

# SCIENCE

At Ludlow School, we believe in a broad, balanced science education for all our students. We will encourage our students to think about Science in relation to their everyday lives, helping them to cope well in today's increasingly scientific and technological society.

## **Aims of the subject:**

- To stimulate interest and enjoyment in Science
- To enable our students to understand a wide range of scientific concepts, theories, facts and principals
- To enable our students to communicate their ideas about Science
- To allow students to use Science to solve problems
- To develop our students' practical skills
- To develop our students' ability to carry out investigative work appropriately and systematically
- To encourage our students' awareness of environmentally and socially important issues
- To develop our students' ability to work in groups
- To prepare our students for studies in Science beyond GCSE

## **Overview of KS3**

During KS3, students develop their scientific knowledge and understanding and make connections between different areas of Science. They use scientific ideas and models to explain phenomena and to understand a range of familiar applications of Science.

Students plan and carry out their own investigations and study a wide range of topics encompassed in the three Science disciplines of Biology, Chemistry and Physics.

Most of the Key Stage Three curriculum is covered in Years 7 and 8.

## **What will be studied in Year 7**

The three Sciences are split up into eleven topics for the new Year 7 Science Curriculum.

### **Biology units:**

Cells, Structure and Function of Body Systems, and Reproduction.

### **Chemistry units:**

Particles and their behaviour, Elements, Atoms and Compounds, Reactions, Acids and Alkalis.

### **Physics units:**

Forces, Sound, Light and Space.

## **What will be studied in Year 8**

### **Biology units:**

Health and lifestyles, Ecosystem processes, Adaptation and inheritance

### **Chemistry units:**

The Periodic Table, Separation techniques, Metals and acids, The Earth

### **Physics units:**

Electricity and magnetism, Energy, Motion and pressure

**What will be studied in Year 9**

Year 9 sees students embarking on their GCSE course. All students follow the same curriculum with a view to opting for either Combined Science or Triple Science in Year 10 at Easter. They will study introductory GCSE topics in Biology, Chemistry and Physics.

# SCIENCE – GCSE

## Science Pathways

All students follow the compulsory element, unless they opt to study Triple Science. The pathways for Science are as follows:

### Compulsory

- GCSE Combined Science: Trilogy

### Optional

GCSE Triple Science leading to:

- GCSE Biology
- GCSE Chemistry
- GCSE Physics

# GCSE Combined Science: Trilogy

## Examination Board:

AQA

## Course Content:

The GCSE Combined Science: Trilogy course is taught in discrete modules of Biology, Chemistry and Physics by specialist teachers.

In **Biology**, the topics covered are:

- Cell Biology
- Organisation
- Infection and response
- Bioenergetics
- Homeostasis and response
- Inheritance, variation and evolution
- Ecology

In **Chemistry**, the topics covered are:

- Atomic structure and the Periodic Table
- Bonding structure and the Properties of Matter
- Quantitative Chemistry
- Chemical Changes
- Exothermic and Endothermic reactions
- The Rate and Extent of Chemical Change
- Chemical Analysis
- Chemistry of the Atmosphere
- Using resources

In **Physics**, the topics covered are:

- Forces
- Force and Motion
- Energy
- Waves
- Electricity – current, resistance and potential difference
- Electricity – domestic, energy transfers and the National Grid
- Permanent and Induced Magnetism
- Particle model of Matter
- Atomic Structure

## Assessment:

- This is a dual award GCSE leading to two GCSEs. As such, the grading structure will move to a 17 - point scale ranging from 1-1 to 9-9, where 9-9 is the best grade.
- There will be two tiers of entry, Foundation and Higher. Students undertaking the Foundation Tier exams will be awarded grades from 1-1 to 5-5. Students undertaking the Higher Tier exams will be awarded grades from 4-4 to 9-9.
- There will be 6 examinations, 2 in each science, of 1 hour and 15 minutes duration, totalling 7.5 hours of examinations.

## **GCSE Triple Science - GCSE Biology, GCSE Chemistry and GCSE Physics**

**To follow this route, it must be selected as an option.**

It is recommended that students must achieve **at least** the National Standard in English, Mathematics and Science at the end of KS3 to follow Triple Science.

### **Examination Board:**

AQA

### **Course Content:**

The GCSE Triple Science option course is taught in discrete modules of Biology, Chemistry and Physics by specialist teachers.

In Biology, Chemistry and Physics the topics covered from the GCSE Combined Science: Trilogy will be studied in greater breadth and depth.

### **Assessment:**

For each of GCSE Biology, GCSE Chemistry and GCSE Physics:

- There will be two exams of 1 hour and 45 minutes duration totalling 3.5 hours of examinations for each science, 10.5 hours in total for the three Sciences.

*Further information from Mr M Payne*