Science at Stanborough

'Science is part of the reality of living; it is the what, the how, and the why of everything in our experience.'- Rachel Carson

Learning about science develops students' problem solving skills, teaches students that many popular scientific beliefs are inaccurate and helps students keep up to date with the rapidly accelerating progress in science and technology. Understanding about science allows students to gain a coherent knowledge and understanding of science so they can act responsibly towards the environment. We develop students' literacy skills so they can communicate with confidence and take part in scientific debates. In short, everybody needs to be able to think scientifically to acquire accurate information about the world. Science is exciting!

The subject is delivered through a variety of different teaching approaches and activities that include practical work, ICT, case studies and research.

Curriculum KS3

At KS3, we follow the 'Activate' Science course. Practical study is a key part to encourage hands on learning and develop key lab techniques and skills. Digital textbooks and other resources can be found on the 'Kerboodle' website.

KS3 topics

Key Skills: Lab safety
Cells
Particle model
Forces
Body systems
Reproduction
Acids and Alkalis
Chemical reactions
Health
The Periodic Table
Separation techniques
Electricity and Magnets
Ecosystems
Energy
Motion
Sound and Light
Metal and acids
Earth and Space
New Technology
Detection
Turning Points

Curriculum KS4

The majority of students study the AQA Combined Science Trilogy course which is equivalent to two GCSE's and is graded on the Grade 9-9 to 1-1 scale.
There are higher (grades 9-9 to 4-4) or foundation (grades 5-5 to1-1) papers.

Students will study all three subjects Biology, Chemistry and Physics and at the end of the course, students will be examined in a number of written papers. Each of the papers will assess knowledge and understanding from distinct topic areas.

Around 30 students in each year group opt to study the three separate sciences Biology, Chemistry and Physics, each graded on the Grade 9-1 scale.

The aims and objectives of both qualification routes are to enable students to develop and extend their knowledge and understanding of key concepts. Students will also engage in scientific enquiry to develop as independent learners and as critical and reflective thinkers and develop the ability to ask relevant questions about science.

There is no better way to learn about science than through purposeful practical activities as part of day to day teaching and learning. As part of the course, students will carry out 21 required practical tasks. Knowledge and understanding on these experiments is tested

Curriculum KS5

Biologists are scientists who study the natural world and all the living things in it, from the largest animals and plants down to microscopic DNA. They try to understand how organisms work, how we evolved and what affects our health, from viruses to vaccinations.

At A level Biology we follow the OCR Biology Specification.

Chemists conduct experiments to study how elements behave in different conditions, and work out what substances are made up of right down to tiny nanoparticles. They use their knowledge to help us understand the world around us but also develop medicines, foods, fabrics and other new and exciting materials.

At A level Chemistry we follow the AQA Chemistry Specification.

Physicists helps us gain a deeper understanding of the natural world. They ask some big questions and work in many different areas and their work can be very varied. Some physicists uncover new laws about the Universe and use this knowledge to develop new materials, technologies and machinery while others study the fundamental particles that make up the Universe. Astrophysicists study the largest bodies in the Universe: stars, planets and other celestial bodies.

At A level Physics we follow the OCR Physics A Specification.

Entry to the A Level courses is Grade 6+ in Separate Science or a Grade 7-7+ in Combined Science**.**

SCIENCE CAREERS

Science opens up many exciting career possibilities. Here are some examples.

Biology: nursing, dentistry, psychology, physiotherapy, botany, environmental science, zoology, geology, oceanography, pharmaceuticals, genetics, research.

Chemistry: analytical chemist, chemical engineer, forensic scientist, geochemist, hazardous waste chemist, materials scientist, pharmacologist, dentistry, medicine.

Physics: Construction, electrical/ mechanical engineering, computer science, astronomy, sound engineer, patent attorney, web developer, robotics.

AMAZING SCIENCE TRICK TO TRY AT HOME

Keeping Water Separate

Fill two identical glasses with water. Add two tablespoons of salt to the water in one glass and stir well. Add a few drops of food colouring to the water in the other glass. Cover the glass containing the coloured water with a sheet of paper, turn it upside down and place it on top of the glass containing salt water. (Be sure to do this trick over a saucer or bowl.) Gently pull the paper out from between the glasses. The coloured water and the salt water will remain separate.

Can you explain what is happening?

STANBOROUGH SCHOOL

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Science