

HIGHFIELDS SCHOOL

CURRICULUM OVERVIEW 2023-2024



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SUBJECT: GCSE COMBINED SCIENCE (FOUNDATION) **EXAMINATION BOARD:** OCR

AUTUMN TERM - YEAR 9	SPRING TERM - YEAR 9	SUMMER TERM – YEAR 9
<p>B1: Cell level systems B1.1 Cell structures B1.2 What happens in cells C1: Particles 1.1 Particle model 1.2 Atomic structure C2: Elements, compounds and mixtures C2.1 Purity and separating mixtures P1: Matter 1.1 The particle model 1.2 - Changes of state</p> <p>Potential Practical Activities</p> <ul style="list-style-type: none"> • Calculating density • Heating curve for ice • Specific heat capacities of different metals • Microscopy • Metals and water reactions • Metals and acid reactions • Metal displacement reactions • Group 7 halogens and displacement • Investigation of trolleys on ramps at an angle • Investigation of acceleration 	<p>B1: Cell level systems B1.3 Respiration B1.4 Photosynthesis C3: Chemical reactions C3.1 Introducing chemical reactions C3.2 Energetics C3.3 Types of reactions P2: Forces 2.1 Motion 2.2 Newton's Laws</p> <p>Potential Practical Activities</p> <ul style="list-style-type: none"> • Fermentation Investigation • Aerobic Exercise Investigation • Photosynthesis Investigations • Photosynthesis Investigations • Osmosis Investigations • Specialised cells and mitosis microscopy • Velocity of ball bearings in glycerol • Measuring temperature changes 	<p>B2: Scaling up B2.1 Supplying the cell 2.2 The challenges of size C4: Predicting and identifying reactions and products C4.1 Predicting chemical reactions C3: Chemical reactions P2: Forces 2.3 Forces in action</p> <p>Potential Practical Activities</p> <ul style="list-style-type: none"> • Use of light gates, masses and trolleys • Behaviour of springs and elastic bands • Producing pure dry samples of salt • Metal displacement reactions • Determining pH of solutions • Neutralisation reactions • Demonstration of heart structure
<p>ASSESSMENT A mixed-science topic test including C1.1, P1.1, P1.2 and B1.1 A mixed-science topic test including C1.2, B1.2, and P2.1</p>	<p>ASSESSMENT A mixed-science topic test including C4.1, C3.1, B1.3, B1.4, and C3.2 A mixed-science topic test including P2.2, and B2.1</p>	<p>ASSESSMENT A mixed-science topic test including P2.3 and C3.3 End of Year exam including all B1, B2, C1, C3, P1, P2</p>

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AUTUMN TERM - YEAR 10	SPRING TERM - YEAR 10	SUMMER TERM – YEAR 10
<p>B3: Organism level systems B3.1 Coordination and control – the nervous system B3.2 Coordination and control – the endocrine system B3.3 Maintaining internal environments C2: Elements, compounds and mixtures C2.3 Properties of materials C2.2 Bonding C3: Chemical reactions C3.4 Electrolysis P3: Electricity and Magnetism 3.1 Static and charge 3.2 Simple circuits</p> <p>Potential Practical Activities</p> <ul style="list-style-type: none"> • Use of a Van de Graaff generator • Use of the gold leaf electroscope and a charged rod • Building of circuits • Investigation of wire length on resistance • Investigation of I-V characteristics • Investigation of resistance • Investigation into heat loss from plasticine shapes 	<p>B4: Community level systems B4.1 Ecosystems B5: Genes, inheritance and selection B5.1 Inheritance B5.2 Natural selection and evolution P3: Electricity and Magnetism 3.3 Magnets and magnetic fields P4: Waves and radioactivity 4.1 Wave behaviour 4.2 The electromagnetic spectrum</p> <p>Potential Practical Activities</p> <ul style="list-style-type: none"> • Electrolysis • Plotting of magnetic fields • Observing sound waves on an oscilloscope • Investigation of reflection and refraction • Investigation of electromagnetic waves • Investigating variation 	<p>B6: Global challenges B6.1 Monitoring and maintaining the environment C5: Monitoring and controlling chemical reactions C5.1 Controlling reactions C5.2 Equilibria C6: Global Challenges C6.1 Improving processes and products P4: Waves and radioactivity 4.3 Radioactivity</p> <p>Potential Practical Activities</p> <ul style="list-style-type: none"> • Collecting a gas practical • Rates of reaction: effects of temperature, concentration, surface area and catalysts • Using dice to model random decay and half-life • Use of a Geiger Muller tube, sources and aluminium plates of varying thicknesses to investigate change in count rate
<p>ASSESSMENT A mixed-science topic test including B3.1, B3.2 and C2.1</p> <p>A mixed-science topic test including P3.2 and C2.2</p>	<p>ASSESSMENT A mixed-science topic test including P3.3, B4.1 and P4.1</p> <p>A mixed-science topic test including C3.4, C2.3 and B5.1</p>	<p>ASSESSMENT End of Year exam using Past Examination Papers covering B1-3, C1-3 and P1-3</p> <p>A mixed-science topic test including P4.3, C5.1 and C5.2</p>

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AUTUMN TERM - YEAR 11	SPRING TERM - YEAR 11	SUMMER TERM - YEAR 11
<p>B6: Global challenges B6.2 Feeding the human race</p> <p>C6: Global Challenges C6.1 Improving processes and products C6.2 Interpreting, interacting with Earth systems</p> <p>P5: Energy 5.1 Work done 5.2 Power and efficiency</p> <p>Practical Work</p> <ul style="list-style-type: none"> • Exploring energy stores and transfers in different objects • Use of light gates and data loggers • Use of a joule meter to calculate specific heat capacity of a metal block • Investigation of energy changes and efficiency of bouncy balls • Investigation of rate of cooling with insulated and non-insulated copper cans 	<p>P6: Global challenges 6.1 Physics on the move 6.2 Powering Earth</p> <p>B6: Global challenges B6.3 Monitoring and maintaining health</p> <p>Practical Work</p> <ul style="list-style-type: none"> • Investigation of reaction time • Investigation of stopping distances • Investigation of crumple zones and safety features in cars • Comparison of temperature changes inside sealed transparent containers with different gases inside • Investigation into growth bacterial cultures using aseptic techniques • Investigation into growth bacterial cultures using aseptic techniques 	<p style="text-align: center;">Revision and intervention B1 – B6 C1 – C6 P1 – P6</p>
<p>ASSESSMENT Pre-mock exams using Past Examination Papers covering B1-3, C1-3 and P1-3 Mock exams using Past Examination Papers covering B1-3, C1-3 and P1-3</p>	<p>ASSESSMENT Mock exams using Past Examination Papers covering B4-6, C4-6 and P4-6</p>	<p>ASSESSMENT Final GCSE examinations Two 1 hour 10 minutes written papers each worth 16.7 % of the GCSE (60 marks each) Paper 1 assesses content from Topics 1 – 3. Paper 2 assesses content from Topics 4 – 6, with assumed knowledge of Topics 1 – 3.</p> <p>Each paper has 2 sections: Section A contains 10 multiple choice questions Section B includes short answer question styles and an extended six-mark Level of Response question. This section of the paper is worth 50 marks.</p>