

Science Department

Staff

Mrs Bronagh Carey	Head of Department
Mr Joe O'Brien	Coordinator of Physics and Chemistry
Ms Anna-Marie McCloy	Coordinator of Biology
Mr Michael Meenagh	Mrs Siobhan Quinn
Ms Ciara McCay	Mr Martin McCauley
Ms Geraldine McGuone	Ms Colette Lappin
Dr Iona Hamilton	Mrs Paula Kennedy
Ms Louise Smyth	Mr Michael Early
Mrs Imelda Patton	Ms Sinead McBride

Technicians

Mrs Donna Duffy
Mrs Ruth Baird
Mr Stephen McDaid
Mr Kieran Gallagher



Aims of the Science Department

1. To provide a Science Education which will contribute to the overall development of the pupil

2. To make Science relevant to the needs of the pupil in everyday life
3. To help the pupils acquire scientific skills, knowledge and understanding necessary for progression to subsequent study and/or career development.
4. To develop an awareness of the impact of Science on our world and our society.
5. To inform pupils about careers in Science, Technology, Engineering and Maths (STEM)
6. To make the study of science fun

Key Stage 3: In Years 8 - 10 pupils study a range of topics from the three Science disciplines. The Key Stage 3 curriculum has been designed to allow pupils to experience a wide range of practical work and group activity.

Year 8 Topics	Year 9 Topics	Year 10 Topics
Becoming a Scientist	Food and digestion	Forces
Living things	Electricity and magnetism	Chemical reactions
Matter	Classification and Ecology	Body organs

Acids and alkalis	Elements and Compounds	Light and sound
Reproduction	Energy	Variation and adaptation
Solar system	Formally assessed practical investigation	Formally assessed practical investigation
STEM/Careers throughout all units	STEM/Careers throughout all units	STEM/Careers throughout all units

Key Stage 4:

In Holy Cross College we offer three courses to our key stage 4 students:

GCSE Double award Science CCEA

GCSE Single award Science and CCEA

BTEC Applied Science EDEXCEL

GCSE Double award Science

CONTENT	ASSESSMENT	WEIGHTINGS
Biology Unit 1: Living Processes and Biodiversity	written examination Foundation and Higher Tiers: 1 hour	11%
Chemistry Unit 1: Structures, Trends and Chemical Reactions	written examination Foundation and Higher Tiers: 1 hour	11%
Physics Unit 1: Force and Motion, Energy, Moments, and Radioactivity	written examination Foundation and Higher Tiers: 1 hour	11%

Biology Unit 2: Body Systems, Genetics, Microorganisms and Health	written examination Foundation and Higher Tiers: 1 hour 15 mins	14%
Chemistry Unit 2: Further Chemical Reactions and Organic Chemistry	written examination Foundation and Higher Tiers: 1 hour 15 mins	14%
Physics Unit 2: Waves, Sound and Light, Electricity, and the Earth and Universe	written examination Foundation and Higher Tiers: 1 hour 15 mins	14%
Practical Skills Unit	Controlled assessment Students complete two controlled assessment tasks from a choice of six.	25%

GCSE Single award Science

CONTENT	ASSESSMENT	WEIGHTINGS
Unit 1: Biology Section A: Staying Alive Section B: Human Activity and Health	Written examination Foundation Tier: 1 hour Higher Tier: 1 hour 15 mins	25%
Unit 2: Chemistry Section A: Chemical Patterns and Our Environment Section B: Materials and Their Management	Written examination Foundation Tier: 1 hour Higher Tier: 1 hour 15 mins	25%
Unit 3: Physics Section A: Electricity, Waves and Communication Section B: Fossil Fuels, Road Transport and Safety, Radioactivity, and Earth in Space	Written examination Foundation Tier: 1 hour Higher Tier: 1 hour 15 mins	25%

Unit 4: Practical Skills	Controlled assessment Students complete one controlled assessment task from a choice of two.	14%
---------------------------------	---	-----

BTEC Applied Science

BTECs are work-related qualifications which give learners the knowledge, understanding and skills that they need to prepare for employment. They are vocational courses which up to now have been 100% coursework but from September 2014 students studying this course will also complete one exam worth 25% of the award alongside their coursework

A Level

The study of A level science provides a basis for the further study, at tertiary level, of Biology, Chemistry and Physics and related courses. For those progressing directly into employment, an AS or A Level award is relevant not only in the fields of science, engineering and medicine, but also to areas of commerce and the public service in which problem-solving and practical skills are valued.

BIOLOGY

<u>AS Biology</u>	
Module 1: Molecules and cells	20%
Module 2: Organisms and Biodiversity	20%
Module 3: Practical Investigation	10%

<u>A2 Biology</u>	
Module 1: Physiology and Ecosystems	20%
Module 2: Biochemistry, Genetics and Evolutionary Trends	20%
Module 3: Practical Investigation	10%

CHEMISTRY

<u>AS Chemistry</u>	
Module 1: Basic Concepts in Physical Chemistry	17.5%
Module 2: Further Physical and Inorganic Chemistry and introduction to Organic Chemistry	17.5%
Module 3: Internal Assessment	15%
<u>A2 Chemistry</u>	
Module 1: Periodic Trends and further Chemistry	17.5%
Module 2: Analytical, Transition metals, Electrochemistry	17.5%
Module 3: Internal Assessment	15%

PHYSICS

<u>AS Physics</u>	
Module 1: Forces, Energy and Electricity	18.5%
Module 2: Waves, Photons and Medical Physics	18.5%

Module 3: Practical Techniques	13%
<u>A2 Physics</u>	
Module 1: Momentum, Thermal Physics, Circular motions, Atomic and Nuclear Physics	18.5%
Module 2: Fields and their Applications	18.5%
Module 3: Practical Techniques	13%

Students who graduate in science-related subjects have **excellent employment prospects**. There is a clear skills shortage in **STEM** disciplines (Science, Technology, Engineering and Mathematics) at both graduate and technical levels in Northern Ireland

Web links

For specifications and course details of the CCEA GCSE and A level content

<http://www.ccea.org.uk/>

For specifications and course details of the BTEC Science specification

<http://www.edexcel.com/quals/firsts2012/applied-science/Pages/default.aspx>

For revision for exams

<http://www.bbc.co.uk/bitesize/ks3/science/>

<http://www.bbc.co.uk/schools/gcsebitesize/science/>

STEM

STEM stands for **Science, Technology, Engineering and Maths**, and the Science department plays a significant role in its promotion through classroom activities and displays, workshops, participation in careers day, extra-curricular activities, events, and competitions.

Just a few of the activities our students have participated in are;

- Workshops delivered by The Lough's agency
- Science Roadshow During the course of the day the students engaged in teams in a series of practical activities (e.g. solar power, rockets, generators etc.) The programme is designed to promote key skills and capabilities in STEM, in particular, teamwork and problem-solving skills.
- Tomorrows Engineers programme
- Science workshops with students from our local primary schools
- Participation in Cinemobile's Science on Wheels project
- School based competitions