Walton Hall Academy

Science Curriculum Overview

Key Stage 3

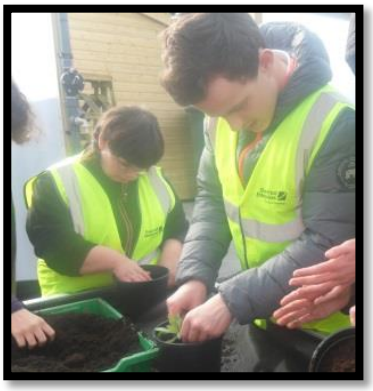
At Walton Hall Academy the study of Science at Key Stage 3 helps pupils to understand themselves and their environment and to make sense of their everyday experiences of living things, materials, forces and energy. Students learn to predict, investigate, collect evidence and draw conclusions, thus developing observational skills, perception and judgement.

At Walton Hall, pupils gain competence and confidence from success in well taught science lessons. Our commitment is towards a practical hands-on approach throughout the key stage which supports the delivery of the science national curriculum at an appropriate level to meet the specific needs of our pupils.

Students work towards developing skills, knowledge and understanding in Biology, Physics and Chemistry and while doing so improve their ability to work scientifically by building scientific attitudes, using experimental and investigative skills, using scientific measurements and vocabulary and being able to analyse and evaluate.

In Physics we cover many areas including forces and motions, energy and electricity, light and sound waves, magnetism and space physics across the key stage. In Chemistry we teach knowledge and understanding of the earth and its atmosphere; atoms, elements and compounds; chemical reactions and changes of state; The Periodic Table and materials. In Biology we teach students about the structure and function of living organisms by looking at their muscular and skeletal systems, cells, reproduction, nutrition and digestion and signs of health. We also develop knowledge and understanding of genetics, inheritance, ecosystems, photosynthesis and cell respiration. We make full use of the school farm animals and plant nursery to deliver very practical and purposeful lessons in biology.

For those in our additional needs groups in Key Stage 3 we learn through doing. Units from the Equals curriculum are delivered which cover all elements of National Curriculum Science. Examples of units include: Keeping Healthy; Classification of Materials and their properties; forces and motion; the earth and beyond and Green Plants. The plant nursery and school farm support a sensory approach to teaching these groups a purposeful science curriculum.



Key Stage 4

In Key Stage 4, students continue to build their scientific knowledge and investigation skills through accreditation pathways that are commensurate to their ability. As such, we offer a range of courses including

- BTEC Applied Science at Levels 1 and 2 (students working above EL3)
- WJEC Entry Level Science (students working between EL1-EL3)
- ASDAN Personal Progess (students working below EL1)

We have a fully equipped laboratory in the main school building in addition to wonderful natural resources in our grounds. These include an environmental area with pond dipping and wild flower meadow, a horticultural centre and extensive flower and vegetable plots, a farm with a wide range of small animals, pigs and poultry and a Forest School environmental resource area.

All our courses are assessed by portfolio evidence and may include written tasks and end of unit tests. Work is internally and externally moderated and is subject to quality review by the awarding bodies.

Currently, BTEC students may achieve 2 units (Physics and Chemistry) leading to an Award in Applied Science, or 4 units (Physics, Chemistry, Biology and an optional unit) leading to a Certificate in Applied Science.

All units of BTEC Applied Science are delivered around an assignment brief written in a vocational context. Units available include:

Unit 1: Starting Work in the Science Sector
Unit 2: Using Equipment to Make Scientific Observations and Measurements
Unit 3: Skills and Techniques for Chemistry Investigations
Unit 4: The Study of Living Systems
Unit 5: Physics and Our Universe
Unit 6: Growing Plants for Commercial Use
Unit 7: Causes of Disease and Maintaining Health
Unit 8: Forensic Detection
Unit 9: Healthier Living
Unit 10: Making and Testing Cosmetic Products
Unit 11: Practical Scientific Project
Unit 12: Making Useful Scientific Devices
Unit 13: Using Mathematical Tools in Science
Unit 14: Science in the World

WJEC science builds on Key Stage 3 knowledge for students working at Entry Level. A combination of units from the 3 areas of science builds towards the accreditation.

Examples of units include:

Food & Health, Introduction to Plant care, Introduction to Land Maintenance, Introduction to Animal care, Science Health & safety, Science & our Universe, Making Useful Compounds, Science & the Human Body, Science & the Plant World, The Science of Light & Sound, Variation & Adaption, Working with Electrical Circuits, Energy in the Home & Workplace, Chemical Products used in the Home & Their Impact, Renewable Energy.

For those in our KS4 additional needs group, units in Personal Progress and elements of the Equals curriculum allow students to develop their understanding through very hands on and practical experiences. Our extensive grounds and facilities provide students with the perfect opportunity to have sensory experiences that develop their understanding of the world they live in.

All courses offered in Key Stage 4 Science aim to develop communication, enquiry, knowledge, critical thinking, wonderment of the natural world, vocational and wider life skills and respect for living things.