

## SUBJECT OVERVIEW

In Upper 3 (Yr 7) science is taught as three separate sciences, Biology, Chemistry and Physics. 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 separate sciences to GCSE. Further details of the topics covered in each science are shown below.

### Biology

#### Cells

- Cell structure and function
- Tissues, organs and organ systems

#### Reproduction

- The difference between sexual and asexual reproduction
- Body changes at puberty in boys and girls
- Menstrual cycle
- Fertilisation of the egg and development of the foetus
- Flowering plant reproduction

#### Variation and classification

- Variation between and within species
- Selective breeding of plants and animals
- The five kingdom model of classification

#### Feeding Relationships

- Feeding relationships in food webs
- The process of bioaccumulation
- Predators and prey relationships
- Photosynthesis

### Chemistry

#### Patterns in Chemical Reactions

- Properties of acids and alkalis
- Indicators and the pH scale
- Neutralisation and combustion reactions
- Conservation of mass

#### Particle Models

- The particle model for solids, liquids and gases
- Changes of state
- Applying the particle model to a range of separation techniques
- Solubility

#### The Changing Earth

- Characteristics of igneous, metamorphic and sedimentary rocks
- The rock cycle

### Physics

#### Energy

- Food as a source of energy
- Fossil fuels and renewable sources of energy
- Types of energy

#### Electricity

- Circuit diagrams
- Measuring current and potential difference
- Parallel and series circuits
- Electrical safety

#### Forces

- Effects of forces
- Weight, mass and gravity
- Friction, fluid resistance and upthrust
- Balanced and unbalanced forces

#### Motion

- Measuring speed

#### Space

- The solar system
- Causes of days, years and seasons

### Experimental and Analytical Skills

In addition, students will have the opportunity to practice the following skills in all of their science subjects:

- Planning an approach, selecting and managing variables
- Assessing risk, working safely
- Obtaining and presenting evidence

