

Science

Departmental Staff

Mrs G. McAllister (Head of Department)

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Technical support: Miss L. Gallagher

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):

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

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

			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

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.

	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

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

		And internal practical assessment
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Chemistry

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

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

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: Scientific Method, Investigation, Analysis and Evaluation	10% of A level	Internal assessment Core unit
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 Unit A2 9: Analytical Chemistry Techniques Unit A2 10: Enabling Technology	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

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>