



# SCIENCE DEPARTMENT

## Curriculum Overview



The curriculum of the school reflects the demands of the National Curriculum. It is designed in order to provide all pupils with a broad, balanced education relevant to their needs both now and in the future.

## Departmental Overview

The Science Department comprises 11 specialist teachers, 5 science laboratories, 5 teaching classrooms and 1 computer suite. There are also 3 laboratory preparation rooms, stocked with a wide range of equipment designed to support learning. The department also has access to 2 iPad trolleys and 1 bank of laptops.

## Departmental Staff

Mr R Clark	Head of Department/Head of Physics
Mrs K Forrest	Head of Biology/Psychology
Mrs N Kitts	Head of Chemistry
Dr R Palin	Science Teacher
Miss R Dudley	Science Teacher
Mr D Feeney	Science Teacher
Mr P Evans	Science Teacher
Miss E Tilston	Science Teacher
Mr C Slater	Science Teacher
Mrs N Leybourne	Science Teacher
Mr R MacKenzie	Science Teacher
Mr K Hall	Senior Laboratory Technician
Mrs J Riley	Science Support
Miss R Dudley	SLT Line Manager

# Year 7 Science (KS3)

## Examination/Specification Board

Activate KS3 Science (Oxford University Press)

## Curriculum Overview

### Term 1

Biology – Cells  
Chemistry – Particles

Physics - Forces

### Term 2

Biology – Body Systems  
Chemistry – Elements, compounds and  
separation techniques.

Physics - Sound

### Term 3

Biology – Reproduction  
Chemistry – The periodic table

Physics – Light

Throughout all units students will be encouraged to develop their skills in areas such as drawing graphs, data interpretation and an introduction to the scientific method. Students will regularly participate in practical work with the aim of developing their skills in the laboratory. In Year 7 this work focus upon the safe use of equipment, making accurate measurements and testing predictions.

## Examinations/Key Assessments

Students will be assessed on the 1-9 scale at the end of every topic, and are encouraged to monitor their own progress towards their target grade. There is also an end of year test in the summer term which covers all nine topics and is used find the students end of year grade.

## Homework

Homework is set at least once every two weeks, and may be set up to one per week. Additionally, homework will be set to review notes and revision materials before class tests. All homework's are available to view through Show My Homework.

## How Parents can Help

- Check that your son records his homework and the dates of the Science module tests.
- Encourage your son to watch scientific programmes on television, read about scientific events in newspapers and visit scientific sites on the internet.

# Year 8 Science (KS3)

## Examination/Specification Board

Activate KS3 Science (Oxford University Press)

## Curriculum Overview

### Term 1

Biology – Health and Lifestyle

Chemistry – Acids, Alkalis and Reactions

Physics – Electricity and Magnetism

### Term 2

Biology – Ecosystem Processes

Chemistry – Metals and Acids

Physics - Energy

### Term 3

Biology – Adaptation and Inheritance

Chemistry – The Earth

Physics – Motion

Throughout all units students will be encouraged to develop their skills in areas such as drawing graphs, data interpretation and use of the scientific method. Students will regularly participate in practical work with the aim of developing their skills in the laboratory. In Year 8 this work focus upon the use of advanced equipment, making accurate measurements and testing a hypothesis.

## Examinations/Key Assessments

Students will be assessed on the 1-9 scale at the end of every topic, and are encouraged to monitor their own progress towards their target grade. There is also an end of year test in the summer term which covers all nine topics and is used find the students end of year grade.

## Homework

Homework is set at least once every two weeks, and may be set up to one per week. Additionally, homework will be set to review notes and revision materials before class tests. All homework is available to view through Show My Homework.

## How Parents can Help

- Check that your son records his homework and the dates of the Science module tests.
- Encourage your son to watch scientific programmes on television, read about scientific events in newspapers and visit scientific sites on the internet.

# Year 9/10/11 Separate Science (KS4)

## Examination/Specification Board

AQA

## Curriculum Overview

Students will learn about life and living things, chemical reactions and physical processes both long established and the most recent and up to date findings in the scientific field. They will apply this learning to day-to-day life and look at modern areas of scientific development and concern.

**Biology:** cell biology organisation, infection and response bioenergetics, homeostasis and response inheritance, variation and evolution, ecology

**Chemistry:** atomic structure and the periodic table, bonding, structure and the properties of matter, quantitative chemistry, energy changes the rate and extent of chemical change, organic chemistry, chemical analysis, chemistry of the atmosphere using resources

**Physics:** forces, energy, waves, electricity, magnetism and electromagnetism, particle model of matter, atomic structure, space physics

## Examinations/Key Assessments

The new guidelines mean that all external exams will be taken at once at the end of the course. There are no resit opportunities available. External assessment (100%) Biology, Chemistry and Physics will be assessed with 2 papers of 105 minutes for each discipline. Each subject paper is worth 50% and has 100 marks available.

## Homework

Each subject will set one homework task per week. The majority of homework is set online via Show My Homework. Other homework tasks will involve extended investigations, research and exam skill development.

## How Parents can Help

- Check that your son records his homework and the dates of the Science module tests.
- Encourage your son to watch scientific programmes on television, read about scientific events in newspapers and visit scientific sites on the internet.
- Revision guides will be made available at cost price from the Science department. These should be purchased at the beginning of the course.

# Year 9/10/11 Combined Science (KS4)

## Examination/Specification Board

AQA (Trilogy)

## Curriculum Overview

Students will learn about Life and Living Things, Chemical Reactions and Physical Processes both long established and the most recent and up to date findings in the Scientific field. They will apply this learning to day to day life and look at modern areas of Scientific development and concern.

**Biology:** cell biology organisation, infection and response, bioenergetics, homeostasis and response inheritance, variation and evolution ecology

**Chemistry:** atomic structure and the periodic table bonding, structure and the properties of matter, quantitative chemistry, chemical changes, energy changes the rate and extent of chemical change, organic chemistry, chemical analysis, chemistry of the atmosphere, using resources

**Physics:** forces, energy, waves, electricity, magnetism and electromagnetism, particle model of matter, atomic structure

## Examinations/Key Assessments

The new guidelines mean that all external exams will be taken at once at the end of the course. There are no resit opportunities available. External assessment (100%) - 6 exam papers; 2 biology, 2 chemistry, 2 physics. All of the papers are 75 minutes long, each weighted as 16.7% of the final grade

## Homework

Each subject will set one homework task per week. The majority of homework is set online via Show My Homework. Other homework tasks will involve extended investigations and research.

## How Parents can Help

- Encourage your son to watch scientific programs on television, read about scientific events in newspapers and visit scientific sites on the internet.
- Check that homework is being completed regularly to consolidate learning.
- Revision guides will be made available at cost price from the Science department. These should be purchased at the beginning of the course.
- Please contact us anytime you have queries or concerns regarding your son's progress.

# Year 12/13 Biology (KS5)

## Examination/Specification Board

AQA

## Curriculum Overview

Biology is an exciting and ever changing field of study which can offer you many challenges and rewards. In A Level Biology you will cover dynamic and exciting topics such as; cell Biology, the functioning of living organisms and genetics and DNA. Studying Biology at A Level offers you many possible career options. Medicine, Dentistry, Nursing, Physiotherapy and Pharmacy all have a basis in A Level Biology.

## Examinations/Key Assessments

Your A Level Biology studies will culminate in written exams. The development of your practical skills will be monitored and endorsed by your teacher and your knowledge and understanding of practical biology will be tested in the written exams.

## Homework

Each subject will set one homework task per week. The majority of homework is set online via Show My Homework. Other homework tasks will involve extended investigations and research.

## How Parents can Help

- Encourage your son/daughter to watch scientific programs on television, read about scientific events in newspapers and visit scientific sites on the internet.
- Check that homework is being completed regularly to consolidate learning.
- Revision guides will be made available at cost price from the Science department. These should be purchased at the beginning of the course.

# Year 12/13 Chemistry (KS5)

## Examination/Specification Board

AQA

## Curriculum Overview

Chemistry is the study of the world around us, from the smallest atom to life saving medicines. You will explore the fundamental principles that form the basis of chemistry such as atomic structure, bonding, periodicity and an introduction to organic chemistry. Students also look at the applications of these principles. You will also develop further the concepts and principles introduced at AS through topics; including equilibria, polymers, aromatic chemistry, thermodynamics, energetic chemistry and inorganic chemistry.

## Examinations/Key Assessments

Assessment of A Level Chemistry is designed to be rigorous, while maintaining fair and balanced question papers. This includes testing synoptic understanding, knowledge of how science works and providing stretch and challenge. For this course, 100% of the content is assessed by exam, 20% of the overall assessment will contain mathematical skills and at least 15% will assess knowledge, skills and understanding in relation to practical skills.

## Homework

Each subject will set one homework task per week. The majority of homework is set online via Show My Homework. Other homework tasks will involve extended investigations and research.

## How Parents can Help

- Encourage your son/daughter to watch scientific programs on television, read about scientific events in newspapers and visit scientific sites on the internet.
- Check that homework is being completed regularly to consolidate learning.
- Revision guides will be made available at cost price from the Science department. These should be purchased at the beginning of the course.



# Year 12/13 Physics (KS5)

## Examination/Specification Board

AQA

## Curriculum Overview

Physics is the study of our universe. Throughout this course you will develop an understanding and appreciation of the mechanics of our universe. You will research issues that have a huge impact on our society today including Nuclear Physics and Quantum Mechanics. Physics is a highly sought after qualification and one which opens the door to a number of careers such as Medicine, Engineering, Dentistry, Optics and Teaching.

## Examinations/Key Assessments

Assessment of A-level Physics is designed to be rigorous, while maintaining fair and balanced question papers. This includes testing synoptic understanding, knowledge of How Science Works and providing stretch and challenge. The course is assessed through two exam papers which cover the entire programme of study as well as assessing practical skills and techniques practiced during your sixth form lessons.

## Homework

Each subject will set one homework task per week. The majority of homework is set online via Show My Homework. Other homework tasks will involve extended investigations and research.

## How Parents can Help

- Encourage your son/daughter to watch scientific programs on television, read about scientific events in newspapers and visit scientific sites on the internet.
- Check that homework is being completed regularly to consolidate learning.
- Revision guides will be made available at cost price from the Science department. These should be purchased at the beginning of the course.

# Year 12/13 Psychology (KS5)

## Examination/Specification Board

AQA

## Curriculum Overview

Studying Psychology will provide you with the opportunity to develop analytical skills, write essays and psychological reports. You will also develop your mathematical knowledge and research skills. These skills are all relevant and transferable to Higher Education courses of study or to the workplace. Throughout this course you will become familiar with cognitive psychology, developmental psychology and research methods. You will study conditions which effect many people in our society including; eating disorders, learning development, relationships and aggression.

## Examinations/Key Assessments

This course of study comprises two written units at AS and two at A-level, with no coursework.

## Homework

Each subject will set one homework task per week. The majority of homework is set online via Show My Homework. Other homework tasks will involve extended investigations and research.

## How Parents can Help

- Encourage your son/daughter to watch scientific programs on television, read about scientific events in newspapers and visit scientific sites on the internet.
- Check that homework is being completed regularly to consolidate learning.
- Revision guides will be made available at cost price from the Science department. These should be purchased at the beginning of the course.

# Year 12/13 Applied Science (KS5)

## Examination/Specification Board

EDEXCEL (BTEC)

## Curriculum Overview

Science is the study of the world around us; throughout this course you will develop your skills as a scientist and gain an understanding of industrial science. You will acquire new practical skills required for the scientific industry. This sector is highly varied and diverse. You will become familiar with different aspects of industry including, Food and Drink, Sports Science, Genetic engineering and Medical Sciences. Students completing their BTEC Nationals in Applied Science will be aiming to go on to employment, often via the stepping stone of higher education. A qualification in Applied Science can lead to study at university in Sports Science, Science and Football, Nursing, Natural Sciences, Sports Psychology and Applied Psychology. You will also have the skills necessary to train as a laboratory technician in large pharmaceutical companies, hospitals, universities and schools.

## Examinations/Key Assessments

You will complete 6 units in total, of which 58% is externally assessed by examination. The remaining content is assessed by the completion of a coursework portfolio.

## Homework

Each subject will set one homework task per week. The majority of homework is set online via Show My Homework. Other homework tasks will involve extended investigations and research.

## How Parents can Help

- Encourage your son/daughter to watch scientific programs on television, read about scientific events in newspapers and visit scientific sites on the internet.
- Check that homework is being completed regularly to consolidate learning.
- Revision guides will be made available at cost price from the Science department. These should be purchased at the beginning of the course.