

SCIENCE FACULTY

General Information

Our aim and objectives are simple. To engage young learners with a wide variety of scientific concepts and skills which allow them to stimulate their natural enquiring mind into asking the question 'How does science work?'

Staffing

- Ms. C. Palmer – Assistant Headteacher (Science)
- Mr Abdul Sa'id – Deputy Head of Science
- Mrs. M. Serrano – KS5 Science Coordinator
- Mr. P. Bonsu – KS3 Science Coordinator
- Mr. P. Coates – Teacher of Science
- Miss. A. des Clays – Teacher of Science
- Miss Noor Hassan – Teacher of Science
- Mrs. A. Vaghela – Teacher of Science
- Ms. S. Murray – Standards & Achievement Leader (Year 10) & Teacher of Science
- Mr K Patel – Assistant Headteacher (Sixth Form) and Teacher of Science

How Learners are assessed.

Learners are assessed regularly using a combination of practical skills and progress tests at the end of teaching units. Learners are expected to assess their learning whilst reviewing their progress and learning targets. Students are monitored and tracked closely to ensure both they and parents are furnished with their progress.

Homework

Homework is considered to be an important factor in achieving high standards. It is set weekly at KS3 and KS4. Learners are given homework during their lesson or on www.showmyhomework.co.uk with a record kept in their planners for self-management. KS5 learners are directed towards at least 5 hours of independent study per week.

Revision, Intervention and Enrichment

A science club is run weekly for Key Stage 3 learners. The Crest award is offered to the Gifted and Talented students, the award is nationally recognised. There are many educational visits organised by the department such as visits to London Zoo, UCL, Field studies trips, and the science museum. Learners are invited to attend enrichment classes after school and during school holiday. The lessons are tailored to prepare learners for terminal key stage examinations and complete coursework.

KS3 Science

The KS3 curriculum is essentially a balanced curriculum providing learners with the knowledge of the natural world, the skills of investigation and experimentation, and an appreciation of the importance of science to individuals and society.

The learners follow the National Curriculum in KS3. The course includes Biology, Chemistry and Physics giving learners a platform for their KS4 science course. The units in the KS3 topics are:

- Organisms, Behaviour and Health
- Chemical and material behaviour
- Energy Electricity and Forces



- The Environment, Earth and Universe

Learners are taught in mixed ability groups in Year 7 and ability groups in Year 8 and Year 9. Learners in Key Stage 3 receive 4 lessons of science weekly.

The science course engages, enthuses and excites learners developing skills. Our priority is to generate a learning environment that learners will enjoy whilst giving them the tools to finding answers to 'How science works'.

KS4 Science

Learners in Year 10 and 11 follow the GCSE AQA syllabus. The learners are taught in ability groups, with the year groups split into three or four ability groups for each half of the year group. All learners receive 5 lessons of science per week, whilst those pursuing the Triple Science option receive an additional 7 lessons.

The programme of study that students follow (Double Award or Triple) is determined during Year 10 via the options process. Please note that to study Triple Science, students must consistently achieve GCSE grade B in their Year 10 assessments. Further information about both courses is listed below:

GCSE SCIENCE (Double Award)

Course Leader: Ms C Palmer & Mr A Sa'id

Board: AQA

Syllabus Name: AQA GCSE Science A and GCSE Additional Science

Syllabus Number: 4461/ 4463

Course Outline: **How Science Works:** designing investigations, making observations, presenting and interpreting data, the limitations of scientific evidence, the impact of science on society.

Biology: the building blocks of life; the human body; ecosystems; our impact on the environment; health; variation, reproduction and inheritance.

Chemistry: making use of the Earth's resources; the structure of substances; controlling useful reactions; energy.

Physics: making use of electricity; energy and radioactivity; light and other waves; forces and motion.

Assessment: Science and Additional Science will be assessed as two separate GCSEs. For GCSE Science, the assessment will comprise three 1 hour unit tests worth 75% and coursework worth 25%. For GCSE Additional Science, the assessment will also comprise three 1 hour unit tests worth 75% and coursework worth 25%. The exam papers are tiered:

Higher Tier	Grades A*- D
Foundation Tier	Grades C- G

Coursework: This contributes 25% of the total mark. Coursework will be carried out during normal class time and is marked by the class teacher. This will consist of an overall assessment of the learner's practical skills and two Investigative Skills Assessments (ISAs) to be completed under controlled conditions in class.

Alternatives: The most able learners can select the Triple Science option as well as the compulsory Science (Double Award) course. Additional topics are studied and learners achieve three separate GCSEs: GCSE Biology, GCSE Chemistry and GCSE Physics

GCSE Science (Double Award) is a prerequisite for all science courses taught at

Your Future: AS/ A2 level. A high grade at GCSE is also required for entry into university courses in medicine, technology and engineering. GCSE Science (Double Award) is also held in high regard in non-scientific careers for the skills you develop as part of the course.

GCSE TRIPLE SCIENCE

Course Leader: Ms C Palmer & Mr A Sa'id

Board AQA

Syllabus Name: AQA GCSE Biology, GCSE Chemistry, GCSE Physics

Syllabus Number: 4411/ 4421/ 4451

Course Requirements: A minimum of a level 6 in Science and Maths at Key Stage 3, plus grades in Year 10 assessments.

Course outline:
This course is optional. It is taken alongside the compulsory Science (Double Award) course. At the end of these two courses, learners will gain three separate science GCSEs: GCSE Biology, GCSE Chemistry, GCSE Physics.

You will study:

In addition to the topics studied as part of Science (Double Award), the following topics will also be covered:

Biology: transport and exchange in the body; the role of microbes in everyday life.

Chemistry: acids and alkalis; quantitative chemistry; water.

Physics: circular motion; light and sound; generating electricity; the life of stars.

Assessment:

The assessment will comprise three 1 hour unit tests worth 75% and coursework worth 25%. The exam papers are tiered:

Higher Tier	Grades A* - D
Foundation Tier	Grades C - G

Coursework:

This contributes 25% of the total mark. Coursework will be carried out during normal class time and is marked by the class teacher. This will consist of an overall assessment of the learner's practical skills and an additional Investigative Skills Assessment (ISA) to be completed under controlled conditions in class.

Your Future:

Taking this option and achieving three separate science GCSEs provides good preparation for continuing study in the sciences at A-level. The additional content learners cover as part of this option complement the work covered in AS science courses and provide learners with an advantage over those that have only done the Science (Double Award) course.

KS5 Science

The Science Faculty offers Biology, Chemistry and Physics at A level. Learners receive six periods per subject each week. Learners are expected to complete 5 hours of independent study per week. We also offer an BTEC Extended Diploma in Applied Science, worth three A-Levels. These learners receive 18 lessons of science per week.

A-Level Biology

We follow the AQA syllabus in Biology. The course is split in three units at both AS and A2 stages.

Learners will take their terminal examination in June. They will study the following units at AS:

- Unit 1: Biology and Disease
- Unit 2: The Variety of Living Organisms
- Unit 3: Practical and Investigative Skills (20% of total AS marks, 10% of total A Level marks)

The learners will study the following units during the A2 units:

- Unit 4: Populations and Environment
- Unit 5: Control in Cells and in Organisms
- Unit 6: Practical and Investigative Skills (10% of the total A Level marks)

A-Level Chemistry

We follow the Edexcel syllabus in chemistry. In both AS and A2 the course is split into 3 units. Learners will sit their terminal examinations in June. Assessed practical make up the units studied in AS and A2 are as follows:

- Unit 1: The Core Principles of Chemistry
- Unit 2: Application of Core Principles of Chemistry
- Unit 3: Chemistry Laboratory Skills I (10%)
- Unit 4: General Principles of Chemistry I – Rates, Equilibria and Further Organic Chemistry
- Unit 5: General Principles of Chemistry II – Transition Metals and Organic Nitrogen Chemistry
- Unit 6: Chemistry Laboratory Skills II (10.0%)

A-Level Physics

We follow the AQA syllabus in Biology. The course is split in three units at both AS and A2 stages.

Learners will take their terminal examination in June. They will study the following units at AS:

- Unit 1: Particles, Quantum Phenomena and Electricity
- Unit 2: Mechanics, Materials and Waves
- Unit 3: Investigative and Practical Skills. (20% of total AS marks, 10% of total A Level marks)

The learners will study the following units during the A2 units taking their terminal examinations in June:

- Unit 4: Fields and Further Mechanics
- Unit 5: This unit comprises two sections
 - Section A: Nuclear and Thermal Physics
 - Section B: Option Units
- Unit 6: Investigative and Practical Skills. (10% of the total A Level marks)

BTEC Extended Diploma in Applied Science

Learners follow the edexcel syllabus, and complete the 18 units over the two years. All assessment is done via a portfolio of coursework and there are no terminal exams. The units on offer are listed below:

Year 12		
Term 1	Term 2	Term 3
1. Fundamentals of Science (10 credits, mandatory) (JM) 6. Using Mathematical Tools in Science (5 credits, mandatory) (MAS) 11. Physiology of Human body systems (10 credits, optional) (SM) 27. Chemical periodicity and its applications (10 credits, optional) (PC)	3. Scientific Investigations (10 credits, mandatory) (JM) 4. Scientific Practical Techniques (10 credits, mandatory) (JM) 5. Perceptions of Science (10 credits, mandatory) (PC) 43. Diseases and Infections (10 credits, optional) (SM) 7. Mathematical calculations for Science (5 credits, optional) (MAS)	2. Working in the Science industry (10 credits, mandatory) (JM) 42. Geology of Natural Resources (10 credits, optional) (MAS) 43. Diseases and Infections (10 credits, optional) (SM) 5. Perceptions of Science (10 credits, mandatory) (PC)

Year 13

Year 13		
Term 1	Term 2	Term 3
<p>10. Using Science in the Workplace (10 credits, optional) (JM)</p> <p>12. Physiology of the Human regulation and reproduction (10 credits, optional) (SM)</p> <p>15. Microbiological techniques (10 credits, optional) (PC)</p> <p>17. Electrical Circuits and their applications (10 credits, optional) (MAS)</p>	<p>28. Industrial Applications of organic chemistry (10 credits, optional) (JM)</p> <p>14. Energy changes, sources and applications (10 credits, optional) (MAS)</p> <p>13. Biochemistry and Biochemical techniques (10 credits, optional) (PC)</p> <p>18. Genetics and Genetic engineering (10 credits, optional) (SM)</p>	