Physics

At A-Level, we follow the OCR specification in physics. This is a deeply rewarding course which offers students the chance to develop their knowledge of the fundamental concepts and principles in physics. Throughout the two-year course, students will explore topics such as atomic structure, forces and motion, waves, particles, astrophysics, and medical physics. They then use their knowledge of these concepts to solve problems surrounding topics ranging from sub-atomic particles to the entire universe. The course also involves the opportunity to develop a student's practical and investigatory skills.