

BIOLOGY

Pupil year: **Upper 3 (Yr 7)**

Head of Department: **Mrs S Thorne**

SUBJECT OVERVIEW

This is the first year of a 2 year key stage 3 course. Students learn the knowledge and skills that give a sound foundation for studying Biology to GCSE. The course is divided into four topic-based units.

Subject / Topic

Cells and organisms

- Using microscopes
- Animal and plant cell structure
- Diffusion

Human Reproduction

- Structure of the reproductive system
- Puberty and the menstrual cycle
- Development of the fetus

The world around us

- Food webs and pyramids
- Human effects on food chains and webs
- Variation and inheritance

Plant reproduction

- Comparing wind and insect pollinated flowers
- Methods of seed dispersal
- The importance of pollinators

Working Scientifically

Students will learn the following skills in the contexts of the topics studied in Upper 3:

- Understanding how scientific methods and theories develop over time
- Planning and carrying out scientific enquiries to test predictions
- Making measurements and applying mathematical concepts in data analysis
Using tables and graphs
- Interpreting observations to draw conclusions. Suggesting possible improvements to investigations

CHEMISTRY

Pupil year: **Upper 3 (Yr 7)**

Head of Department: **Mr I Macdonald**

SUBJECT OVERVIEW

This is the first year of a 2 year key stage 3 course. Students learn the knowledge and skills that give a sound foundation for studying Chemistry to GCSE. The course is divided into four topic-based units.

Topic

The Particulate Nature of Matter

- The properties of the different states of matter
- Changes of state in terms of the particle model

Pure and impure substances

- Pure substances and mixtures
- Separation techniques

Acids and bases

- Defining acids and alkalis in terms of neutralisation reactions
- The pH scale for measuring acidity/alkalinity; and indicators

Planet Earth

- The composition and structure of the Earth
- Composition of the atmosphere
- Changes in the atmosphere

Working Scientifically

Students will learn the following skills in the contexts of the topics studied in Upper 3:

- Understanding how scientific methods and theories develop over time
- Planning and carrying out scientific enquiries to test predictions
- Making measurements and applying mathematical concepts in data analysis
- Using tables and graphs
- Interpreting observations to draw conclusions. Suggesting possible improvements to investigations

PHYSICS

Pupil year: **Upper 3 (Yr 7)**

Head of Department: **Mr C Ridler**

SUBJECT OVERVIEW

This is the first year of a 2 year Key Stage 3 course. Students learn the knowledge and skills that give a sound foundation for studying Physics to GCSE. The course is divided into four topic-based units and students develop and apply ‘working scientifically’ skills throughout the year.

Subject / Topic

Energy

- Types of energy and energy transfers
- Fossil fuels and renewable sources of energy

Forces

- Effects of forces
- Balanced and unbalanced forces
- $\text{Weight} = \text{mass} \times \text{gravitational field strength}$
- Friction, fluid resistance and upthrust
- Electrostatic forces
- Balanced seesaws

Electricity

- Circuit diagrams
- Resistance of conductors and insulators
- Measuring current in parallel and series circuits
- Switches in parallel and series circuits

Motion and Space

- Measuring speed
- The solar system, galaxies and universe

Working Scientifically

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- Understanding how scientific methods and theories develop over time
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- Making measurements and applying mathematical concepts in data analysis
Using tables and graphs
- Interpreting observations to draw conclusions. Suggesting possible improvements to investigations