Ormiston Victory Academy

Science	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 9	New AQA GCSE Trilogy – all students (combined or separate science) will cover the same topics. End of Topic test at the end of each unit. End of Year Mock exam in the form of a previous GCSE Paper 1 for Biology, Chemistry and Physics Trilogy Science. Topics covered: Biology – Cell Structure; Cell Division; Organisation and the Digestive System; Organising Animals and Plants; Communicable Diseases. Chemistry – Atomic Structure; The Periodic Table; Bonding and Structure; Chemical Calculations; Chemical Changes. Physics – Conservation of Energy; Energy Transfer; Energy Resources; Electrical Circuits; Electricity in the Home; Molecules and Matter. Skills: develop science safety and practical skills. Creativity. Use of terminology. Describing links. Identifying trends.					
Year 10	New AQA GCSE Trilogy – all students (combined or separate science) will cover the same topics. End of Topic test at the end of each unit. End of Year Mock. Topics covered: Biology – Preventing and Treating Disease; Non-Communicable Diseases; Photosynthesis; Respiration; The Human Nervous System; Hormonal Control; Reproduction. Chemistry – Electrolysis; Energy Changes; Rates of Reaction and Equilibrium; Crude Oil and Fuels; Chemical Analysis; The Earth's Atmosphere; The Earth's Resources. Physics – Radioactivity; Forces in Balance; Motion; Force and Motion; Wave Properties; Electromagnetic Waves; Electromagnetism. Skills: develop science safety and practical skills. Creativity. Use of terminology.					
Year 11 (Combined Sciences)	Paper 1 for Biology, Chemistry and Physics sat before Christmas in Winter Mocks. Paper 2 for Biology, Chemistry and Physics sat in March Mocks. After this, students will be given a bespoke GAP unit which will help fill in any gaps identified in both sets of mocks Topics covered: Biology – our environment and how populations depend on one another. Numeracy. Required practicals from each subject. Followed by general revision of all topics from May. Skills: Develop mathematical skills within the context of science.					
Year 11 (Biology/ Chemistry/ Physics)	At the end of year 10, students will be asked to choose whether they wish to sit Triple Science (separate sciences). At the beginning of the year, students will be taught the small amount of triple content for paper 1. Paper 1 Separate Science Mock in December. Paper 2 content is then taught. Most of the triple content requires a deeper understanding of the concepts taught in combined science, with students having to learn more complicated chemical tests, more complicated biological systems and further content within physics (including space physics). By March, the content is completely finished and students will sit a Paper 2 mock. After this, students will be given a bespoke GAP unit which will help fill in any gaps identified in both sets of mocks. This lasts until the exams in May. Topics covered: Biology – Adaptation and Interdependence; Organising an Ecosystem; Effect of human interactions on ecosystems and biodiversity. Chemistry – The Earth's Atmosphere; The Earth's Resources.					

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Year 12 Biology	Topics covered: Cell structure, Biological molecules, Nucleotides and nucleic acids, Cell division	Topics covered: Cellular organisation, Exchange surfaces, Enzymes, Biological membranes Skills: Chemical analysis of samples, rates of reactions	Topics covered: Transport in animals, Communicable diseases Skills: Analysis of complex inter-relationships of organisms and how to manage these to promote healthy populations	Topics covered: Biodiversity, Transport in plants	Topics covered: Ecosystems, Classification and Evolution	Topics covered: Ecosystems, Manipulation genomes Skills: Analysis of energy systems and limiting factors effecting photosynthesis.
Year 12 Chemistry	Atomic structure and isotopes, Acids, Redox, Bonding, Amount of substance	Compounds formulae and equations, Electron structure, Periodicity, Bonding, Group 2, Halogens, Qualitative analysis Skills: Bond enthalpy calculations, Feasibility calculations,	Enthalpy change, Reaction Rates, Basic concepts of organic chemistry, Alkanes Skills: Qualitative analysis of Ions, Precipitate tests, Halide tests,	Alkenes, Alcohols, Haloalkanes, Reaction rates., Chemical equilibria	Organic Synthesis, Analytical techniques, Revision and study skills Skills: Spectroscopy, NMR, Formation of nitriles	How far? 7 How fast?, Revision & study skills development
Year 12 BTEC Applied Science	Unit 1 - principles of science. This will study some aspects of science in more detail than they did at GCSE. Topics include: Cells; Biological Pathways; Quantitative Chemistry; Bonding and Structure; Waves in Sound;		Unit 2, Unit 3 and Unit 8. Unit 2 will teach the students practical skills that can be specifically applied to industry contexts including titration, calorimetry and chromatography. This is internally assessed as coursework. Unit 3 is taught alongside this as it determines the validity of the practical work and looks at error and accuracy. Unit 8 is a separate unit that looks at the organisation of the human body.			

	Electromagnetic Waves. This is externally examined in January					
Year 13 Biology	Manipulating genomes, Ecosystems, Population and sustainability	Communication and Homeostasis, Patterns of inheritance, Cloning and biotechnology	Hormonal and neuronal communication, Respiration, Cellular control	Plant and animal responses, Photosynthesis	Revision	
Year 13 Physics	Module 5 Newtonian World and Astrophysics. • Thermal Physics • Circular Motion • Oscillations • Gravitational Fields • Astrophysics and cosmology		Module 6 Particles and Medical Physics • Capacitors • Electrical Fields • Electromagnetism • Nuclear and Particle physics • Medical Imaging		Revision	
Year 13 BTEC Applied Science	Students will complete principles of science 2. This looks at more A level parts of science in an externally examined unit. This will look at the properties and uses of substances; Organs and Systems; Thermal Physics, materials and fluids;		Students will complete Unit 4 and Unit 6. These are internally assessed coursework based units. Unit 4 will further develop the students practical skills, looking more specifically at the production of organic chemicals and the storage of sensitive scientific documents. Unit 6 is a research project where students will be allowed to select a small scientific experiment to investigate. Students will also complete an additional unit 18 which looks at the application of chemistry in industry.			