# BIOLOGY

Student 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 six topic-based units.

### Subject / Topic

**Cells and organisms**
- Using microscopes
- Animal and plant cell structure
- Understanding how cells are organized into multicellular organisms

**Animal and plant reproduction**
- Structure of reproductive systems
- Puberty and the menstrual cycle
- Pregnancy and birth
- Comparing wind and insect pollinated flowers
- Fruit and seed formation and dispersal

**Environment and adaptation**
- Organisms and their habitat
- Food chains and webs – cooperation and competition
- Human effects on the environment

**Variation and classification**
- The variety of life
- Genetic and environmental variation

**Photosynthesis**
- The importance of plants
- Leaf structure and photosynthesis

**Food and digestion**
- Healthy eating
- Food tests
- The digestive system

### Working Scientifically

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

Student 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 five topic-based units.

### Subject / 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

**Atoms and Elements**
- Theories and models
- A brief introduction to the periodic table

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

**Simple Chemical reactions**
- Identifying chemical reactions and gas tests
- Introduction to writing equations

### 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

Student 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 topic-based units and students develop and apply 'working scientifically' skills throughout the year.

### Subject / Topic

Energy
- Energy stores and energy transfers
- Fossil fuels and renewable sources of energy

Forces
- Force interactions
- Balanced and unbalanced forces

Motion
- Measuring speed
- Falling objects
- Streamlining

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

### 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.