

SCIENCE

The majority of pupils follow the AQA Combined Science: Trilogy course. During this course pupils will revisit topics throughout the course. The years listed below are when the topics are covered in the most detail.

By the end of Year 9, pupils will have covered the following GCSE topics:

Biology

Cells – A fundamental topic on the basics of cell structure and microscopy.

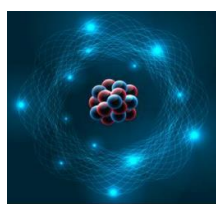
Disease – This builds on the cells topic and introduces the ideas of disease transmission and Immunity.

Ecosystems and Interdependence -This topic covers in detail animals and plants and their daily battle for survival.



Chemistry

Atomic Structure and The Periodic Table - A fundamental topic covering the histories of the structure of the atom and the development of the periodic table.



Chemical Changes – A very practical based topic about the reactions of acids, alkalis and metals.

Physics

Particles – Another fundamental topic covering states of matter, changes of state and density

Radioactivity – This topic looks in detail at ionising radiation, radioactive decay and the uses of radiation.

Energy- Energy stores and systems and how these interact in world around us.



The topics studied in GCSE Combined Science in Year 10

Pupils taking GCSE Combined Science in Years 10 and 11 will have five or ten periods of Science each fortnight. Pupils selected to take Science for five periods can choose to take more Science by selecting Science (10 periods) as part of their general choices.

Biology

Transport of Substances – This topic follows on from cells and looks at diffusion, osmosis and active transport.

Respiratory and Circulatory Systems – An in-depth look at the lungs, heart and blood vessels.

Digestive System – The journey of your food from start to finish!

Plants – This topic gives you further insight into the biology of plants.



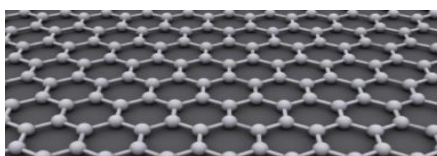
Chemistry

Structure and Bonding – This topic builds on Atomic Structure covered in Year 9 and covers different materials, their uses and properties.

Electrolysis – This topic builds on the material covered in Chemical Changes.

Chemistry Calculations – An in-depth look at chemical reactions and the maths behind them.

Energy Changes – A topic covering exothermic and endothermic reactions and calculating the energy involved in chemical reactions.



Physics

Heat Energy - More on energy and more complex ideas such as specific heat capacity.

Electricity – This topic covers circuits and calculations to work out quantities such as voltage, current and resistance.



The topics studied in GCSE Combined Science in Year 11

Biology

Genetics – In this topic you will learn how are inherited characteristics are determined and about some inherited disorders, e.g., Polydactyl hands.



Homeostasis – This topic covers the many ways in which the body regulates itself, including temperature control and hormones.

Variation – How does variation in a species arise and how can it be scientifically controlled?

Evolution – This topic covers the theory of evolution by natural selection and the evidence for evolution.

Chemistry

Rates of Reaction – Another practical based topic which looks in detail at the factors that affect the rate of a chemical reaction.

Energy Changes – A topic covering exothermic and endothermic reactions and calculating the energy involved in chemical reactions.

The Earth's Resources – A look at the resources provided by the Earth including metals from the Earth's crust and water from the oceans.



The Earth's Atmosphere – The evolution of the atmosphere and the impact of human activity.

Chemical Analysis – This topic covers simple chemical tests for analysing and identifying Substances.

Physics

Magnetism – This is a topic looking at magnets, magnetic materials, magnetic fields and electromagnets and their uses.

Forces – This is a very detailed topic looking at different types of force, velocity, acceleration and momentum and the principles behind them.

Waves – A topic covering types of wave and their properties and uses.

Assessment

Assessment will take place at the end of the course in Year 11. There will be six examinations: two Biology, two Chemistry, and two Physics papers. Each examination is 1 hour and 15 minutes in length.

During the course, pupils will complete Required Practical Activities (RPAs) as part of their normal lessons:

Biology

- Microscopy
- Osmosis
- Food Tests
- Enzymes
- Photosynthesis
- Reaction time
- Field investigations

Chemistry

- Making salts
- Electrolysis
- Temperature changes
- Rates of reaction
- Chromatography
- Water purification

Physics

- Specific heat capacity
- Current/voltage characteristics
- Density
- Force and Extension
- Acceleration
- Waves
- Radiation and absorption

Combined Science is the equivalent of two GCSEs; pupils will be awarded two grades in this subject.

Please contact Ms B King if you would like further guidance.

TRIPLE SCIENCE

A small number of pupils will be selected to follow the Triple Science Course from the beginning of Year 10.

Extra material is covered in each of the Combined Science Topics to cover the extra Triple content.

Pupils who are interested in studying Triple Science will be invited to put themselves forward for the selection process around Easter time in Year 9. This is separate from the 'Choices' process. Pupils must demonstrate that they have done well in Science throughout Years 7, 8 and 9 and that they have a great interest in all three of the sciences. They will also be required to sit an entrance examination which will be arranged by Ms King.

In order to meet all of the requirements of GCSE curriculum, pupils who study Triple Science will be required to cover Personal Development during registration.

Assessment

Assessment will take place at the end of the course in Year 11. There will be six examinations: two Biology, two Chemistry, and two Physics papers. Each examination is 1 hour and 45 minutes in length.

During the course, pupils will complete Required Practical Activities (RPAs) as part of their normal lessons. Triple scientists will complete all of the experiments listed on the previous page and the following additional RPAs:

Biology

- Microbiology
- Plant responses
- Decay

Chemistry

- Identifying ions

Physics

- Thermal insulation
- Light

Triple Science is the equivalent of three GCSEs; pupils will be awarded separate grades for Biology, Chemistry and Physics.

Please contact Ms B King if you would like further guidance.