This qualification is linear, with all of the assessments of the program of study occurring at the end of Year 11 during the summer exam season. Students will start this qualification in December of Year 9 following the completion of the KS3 Program of study. This is to allow the full breadth and depth of the KS4 course to be delivered allowing us to stretch and challenge the most-able to master the course and achieve the top grades, and also allow time for support and differentiation where required. The topics studied during Year 9 appear on both the Trilogy specification and the Separate Science specification to allow for co-teaching. Following the options process started in Year 9, student will then move onto their specific chosen science course as they enter Year 10.

The teaching of combined sciences at the Ecclesbourne School follows a 5 year spiral curriculum based on resources produced through the Oxford University Press via their Kerboodle system. There is emphasis on both substantive knowledge and disciplinary knowledge with numerous opportunities to develop skills to work scientifically. The order tells a coherent and logical story through physics. Students are continually challenged and moved forward, with curiosity and investigation encouraged throughout.

The order of teaching KS4 is taught sequentially with the GCSE AQA Biology, Chemistry and Physics for Combined Science: Trilogy 3rd Edition Oxford University Press student textbook*. This is aligned with the AQA Trilogy specification. The scheme of work has been developed by Jim Breithaupt. The sequencing of substantive knowledge reflects its hierarchical nature. The teaching of disciplinary skills and knowledge are linked to areas of the content where teaching is appropriate. Teaching order is aligned with completion of GCSE Trilogy Paper 1 and Paper 2 sequentially. This allows for assessment of progress at the end of Year 10 consistent with Separate Sciences.

During Year 9 student will be taught 3 lessons of Science per week, one for Biology, Chemistry and Physics. In Year 10, students have 5 hours of Science curriculum, we follow a rotation timetable system to allow an even spread of time for the 3 sciences. In Year 11, students have 7 hours of science curriculum time, spread across the 3 subjects.

The aim of the GCSE Combined Science Trilogy course is:

- Impart a systematic body of scientific knowledge and facts, and an understanding of scientific concepts, principles, themes and patterns across Biology, Chemistry and Physics
- Further students' appreciation of the practical nature of science, developing experimental skills based on correct and safe laboratory techniques, developing analytical and evaluative skills to determine clear conclusions.
- Develop application skills to allow students to think outside the box with unfamiliar examples, applying their knowledge and understanding of key science processes.
- Develop an appreciation of the importance of accurate experimental work to scientific method and reporting, ensuring complicated methods are followed and measurements recorded to a high level of precision.
- Develop the application of science specific mathematics skills.
- Develop students' ability to form hypotheses and design experiments to test them, writing clear methods identifying specific apparatus and techniques required.
- Sustain and develop an enjoyment of, and interest in, the scientific world across Biology, Chemistry and Physics, identifying overlap between the subjects

- Foster an appreciation of the significance of science in wider personal, social, environmental, economic and technological contexts, with a consideration of ethical issues
- Develop future Scientists who will continue the study of Sciences onto A level and Higher Education

Key ideas on Biology:

• life processes depend on molecules whose structure is related to their function • the fundamental units of living organisms are cells, which may be part of highly adapted structures including tissues, organs and organ systems, enabling living processes to be performed effectively

• living organisms may form populations of single species, communities of many species and ecosystems, interacting with each other, with the environment and with humans in many different ways

• living organisms are interdependent and show adaptations to their environment

• life on Earth is dependent on photosynthesis in which green plants and algae trap light from the Sun to fix carbon dioxide and combine it with hydrogen from water to make organic compounds and oxygen

• organic compounds are used as fuels in cellular respiration to allow the other chemical reactions necessary for life

• the chemicals in ecosystems are continually cycling through the natural world

• the characteristics of a living organism are influenced by its genome and its interaction with the environment

• evolution occurs by a process of natural selection and accounts both for biodiversity and how organisms are all related to varying degrees.

Key ideas in Chemistry:

• matter is composed of tiny particles called atoms and there are about 100 different naturally occurring types of atoms called elements

• elements show periodic relationships in their chemical and physical properties

• these periodic properties can be explained in terms of the atomic structure of the elements

• atoms bond by either transferring electrons from one atom to another or by sharing electrons

• the shapes of molecules (groups of atoms bonded together) and the way giant structures are arranged is of great importance in terms of the way they behave

• there are barriers to reaction so reactions occur at different rates

• chemical reactions take place in only three different ways:

• proton transfer, • electron transfer and • electron sharing

• energy is conserved in chemical reactions so can therefore be neither created or destroyed.

Key ideas in Physics:

• the use of models, as in the particle model of matter or the wave models of light and of sound

• the concept of cause and effect in explaining such links as those between force and acceleration, or between changes in atomic nuclei and radioactive emissions

• the phenomena of 'action at a distance' and the related concept of the field as the key to analysing electrical, magnetic and gravitational effects

• that differences, for example between pressures or temperatures or electrical potentials, are the drivers of change

• that proportionality, for example between weight and mass of an object or between force and extension in a spring, is an important aspect of many models in science

• that physical laws and models are expressed in mathematical form.

Prior learning

Science is a core subject that students have studied at KS3, the aim of KS4 Science is to build on these foundations as part of our spiral curriculum, increasing the level of demand and challenge as students' cognitive ability develops. The rationale behind the teaching order is to ensure the building blocks are in place as we progress through the topics, allowing students to fully access each topic. There are season considerations too, with Photosynthesis topics and ecology topics being studied during the summer months to allow for practical activities to take place.

For Combined Science we follow a two Teacher route to give more consistence with the students with respect to contact time. During the year each teacher will be responsible for the delivery of one whole curriculum area and then the 3rd subject will be split and delivered. Careful consideration will be made to the teaching order to ensure that a spiral curriculum is delivered.

Biology Delivery

Year	Topic	Term		Content	Paper number
9	4.1.1 Cell structure	Autumn Spring	2 December 1 1 2	4.1.1.1 Eukaryotes and prokaryotes 4.1.1.2 Animal and plant cells 4.1.1.3 Cell specialisation 4.1.1.4 Cell differentiation 4.1.1.5 Microscopy Builds on key cells concepts from Y7, uses a greater level of specialist terms and introduces more organelle. Practical skills development from just using a microscope to drawing + labelling skills, and using a eye piece graticule to draw to scale	1
9 10	4.1.2 Cell division	Summer	2 2 Start of Y10	4.1.2.1 Chromosomes 4.1.2.2 Mitosis and the cell cycle 4.1.2.3 Stem cells Building on cell structure, introducing where and how DNA is located and stored	1
10	4.1.3 Transport in cells	Autumn	1	4.1.3.1 Diffusion 4.1.3.2 Osmosis 4.1.3.3 Active transport Importance of the cell membrane is now explored in the context of transport in and out of cells – must be covered AFTER cell structure	1
10	4.2.1 Principles of organisation	Autumn	2	Cells are the basic building blocks of all living organisms. A tissue is a group of cells with a similar structure and function. Organs are aggregations of tissues performing specific functions. Organs are organised into organ systems, which work together to form organisms How cells are arranged in terms of organisation for large multicellular organisms	1
10	4.2.2 Animal tissues, organs and organ systems	Spring	1	4.2.2.1 The human digestive system 4.2.2.2 The heart and blood vessels 4.2.2.3 Blood Builds on KS3 prior learning, identifying specific structures in the heart and digestive system. Opportunities for dissection and practical skills rather than just a demonstration 4.2.2.4 Coronary heart disease: a non-communicable disease	1

				4.2.2.5 Health issues – Builds significantly further on the health and diet topics at KS3 4.2.2.6 The effect of lifestyle on some non-communicable diseases 4.2.2.7 Cancer	
10	4.2.3 Plant tissues, organs and systems	Spring	1	4.2.3.1 Plant tissues 4.2.3.2 Plant organ system Students are familiar with animal organs, so this is studied first to learn the key terminology, then the plant topic is studied with a more familiar context.	1
10	4.3.1 Communicable diseases	Spring	2	4.3.1.1 Communicable (infectious) diseases 4.3.1.2 Viral diseases 4.3.1.3 Bacterial diseases 4.3.1.4 Fungal diseases 4.3.1.5 Protist diseases 4.3.1.6 Human defence systems 4.3.1.7 Vaccination 4.3.1.8 Antibiotics and painkillers 4.3.1.9 Discovery and development of drugs Taught after the cells topic, so student have a firm understanding of microorganisms and the relative units user in measurements.	1
10	4.4.1 Photosynthesis	Summer	1	4.4.1.1 Photosynthetic reaction 4.4.1.2 Rate of photosynthesis 4.4.1.3 Uses of glucose from photosynthesis Requires understanding of balancing equations, so taught later in Y10. Biochemistry is more challenging, also for practical investigations is studied in the summer when plenty of pond weed is available.	1
10	4.4.2 Respiration	Summer	2	4.4.2.1 Aerobic and anaerobic respiration 4.4.2.2 Response to exercise 4.4.2.3 Metabolism Taught with Photosynthesis in Bioenergetics topic, last topic in Biology paper 1	1
11	4.5.1 Homeostasis	Autumn	1	Students should be able to explain that homeostasis is the regulation of the internal conditions of a cell or organism to maintain optimum conditions for function in response to internal and external changes.	2

				Fundamentals discussed in terms of the principle of homeostasis and negative feedback. Need for receptors, coordinators and effectors	
11	4.5.2 The human nervous system	Autumn	1	Students should be able to explain how the structure of the nervous system is adapted to its functions. Comparisons with methods of communication - hormonal	2
11	4.5.3 Hormonal coordination in humans	Autumn	1	4.5.3.1 Human endocrine system 4.5.3.2 Control of blood glucose concentration 4.5.3.3 Hormones in human reproduction 4.5.3.4 Contraception 4.5.3.5 The use of hormones to treat infertility (HT only) 4.5.3.6 Feedback systems (HT only) Comparisons with methods of communication – neuronal. Links for specific examples of homeostasis	2
11	4.6.1 Reproduction	Autumn	2	4.6.1.1 Sexual and asexual reproduction 4.6.1.2 Meiosis 4.6.1.3 DNA and the genome 4.6.1.4 Genetic inheritance 4.6.1.5 Inherited disorders 4.6.1.6 Sex determination Building on the DNA and chromosomes work from Y10, different types of reproduction and the formation of individual cells	2
11	4.6.2 Variation and evolution	Autumn	2	4.6.2.1 Variation 4.6.2.2 Evolution 4.6.2.3 Selective breeding 4.6.2.4 Genetic engineering Taught after Meiosis and sexual reproduction to give reasoning for variation. Very conceptual topic,	2
11	4.6.3 The development of understanding of genetics and evolution	Autumn	2	4.6.3.1 Evidence for evolution 4.6.3.2 Fossils 4.6.3.3 Extinction 4.6.3.4 Resistant bacteria Follows on from variation to evolution – processes discussed and developed.	2
11	4.6.4 Classification of living organisms	Autumn	2	4.6.4 Classification of living organisms Traditionally living things have been classified into groups depending on their structure and	2

				characteristics in a system developed by Carl Linnaeus. Linnaeus classified living things into kingdom, phylum, class, order, family, genus and species. Organisms are named by the binomial system of genus and species. Students should be able to use information given to show understanding of the Linnaean system. Very conceptual topic, builds on the large range of living organisms discussed	
11	4.7.1 Adaptations, interdependence and competition	Spring	1	4.7.1.1 Communities 4.7.1.2 Abiotic factors 4.7.1.3 Biotic factors 4.7.1.4 Adaptations In year 11 as its paper, 2, but delivered as close to the summer as possible to allow for practical activities and sampling	2
11	4.7.2 Organisation of an ecosystem	Spring	1	4.7.2.1 Levels of organisation 4.7.2.2 How materials are cycled Conceptual development of the topic and need for cycling of nutrients, links to abiotic factors previously discussed	2
11	4.7.3 Biodiversity and the effect of human interaction on ecosystems	Spring	1	4.7.3.1 Biodiversity 4.7.3.2 Waste management 4.7.3.3 Land use 4.7.3.4 Deforestation 4.7.3.5 Global warming 4.7.3.6 Maintaining biodiversity Identifies Human impacts on ecosystems, allows for widest thinking about consequences to ecosystems.	2

Chemistry Delivery

Year	Topic	Term		Content
9	5.1.1 A simple model of the atom, symbols, relative atomic mass, electronic charge and isotopes	Autumn	2	5.1.1.1 Atoms, elements and compounds 5.1.1.2 Mixtures 5.1.1.3 The development of the model of the atom (common content with physics) 5.1.1.4 Relative electrical charges of subatomic particles 5.1.1.5 Size and mass of atoms 5.1.1.6 Relative atomic mass 5.1.1.7 Electronic structure The underlying principles of subatomic particles, shells and RAM which lay foundations for later principles of bonding, structure, group trends, reactions and calculations in chemistry
9	5.1.2 The periodic table	Spring	1 + 2	5.1.2.1 The periodic table 5.1.2.2 Development of the periodic table 5.1.2.3 Metals and non-metals 5.1.2.4 Group 0 5.1.2.5 Group 1 5.1.2.6 Group 7 An appreciation and understanding of the history of the Periodic Table, and how the arrangement of elements and reactivity trends in groups can be linked to atomic structure from the previous unit 4.1.1
9 / 10	5.2 Bonding, structure, and the properties of matter	Summer Autumn	1 + 2 1	5.2.1 Chemical bonds, ionic, covalent and metallic 5.2.1.1 Chemical bonds 5.2.1.2 Ionic bonding 5.2.1.3 Ionic compounds 5.2.1.4 Covalent bonding 5.2.1.5 Metallic bonding
10	5.2.2 How bonding and structure are related to the properties of substances	Autumn	1	5.2.2.1 The three states of matter 5.2.2.2 State symbols 5.2.2.3 Properties of ionic compounds 5.2.2.4 Properties of small molecules 5.2.2.5 Polymers 5.2.2.6 Giant covalent structures 5.2.2.7 Properties of metals and alloys 5.2.2.8 Metals as conductors
10	5.2.3 Structure and bonding of carbon	Autumn	1	5.2.3.1 Diamond 5.2.3.2 Graphite 5.2.3.3 Graphene and fullerenes A full coverage of the main aspects of structure and bonding, using concepts from 4.1.1 and 4.1.2, which are fundamental as part of the comprehension for the rest of the course, as the theories can be used to explain the physical and chemical properties of substances. Also, used to underpin formulae and balanced symbol questions with state symbols.

10	5.3.1 Chemical measurements, conservation of mass and the quantitative interpretation of chemical equations	Autumn	2	5.3.1.1 Conservation of mass and balanced chemical equations 5.3.1.2 Relative formula mass 5.3.1.3 Mass changes when a reactant or product is a gas 5.3.1.4 Chemical measurements
10	5.3.2 Use of amount of substance in relation to masses of pure substances	Autumn	2	5.3.2.1 Moles (HT only) 5.3.2.2 Amounts of substances in equations (HT only) 5.3.2.3 Using moles to balance equations (HT only) 5.3.2.4 Limiting reactants (HT only) 5.3.2.5 Concentration of solutions Quantitative analysis is used to determine compound formulae, reaction equations and monitor yield. This unit is a key part of chemical language and theory and underpins future content both in a theoretical and practical sense.
10	5.4.1 Reactivity of metals	Spring	1	5.4.1.1 Metal oxides 5.4.1.2 The reactivity series 5.4.1.3 Extraction of metals and reduction 5.4.1.4 Oxidation and reduction in terms of electrons (HT only)
10	5.4.2 Reactions of acids	Spring	2	5.4.2.1 Reactions of acids with metals 5.4.2.2 Neutralisation of acids and salt production 5.4.2.3 Soluble salts 5.4.2.4 The pH scale and neutralisation 5.4.2.5 Strong and weak acids (HT only)
10	5.4.3 Electrolysis	Summer	1	5.4.3.1 The process of electrolysis 5.4.3.2 Electrolysis of molten ionic compounds 5.4.3.3 Using electrolysis to extract metals 5.4.3.4 Electrolysis of aqueous solutions 5.4.3.5 Representation of reactions at electrodes as half equations (HT only) Knowing and understanding chemical reactions allows students to make predictions (from principles in 4.2) of new substances as well as uses and applications. Methods of extracting materials from our planet using electrolysis and other methods to enhance our lives is also explored using underlying principles from the unit.
10	5.5.1 Exothermic and endothermic reactions	Summer	2	5.5.1.1 Energy transfer during exothermic and endothermic reactions 5.5.1.2 Reaction profiles 5.5.1.3 The energy change of reactions (HT only

				Energy changes are a fundamental part of chemistry and underpin later concepts of kinetics and equilibria. The topic serves as useful end to Paper 1 content and the Year 10 course.
11	5.6.1 Rate of reaction	Autumn	1	5.6.1.1 Calculating rates of reactions 5.6.1.2 Factors which affect the rates of chemical reactions 5.6.1.3 Collision theory and activation energy 5.6.1.4 Catalysts
11	5.6.2 Reversible reactions and dynamic equilibrium	Autumn	1	5.6.2.1 Reversible reactions 5.6.2.2 Energy changes and reversible reactions 5.6.2.3 Equilibrium 5.6.2.4 The effect of changing conditions on equilibrium (HT only) 5.6.2.5 The effect of changing concentration (HT only) 5.6.2.6 The effect of temperature changes on equilibrium (HT only) 5.6.2.7 The effect of pressure changes on equilibrium (HT only) How fast chemical reactions occur and how far they occur are imperative concepts of physical chemistry. A lot of important ideas from Paper 1 are revisited and developed here. The Haber process is used as a basis of Le Chatelier's principle and then revised later in the course.
11	5.7.1 Carbon compounds as fuels and feedstock	Autumn	2	5.7.1.1 Crude oil, hydrocarbons and alkanes 5.7.1.2 Fractional distillation and petrochemicals 5.7.1.3 Properties of hydrocarbons 5.7.1.4 Cracking and alkenes Organic chemistry is an important separate branch of chemistry. Principles of bonding, structure and chemical changes from Year 10 are fundamental here and may be revisited briefly.
11	5.8.1 Purity, formulations and chromatography	Autumn	2	5.8.1.1 Pure substances 5.8.1.2 Formulations 5.8.1.3 Chromatography
11	5.8.2 Identification of common gases	Autumn	2	5.8.2.1 Test for hydrogen 5.8.2.2 Test for oxygen 5.8.2.3 Test for carbon dioxide 5.8.2.4 Test for chlorine Chemical analysis is best taught near the end of a course as its serves as a revision of previous and new chemical reactions but also how those reactions can be used to identify unknown substances in a variety of contexts.

11	5.9.1 The composition and evolution of the Earth's atmosphere	Spring	1	5.9.1.1 The proportions of different gases in the atmosphere 5.9.1.2 The Earth's early atmosphere 5.9.1.3 How oxygen increased 5.9.1.4 How carbon dioxide decreased
11	5.9.2 Carbon dioxide and methane as greenhouse gases	Spring	1	5.9.2.1 Greenhouse gases 5.9.2.2 Human activities which contribute to an increase in greenhouse gases in the atmosphere 5.9.2.3 Global climate change 5.9.2.4 The carbon footprint and its reduction
11	5.9.3 Common atmospheric pollutants and their sources	Spring	1	5.9.3.1 Atmospheric pollutants from fuels 5.9.3.2 Properties and effects of atmospheric pollutants A standalone unit which demonstrates an appreciation of atmospheric chemistry as well as revising chemical reactions and equations.
11	5.10.1 Using the Earth's resources and obtaining potable water	Spring	1	5.10.1.1 Using the Earth's resources and sustainable development 5.10.1.2 Potable water 5.10.1.3 Waste water treatment 5.10.1.4 Alternative methods of extracting metals (HT only)
11	5.10.2 Life cycle assessment and recycling	Spring	2	5.10.2.1 Life cycle assessment 5.10.2.2 Ways of reducing the use of resources A splendid way to complete a chemistry course by looking at the chemistry of materials found naturally and produced synthetically as well as a wide range of applications of theoretical (bonding and structure) and experimental chemistry to show how chemists can develop materials and processes which can enhance society in the world at large. Also, a responsible look at sustainability and environmental impact.

Physics Delivery

Paper 1

Year	Topic	Term		Content
9	6.1 Energy	Spring	1 + 2	Energy and energy resources • Conservation and dissipation of energy • Energy transfer by heating • Energy resources *Energy is needed to make objects move and keep devices such as mobile phones working. The ability to access energy at the flick of a switch makes life easier. People in developing countries aspire to access energy as easily while those in developed countries are burning too much fuel and are endangering our planet by making the atmosphere warmer.* *In this section students learn about measuring and using energy and how wind turbines for example don't burn fuel so could enable everyone to have access to energy.* *This topic is taught first as it underpins the whole course. All subsequent topics can be linked to this section.*
10	6.2 Electricity	Autumn	1 + 2	• Electrical circuits • Energy in the home *Electric charge is a fundamental property of matter everywhere. Electrical power fills the modern world with artificial light and sound, information and entertainment, remote sensing and control. In this topic students build electric circuits and learn how, together with different components, they transfer energy. They then learn how electricity is used safely in the home, powering our everyday life.* *Whole electricity topic taught in sequence to allow for the application of knowledge as the dean increases through the topic*
10	6.3 Particle model of matter	Spring	1 + 2	• Molecules and matter *The particle model of matter is regarded by some as humanities greatest scientific model. It is widely used to predict the behaviour of solids, liquids and gases and this has many applications in everyday life. In this topic students develop this concept to explain a wide range of observations across the 3 states of matter, find out what happens when a material changes state and learn how to measure the density of materials.* *Overlap with GCSE Chemistry on structure of atom – provides an opportunity to allow for application on knowledge and understanding.*

				Particle models are developed further with their interactions and energy transfers developed
10	6.4 Radioactivity	Summer	1 + 2	• Radioactivity *Although radioactivity was discovered over a century ago, it took many nuclear physicists several decades to understand the structure of atoms, nuclear forces and stability. In this section students learn how the model of the atom has evolved, observe the different types of radiation and how they behave, and see that ionising radiation is hazardous it can be very useful. Structure of the atom is SAME content delivered in GCSE Chemistry – review and built on for impacts and uses of radiation. Topic requires a high level of understanding so is delivered towards the end of Y10*

Paper 2

11	6.5 Forces	Autumn	1 + 2	• Forces in balance • Motion • Force and motion *Forces are an energy pathway that allow us to change our world. Whether this be through movement, design of structures or application of materials, you just can't get away from forces. In this topic students learn about the laws that govern them, the mathematics that describes them and how we use them to explain events and make the world safer. They also investigate the relationship between force and extension of a spring and determine how force is linked to acceleration.* *To allow for assessments in line with GCSE Papers, this and the following topics are always taught after Paper 1 topics. This allows for consistent assessment in line with GCSE papers, using the Secure Key materials from AQA, examination mark schemes and published grade boundaries.*
11	6.6 Waves	Spring	1	• Wave properties • Electromagnetic waves *A nuclear reaction in the Sun generates light waves which travel through the vacuum of space, and after being reflected from an object enter your eye enabling you to see it. When you speak into your mobile phone sound waves carry information. Doctors use X-rays and ultrasonic waves to visualise objects inside the body. Waves are an energy pathway that carry information. In this section students learn about waves and their properties. They carry out investigations into how waves move in water and in solids as well as how different materials emit and absorb waves. Students understand what makes waves so important, study the family of waves called the electromagnetic spectrum and identify their many applications.* *Builds on foundations from radioactivity topic – focusing on specific medicinal uses and applications of radiation.*
11	6.7 Magnetism and electromagnetism	Spring	1 + 2	• Electromagnetism *Two magnets attract or repel each other without being in contact. We use the idea of magnetic fields to explain this. An electric current in a wire also produces a magnetic field. These affects are known as electromagnetism. In this topic students find evidence for the existence of magnetic fields*

				around magnets and current carrying wires. Finally, students see how these affects can be combined to produce motion. *Challenging motor effects taught towards the end of Year 11.*

* In 2020/21 Year 9 Chapter P2 was deferred to Y10 to allow for practical work to be completed by pupils.

Assessment at end of topics – At the end of each major topic, there is an end of topic assessment, this has been created using EXAMPRO (AQA exam question database), with assessments being created in line with the AQA Science papers, for the correct balance of high, medium and low demand questions for Higher / Foundation tiers.

Final external assessment breakdown table

Biology Paper 1
What's assessed Biology topics 1–4: Cell Biology; Organisation; Infection and response; and Bioenergetics.
How it's assessed • Written exam: 1 hour 15 minutes • Foundation and Higher Tier • 70 marks • 16.7% of GCSE
Questions Multiple choice, structured, closed short answer, and open response.

+

Biology Paper 2
What's assessed Biology topics 5–7: Homeostasis and response; Inheritance, variation and evolution; and Ecology.
How it's assessed • Written exam: 1 hour 15 minutes • Foundation and Higher Tier • 70 marks • 16.7% of GCSE
Questions Multiple choice, structured, closed short answer, and open response.

Chemistry Paper 1
What's assessed Chemistry topics 8–12: Atomic structure and the periodic table; Bonding, structure, and the properties of matter; Quantitative chemistry; Chemical changes; and Energy changes.
How it's assessed • Written exam: 1 hour 15 minutes • Foundation and Higher Tier • 70 marks • 16.7% of GCSE
Questions Multiple choice, structured, closed short answer, and open response.

Chemistry Paper 2
What's assessed Chemistry topics 13–17: The rate and extent of chemical change; Organic chemistry; Chemical analysis; Chemistry of the atmosphere; and Using resources. Questions in Paper 2 may draw on fundamental concepts and principles from Sections 5.1 to 5.3.
How it's assessed • Written exam: 1 hour 15 minutes • Foundation and Higher Tier • 70 marks • 16.7% of GCSE
Questions Multiple choice, structured, closed short answer, and open response.

Physics Paper 1
What's assessed Physics topics 18–21: Energy; Electricity; Particle model of matter; and Atomic structure.
How it's assessed • Written exam: 1 hour 15 minutes • Foundation and Higher Tier • 70 marks • 16.7% of GCSE
Questions Multiple choice, structured, closed short answer, and open response.

Physics Paper 2
What's assessed Physics topics 22–24: Forces; Waves; and Magnetism and electromagnetism
How it's assessed • Written exam: 1 hour 15 minutes • Foundation and Higher Tier • 70 marks • 16.7% of GCSE
Questions Multiple choice, structured, closed short answer, and open response.

Further curriculum support:

www.kerboodle.com – online textbook

Seneca learning

BBC Bitesize – Trilogy - https://www.bbc.co.uk/bitesize/examspecs/z8r997h

CPG Complete revision and Practice Book

CGP Required Practical exam skills book – 10 minute tests

Enrichment activities

GCSE Science Live event in Birmingham / Sheffield (Year 10) - March 2022

Progression – where can subject take you

GCSE Combined Science provides an excellent platform to the progression onto KS5 A levels in Biology, Chemistry, Physics and Psychology here at Ecclesbourne school.