**Science**

Departmental Staff

Mrs G. McAllister (Head of Department) Mr F. McIlvenna

Mrs S. O’Hare Ms L. Lennon

Mr M. Maguire

Mrs O. Mullan

Ms B Curran McAteer

Miss M O'Loughlin

Mr M Bradley.

Technical support: Mrs E Campbell General Information:

The aim of the Science department is to stimulate curiosity, interest and enjoyment in Science. Science is taught at all Key stages and is compulsory until the end of Key Stage 4 (Year 12). All Sciences at Key Stage 4 & 5 are with the CCEA examination board.

# KS3 Curriculum (Years 8, 9 and 10):

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| **Year** | **Term 1** | **Term 2** | **Term 3** |
| 8 | Introduction to Science & Safety  Cells Reproduction  Variation & Classification | Environment & Feeding Relationships  Acids & Alkalis States of Matter Solutions | Energy Circuits Forces  Solar System |
| 9 | Food & Digestion Respiration Microbes & Disease  Ecological Relationships | Simple Chemical Reactions  Atoms & Elements Compounds & Mixtures | Heating & Cooling Magnets Light  Sound |
| 10 | Inheritance & Selection Fitness & Health Photosynthesis  Plants for Food | Metals & Their Compounds  Patterns of Reactivity Environmental Chemistry Using Chemistry | Energy & Electricity Gravity & Space Speed  Pressure & Moments |

**KS4 Curriculum (Years 11/12):**

Pupils will study **either** Single Award Science or Double Award Science at KS4.

# Single Award Science

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| Unit | Title | Weighting | Assessment |
| 1 | Biology | 25% | External written examination Foundation and Higher Tiers: 1 hour  Students answer compulsory structured questions that include short responses, extended writing and calculations. |
| 2 | Chemistry | 25% | External written examination |

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|  |  |  | Foundation and Higher Tiers: 1 hour  Students answer compulsory structured questions that include short responses, extended writing and calculations. |
| 3 | Physics | 25% | External written examination Foundation and Higher Tiers: 1 hour  Students answer compulsory structured questions that include short responses, extended writing and calculations. |
| 4 | Practical Skills | 7.5%  17.5% | **Booklet A:**  Practical skills assessment Foundation and Higher Tiers: 2 hours  Students carry out two pre-release practical tasks (from two of Biology, Chemistry and Physics) in the final year of study.  **Booklet B**  External written examination Foundation Tier: 1 hour Higher Tier: 1 hour 15 mins  Students answer compulsory structured questions that include short responses, extended writing and calculations all set in a practical context for Biology, Chemistry and Physics. |

**Double Award Science**

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| **Unit** | **Title** | **Weighting** | **Assessment** |
| 1 | **Biology B1:** Cells, Living Processes and Biodiversity | 11% | External written examination  Students answer compulsory structured questions that include short responses, extended writing and calculations.  There are two tiers of entry. Foundation and Higher Tiers: 1 hour |
| 2 | **Chemistry C1:** Structures, Trends, Chemical Reactions, Quantitative  Chemistry and Analysis | 11% | External written examination  Students answer compulsory structured questions that include short responses, extended writing and calculations.  There are two tiers of entry. Foundation and Higher Tiers: 1 hour |
| 3 | **Physics P1:** Motion, Force, Moments, Energy, Density, Kinetic Theory, Radioactivity,  Nuclear Fission and Fusion | 11% | External written examination  Students answer compulsory structured questions that include short responses, extended writing and calculations.  There are two tiers of entry. Foundation and Higher Tiers: 1 hour |
| 4 | **Biology Unit B2:** Body Systems, Genetics, Microorganisms and Health | 14% | External written examination  Students answer compulsory structured questions that include short responses, extended writing and calculations.  There are two tiers of entry.  Foundation and Higher Tiers: 1 hour 15 mins |
| 5 | **Chemistry Unit C2:**  Further Chemical Reactions, Rates and Equilibrium, | 14% | External written examination  Students answer compulsory structured questions that include short responses, extended writing and calculations. |

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|  | Calculations and Organic Chemistry |  | There are two tiers of entry.  Foundation and Higher Tiers: 1 hour 15 mins |
| 6 | **Physics Unit P2:** Waves, Light, Electricity, Magnetism,  Electromagnetism and Space Physics | 14% | External written examination  Students answer compulsory structured questions that include short responses, extended writing and calculations.  There are two tiers of entry.  Foundation and Higher Tiers: 1 hour 15 mins |
| 7 | **Practical Skills** This comprises Unit 7 Biology,  Unit 7 Chemistry and  Unit 7 Physics | 7.5%  17.5% | **Booklet A**  Externally marked  Students carry out three pre-release practicals (Biology, Chemistry and Physics) in the final year of study.  There are two tiers of entry. Foundation and Higher Tiers: 3 hours  **Booklet B**  External written examination  Students answer compulsory structured questions that include short responses, extended writing and calculations, all set in a practical context for Biology, Chemistry and Physics.  There are two tiers of entry.  Foundation and Higher Tiers total time: 1 hour 30 mins (Biology 30 mins, Chemistry 30 mins and Physics 30 mins) |

**KS5 Curriculum (Years 13/14):**

**We offer A Levels in Biology, Chemistry and Life & Health Sciences. Physics is offered in collaboration with Cookstown High School.**

**Biology**

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| **Unit** | **Weighting** | **Assessment** |
| AS 1: Molecules and Cells | 37.5% of AS  15% of A level | External written examination 1 hour 30 mins  Students answer six to eight structured questions and write an essay |
| AS 2: Organisms and Biodiversity | 37.5% of AS  15% of A level | External written examination 1 hour 30 mins  Students answer six to eight structured questions and write an essay. |
| AS 3: Practical Skills in AS Biology | 25% of AS  10% of A level | External written examination assessing practical skills 1 hour  and internal practical assessment |
| A2 1: Physiology, Co- ordination and Control, and Ecosystems | 24% of A level | External written examination 2 hours 15 mins  Students answer six to nine structured questions and write an essay. |
| A2 2: Biochemistry, Genetics and Evolutionary Trends | 24% of A level | External written examination 2 hours 15 mins  Students answer six to nine structured questions and write an essay. |
| A2 3: Practical Skills in Biology | 12% of A level | External written examination assessing practical skills 1 hour 15 mins |

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|  |  | And internal practical assessment |

**Chemistry**

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| **Unit** | **Weighting** | **Assessment** |
| AS 1: Basic Concepts in Physical and Inorganic Chemistry | 40% of AS  16% of A level | External written examination 1 hour 30 mins  Students answer Section A containing  10 multiple-choice questions (10 marks) and  Section B containing a number of structured questions (80 marks). |
| AS 2: Further Physical and Inorganic Chemistry and an Introduction to Organic Chemistry | 40% of AS  16% of A level | External written examination 1 hour 30 mins  Students answer Section A containing  10 multiple-choice questions (10 marks) and Section B containing a number of structured questions (80 marks). |
| AS 3: Basic Practical Chemistry | 20% of AS  8% of A level | Practical Booklet A consists of a variety of practical tasks (25 marks). Students take the assessment in the laboratory.  1 hour 15 mins  Practical Booklet B consists of a variety of questions testing knowledge of practical techniques, observations and calculations (55 marks). Students take the examination in an examination hall.  1 hour 15 mins |
| A2 1: Further Physical and Organic Chemistry | 40% of A2  24% of A level | External written examination 2 hours Students answer Section A containing 10 multiple-choice questions (10 marks) and Section B containing a number of structured  questions (100 marks). |
| A2 2: Analytical, Transition Metals, Electrochemistry and Organic Nitrogen Chemistry | 40% of A2  24% of A level | External written examination 2 hours Students answer Section A containing 10 multiple-choice questions (10 marks) and  Section B containing a number of structured questions (100 marks). |
| A2 3: Further Practical Chemistry | 20% of A2  12% of A level | Practical Booklet A consists of a variety of practical tasks (30 marks). Students take the assessment in the laboratory.  1 hour 15 mins  Practical Booklet B consists of a variety of questions testing knowledge of practical techniques, observations and calculations (60 marks). Students take the examination in an examination hall.  1 hour 15 mins |

**Life & Health Sciences**

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| **Unit** | **Weighting** | **Assessment** |
| Unit AS 1:  Experimental Techniques | 16.67% of AS  6.67% of A level | Internal assessment Core unit |
| Unit AS 2:  Human Body Systems | 16.67% of AS  6.67% of A level | External written examination 1 hour 30 mins Core unit |
| Unit AS 3:  Aspects of Physical | 16.67% of AS  6.67% of A level | External written examination 1 hour 30 mins Core unit |

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| Chemistry in Industrial Processes |  |  |
| Unit AS 4: Brain Science | 16.66% of AS  6.66% of A level | Internal assessment Core unit |
| Unit AS 5: Material Science | 16.67% of AS  6.67% of A level | External written examination 1 hour 30 mins Core unit |
| Unit AS 6:  Medicine, Drugs and Clinical Trials | 16.66% of AS  6.66% of A level | Internal assessment Core unit |
| Unit A2 1: | 10% of A level | Internal assessment |
| Scientific Method, |  | Core unit |
| Investigation, Analysis and |  |  |
| Evaluation |  |  |
| Unit A2 2:  Organic Chemistry | 10% of A level | External written examination 1 hour 45 mins Core unit |
| Unit A2 3: Medical Physics  Unit A2 4: Sound and Light  Unit A2 5: Genetics, Stem Cell  Research and Cloning | 10% of A level for each unit  (Double Award students take any two of these units.  These are chosen by the school.) | External written examination 1 hour 45 mins  Optional units |
| Unit A2 6: Microbiology  Unit A2 7:  Oral Health and Dentistry  Unit A2 8:  Histology and Pathology | 10% of A level for each unit  (Double Award students take any two of these units.  These are chosen by the school.) | Internal assessment Optional units |
| Unit A2 9:  Analytical Chemistry Techniques |  |  |
| Unit A2 10:  Enabling Technology |  |  |

Useful links

KS3: <https://www.bbc.co.uk/education/subjects/zng4d2p>

KS4: <http://ccea.org.uk/general_science/> <https://www.bbc.co.uk/education/subjects/zrkw2hv>

KS5: <http://ccea.org.uk/biology/> <http://ccea.org.uk/chemistry/> <http://ccea.org.uk/life_health_sciences/> <https://www.s-cool.co.uk/a-level/biology> <https://www.s-cool.co.uk/a-level/chemistry>