

Science

KEY STAGE 3 SCIENCE (YEAR 7)

During Year 7 students study the following topics:

Forces ~ speed, gravity

Electromagnets ~ voltage and resistance, currents

Energy ~ energy costs, energy transfer

Waves ~ sound, Light

Matter ~ particle model, separating mixtures

Reactions ~ metals and non-metals, acids & alkalis

Earth ~ earth structure, universe

Organisms ~ movement, cells

Ecosystems ~ interdependence, plant reproduction

Genes ~ variation, human reproduction

During the year students will also develop their working scientifically skills. They will be asking scientific questions, planning investigations and recording data. They will then go on to analyse and evaluate their data.

KEY STAGE 3 SCIENCE (YEAR 8)

During Year 8 pupils study the following topics:

Forces ~ contact forces, pressure

Electromagnets ~ electromagnets and magnetism

Energy ~ work, heating and cooling

Waves ~ wave effects and wave properties

Matter ~ periodic theory and elements

Reactions ~ chemical energy and types of reactions

Earth ~ climate and earth resources

Organisms ~ breathing and digestion

Ecosystems ~ respiration and photosynthesis

Genes ~ evolution and inheritance.

During the year students will also develop their working scientifically skills. They will be asking scientific questions, planning investigations and recording data. They will then go on to analyse and evaluate their data.

KEY STAGE 4 COMBINED SCIENCE (YEAR 9)

In Year 9 students will spend one term consolidating their Key Stage 3 studies. In the Spring term students transfer onto the new GCSE Combined Science course.

Areas of study in Year 9 include:

Biology:

- Biomimicry

- Cells
- Respiration and photosynthesis
- Classification, adaptation and ecosystems

Chemistry:

- Atomic structure and the periodic table
- Bonding, structure, and the properties of matter
- Energy Changes

Physics:

- Electricity and electromagnetism
- Energy
- Particle model of matter
- Waves

Students will also develop their working scientifically skills. They will be asking scientific questions, planning investigations and recording data. They will then go on to analyse and evaluate their data.

KEY STAGE 4 SEPARATE SCIENCE (YEAR 9)

In Year 9 students will start the new GCSEs in Physics, Chemistry and Biology. Areas of study include:

Biology

- Biomimicry
- Cellular level of organisation
- Responding to our environment
- Life processes
- Classification, adaptation and ecosystems

Chemistry

- Atomic structure and the periodic table
- Bonding, structure, and the properties of matter

- Energy changes

Physics

- Electricity and electromagnetism
- Energy
- Particle model of matter
- Waves

Students will also develop their working scientifically skills. They will be asking scientific questions, planning investigations and recording data. They will then go on to analyse and evaluate their data.

KEY STAGE 4 COMBINED SCIENCE (YEAR 10)

In Years 10 students taking combined science study the following topic areas:

Biology

- Diet, exercise, hormone, genes and drugs
- Surviving changes in the environment

Chemistry

- Chemical Changes
- Energy Changes
- Rate and Extent of Chemical Change
- Organic Chemistry
- Using Resources

Physics

- Energy and efficiency
- Electrical energy and waves • Rates, energy, salts and electrolysis
- Forces and motion
- Electricity and radiation

KEY STAGE 4 SEPARATE SCIENCE (YEAR 10)

In Year 10 students taking Separate Science study the following topic areas:

Biology

- Cells and the growing plant
- Genes and proteins, inheritance, gene technology and speciation

Chemistry

- Chemical Changes
- Energy Changes
- Rate and Extent of Chemical Change
- Organic Chemistry
- Using Resources

Physics

- Forces and motion
- Electricity and radiation

KEY STAGE 4 DOUBLE SCIENCE (YEAR 11)

In Years 11 students taking double science study the following six topic areas

Biology

- Cells and the growing plant
- Genes and proteins, inheritance, gene technology and speciation

Chemistry

- Structures, properties and uses
- Rates, energy, salts and electrolysis

Physics

- Forces and motion
- Electricity and radiation

The students will also complete a controlled assessment (ISA) based on one of these topics. This is the content required for Additional Science GCSE. The six topic areas the students studied in Year 10 will also be examined in Year 11. This will be their core Science GCSE.

KEY STAGE 4 TRIPLE SCIENCE (YEAR 11)

In Years 11 students taking Triple science study the following six topic areas

Biology

- Exchange and transport
- Regulating the human and natural environment

Chemistry

- Water, energy and the Periodic table
- Analysis, ammonia and organic chemistry

Physics

- Physics in medicine

Making things work

The students will have also completed a controlled assessment (ISA) for each subject.

In the summer they will have written exams for Chemistry, Physics or Biology based on the work they have studied in Years 9, 10 and 11.

KEY STAGE 4 CORE SCIENCE (YEAR 11)

In Years 11 students taking Core science study the following six topic areas:

Biology

- Diet, exercise, hormone, genes and drugs
- Surviving changes in the environment

Chemistry

- Atoms, rocks, metals and fuels
- Polymers, plant oils, the Earth and its atmosphere

Physics

- Energy and efficiency
- Electrical energy and waves • Rates, energy, salts and electrolysis
- Forces and motion
- Electricity and radiation

They will also complete a controlled assessment (ISA) based on one of these topics. This is the content required for a Core Science GC