



Science Newsletter – Term 3. Academic Year 2008-2009

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A Case of Identity

A Forensic Science team visited our school on Monday 11th May 2009 to present a real crime scene to students. They heard about the crime and suspects and were able to examine the evidence found at the scene. They saw the kind of tests that are carried out in the Forensic Laboratories and were able to solve this crime just like a real Forensic Scientist. They learned how real Forensic Scientists search crime scenes to find the vital clues and they got to see how fingerprinting, DNA profiling, blood analysis, drug screening, microscopy, fibre transfer, electrophoresis, chromatography (and much more) were used to identify the suspect.

All year 9 pupils and pupils from visiting schools took part in this forensics workshop.

An added bonus was the provision of access to online practical investigative resources.

Enterprising Science

This is an education programme from BP. The two components are:

- a place for one teacher to attend **Talk Science** – an innovative master class for Science teachers
- a visit from the **Carbon Challenge road show** – an inspirational Science, Maths and Enterprise road show for students, delivered in two two-hour sessions at your school.

The Carbon Challenge Road show took place on 8th May 2009 and was attended by all Year 10 pupils.

This was a joint project with the Geography Department and a big thank you to Miss L Diffley for the organisation of the event.

Mr M Smyth attended the 'Talk Science' class in The odyssey, Belfast on May 27th 2009.

Northwest Schools Festival of Science

Lumen Christi College and St Mary's College jointly hosted the North West Schools Festival of Science at the Millennium Forum on the 21st May 2009. Entries were invited from Primary 7 pupils from local Primary Schools as well as Year 10 students from Secondary schools in the area.

Twenty schools from the city and the north-west region submitted projects making a total of 50 projects along with 10 industry stands from local industries. A very successful and enjoyable day was had by all. Thank you to all those teachers and pupils involved for making such a great effort. The entries were extremely interesting, varied and colourful.

A special thanks from Mrs M.Gill to my colleagues, Mr D Goddard and Mr M Logue at ST Mary's College. We are looking forward to further collaboration next year.

Prize-winners are listed below;

School	Category	Presented by	Name of Project
Hollybush PS	Primary Earth Science	Peter O'Donnell (Loughs Agency)	Eco-Committee Website
Nazareth House / Model PS (combined project)	Primary Biology	Leo Strawbridge (Derry City Council)	The Wonderful world of Woodlice
Longtower PS	Primary Chemistry	Gerard Hughes (Sentinus)	Murder Mystery
Holy Family PS	Primary Physics	Ash McFadden (Greencastle Planetarium)	Formula 1 Racing Car
St Joseph's Boys	Secondary Earth Science	Karen Healy (Creggan Country Park)	Working towards Transition Derry
Joint Winners Oakgrove Integrated College Lumen Christi College	Secondary Biology	Michael McConnell (Ambulance Service)	Genetics The Dark Knights-Bats
Lumen Christi College	Secondary Chemistry	June Coates (Seagate)	Interesting Facts about the Periodic Table

Gaelcholaiste Chineal Eoighan	Secondary Physics	Mayor Gerard Diver (Derry City Council)	Surface Tension-an elastic skin at intermolecul ar dimensions
St John's PS	Abbot Award for Primary School Overall Runner- up	Sheila Porter (SciFest)	Are you a bright spark?
St Peters High School	BT Award for Best Overall Display/Commu nication Project	Lindsay Atkinson (BT)	
St Mary's College	Discover Sensors Award	Sheila Porter (Scifest)	MP3 Players and Hearing
St Patrick's PS	Intel Award for best Overall Primary School	Sheila Porter (Scifest)	Skeletons
St Cecilia's PS	Overall Award for best Secondary School Project	Mayor Gerard Diver (Derry City Council)	Energy values of food

2009 UK Aerospace Youth Rocketry Challenge (UKAYRoC)

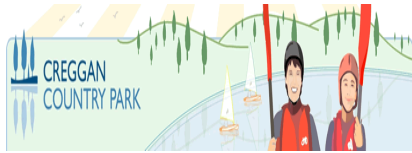
Five Year 10 students, Aaron Mc Ivor, Liam mc Ivor, Terry Melaugh, Stefan mc Shane and Jason Young have been involved in this project. For the Challenge students had to design, construct and successfully launch a rocket, carrying one raw medium size hen's egg to an altitude of 825 feet with a flight time between 40 - 45 seconds, then return the egg and altimeter payload section safely and undamaged to earth using a parachute.

This task proved more difficult than expected. After numerous constructions, test flights, lost rockets and altimeter we were able to reach an altitude of 650feet. Weather conditions also limited the number of flights we were able to carry out.

This meant that we were unable to move on to the second stage of the competition. There is always next year!

A big thank you to all lads involved in the project and to Mr A mc Fadden our mentor.

The Big Bug Hunt at Creggan Country Park May 14th &15th 2009.



This is the second year that this event has taken place for our link Primary school students.

Pupils are provided with resource booklets and scientific equipment to enable them to search in different areas of Creggan Country Park for all sorts of creepy crawlies and find out how they live. Pupils enjoyed the bug hunting, pond dipping and more fun, games and nature activities. Certificates and prizes were awarded on the day.

A special thank you to Karen Healy, Environmental Officer at Creggan Country Park, for the preparation of materials and organisation on the day. We could not have done this without you Karen.

Also, a big thank you to all the Science teachers for supervision on the day and to the staff and pupils of visiting primary schools.

Schools involved were Fountain, Longtower, Nazareth House and Model Primary Schools.



2009 Flight Experience Challenge

Congratulations to Meghan and Niall Doherty who took part in this event on Tuesday 19th May 2009.

The competition challenged pupils of all ages to design, build and fly a self-propelled model aircraft. Encouraged to use recyclable, everyday objects, students constructed aircraft from a wide range of materials including balsa wood, paper clips, lollipop sticks and elastic bands. In addition to design and construction, they were also judged on flight and livery. 158 teams from 28 schools took part.

Online Debating Forum; Arena of debate Friday 12th June 2009

Yr 13 students were invited to participate in an online forum as a follow up to the *Arena of Debate* held earlier in the year.

This enabled students to speak directly to the panel of experts about stem cell research in an online video conferencing service.

Forward Thinking Congress

The Forward Thinking Project that Class 8A have participated throughout this term culminated in a competition at The University of Ulster on 16th June 2009. The idea of the Forward Thinking competition was to think, discuss and form an opinion on a science topic that has consequences for people and society. Class 8A entered six projects in total, each entry consisting of a display and a PowerPoint presentation. Topics ranged from 'Cryogenics', 'Is There a God' to 'Black Holes' among others.

Congratulations to all involved. Mrs Gill was very proud of you on the day.

Well done to Michael Mc Cann who won **The Community of Enquiry Award**.

He was delighted with his laptop and other It related materials.

Mrs Gill has introduced L Dunlop to other science teachers in the area so hopefully this wonderful project will be introduced in these schools.

Launch of STEM Partnership Project with Stranmillis University College.



(L to R) Dr Irene Bell (SUC), Mr Fergal Corscadden (SUC), Mr Pat O'Doherty (Principal of Lumen Christi College), Dr Marie Ferris (Senior Teacher) Lumen Christi College) and Dr John McCullagh (SUC).

The first of a series of STEM partnership projects involving Stranmillis University College and Lumen Christi College, Derry was recently launched.

Project 1. This first project involves the production of multimedia learning objects (LOs) to support the teaching and learning of 'A'-level Chemistry.

The LOs consist of video and supporting resources (notes and exam questions) relating to popular sixth-form chemistry experiments. Dr John Mc Cullagh & Mr Fergal Corscadden visited Lumen Christi College on 17th & 19th June 2009 to video experiments relating to this. In this pilot phase of the project pupils from Lumen Christi College and Stranmillis student teachers will be able to access these resources online before and after their actual practical classes. The availability of these reusable resources means that both sets of learners can access this content off campus and prepare more effectively for practical classes. It is hoped that very soon these resources will be made available to all students throughout Northern Ireland.

Project 2: The creation of units for Technology & Design Project.

Project 3: KS2 to KS3 Transition Project

This project examines the teaching of named topics within Science and Technology at both Primary & Post-primary levels.



National Maritime Museum Video conferencing link

Mrs M Gillan and Mrs M Reynolds made good use of our video conferencing facilities with a live link to the National Maritime Museum on separate occasions

Mrs Gillan's Year 8 class interactive session explored the topic of Global Warming and addressed such questions as '*Have there been climate changes in the past? What were the effects of these? Is the Earth warming up? What evidence is there for this?*' and many more.

Mrs M Reynold's Year 10 class were involved in an interactive session in which pupils explored how to reduce, re-use and recycle their waste at home and in school. They found out about different forms of pollution and how pollutants enter the sea.

A video conference that wasn't a load of rubbish...

By Dan Coyle 10B



In May 2009, Class 9B participated in a live video conference with the National Maritime Museum from Greenwich, London. It was the first of its kind done here in Lumen Christi. The trial proved to be a great success. During the interesting conversation with two scientists from the museum, we covered a great number of questions and topics. These ranged from pollution in the sea, to benefits of the sea. The conversation had drawn in everyone in the class and we all felt involved. The NMM's professors were greatly able to answer any of our questions. One professor even told us of how hair gel and other products were derived from the sea!

Before we were going to speak to the museum, we needed *some* information on the sea and pollution. We looked to their website to give us some assistance. The website was full of enjoyable interactive games, facts and pictures. After we knew what our thoughts and questions were, we decided to put them to the professors.

During our discussion, we learned that the sea is being polluted. This has now turned into a major problem over the years. We have learned that throwing rubbish or waste products into the sea or river can cause major impacts to the fish. If the fish have problems then we have a problem, this could mean that a high quantity of species



could sink to the sea bed (and never swim up again).

After we learned this, we asked ourselves, "How many times do I litter in the sea or rivers?" and "Am I destroying life?". Ask yourself these questions, and make a change for the better!

We got so involved in our discussion that we didn't realise our allocated time had ran out. We had a fun time (even though we simply lost track of time).

To find more information on the sea and pollution log on to...

<http://www.nmm.ac.uk/index.php>

<http://www.nmm.ac.uk/visit/exhibitions/on-display/your-ocean-gallery>

Or to contact the National Maritime Museum ...

Telephone: +44 (0)20 8858 4422



The 41st International Chemistry Olympiad, UK 18th July 2009 -a report by Garreth Mc Crudden

On 31 January 2009, I travelled to Dublin to take part in the Round One of the Irish Science Olympiads. I was one of eighty students fighting it out during a three hour exam to gain a much-coveted place on the Irish delegation that would travel to Cambridge, England, in July 2009 to take part in the International Chemistry Olympiad.



The selection process for Round One took the form of a written exam paper. A total of seventy, multiple-choice questions assessed the students' knowledge of a wide range of topics in Chemistry: Organic, Inorganic, Physical, Analytical and Practical aspects were all examined rigorously. Much of the examination material was not covered on either A-Level or Leaving

Certificate syllabuses, with the aim of providing a level playing field for all and to challenge students with somewhat more advanced material.

I was one of the students to rank within the top ten in Round One. Having advanced to the next round, we were invited to attend an Easter Training Camp in Dublin City University over the school holidays. The Training, which lasted four days, was an intense study of advanced concepts in Chemistry from 9am to 5pm each day. The tutors were lecturers in Organic and Physical Chemistry.

Having covered a considerable amount of new material, we were given a fortnight to get to grips with the unfamiliar concepts before sitting the examination for Round Two. The selection consisted of a Practical and Theoretical examination. The former involved the synthesis of tetramethylammonium iodide and the latter tested our understanding of the concepts we had covered during the Easter training session. The questions were designed to mimic the format of the Olympiad in that they probed our understanding of the concepts and our ability to apply them to unfamiliar situations and problems. We were given a total of five hours to complete both tasks.

Within a week of Round Two, I received an email from the Head Mentor informing me that I had achieved one of the top four marks. He invited me to travel to Cambridge during the summer as a member of Team Ireland to compete in the IChO. I attended two more training sessions, one at the end of June and the other in early July, during which we were to cover the remaining material required by the Olympiad syllabus and to revise concepts from the initial Training Camp which we had found difficult. The teaching was intense, often lasting from 9am to 6pm or later, and was based on material that was deemed 'of advanced difficulty' by the IChO organisers. The day was divided between teaching, practical work, and problem-solving activities.

The IChO Panel had created a booklet of example Practical and Theoretical problems that would give an idea as to the format of the examinations that would be set in Cambridge. The practical problems were largely based on the synthesis of organic compounds, with one exception, which required the determination of reaction rates.

I travelled to Cambridge with the other three members of Team Ireland and our two Mentors on 18 July 2009. We were greeted with a warm reception and had been assigned a Guide, a student at the University of Cambridge, who accompanied us for the duration of our stay.

Although we spent 10 days in England, the majority of our time was taken up by cultural activities which aimed to give visitors a taste of British life and customs. We were involved in a wide range of tasks and excursions, including tours of Cambridge, a day-trip to London, an outdoor-pursuits excursion and even a pantomime!

In total, there were two examinations at the final of the IChO: a Practical exam and a Theoretical exam.

The Practical exam lasted five hours and consisted of three tasks: organic synthesis, determination of inorganic unknowns and determination of the concentration of a solution by titration. Various results were collected to assess students' performance, including product yields, chromatograms, UV spectra and titration curves.

The Theoretical exam also lasted five hours and required students to tackle five problems based on various aspects of the syllabus. The problems were wide-ranging and required an in-depth understanding of advanced topics within Organic, Physical and Inorganic Chemistry. The nature of the questions endeavoured to test our understanding of advanced chemical concepts and their application in unfamiliar situations.

The Practical exam contributed 40% to the overall total, and the remaining 60% was made up by the Theoretical exam. The students are then ranked in order of performance, and medals allocated accordingly. A few mishaps in the Practical exam meant I narrowly missed out on achieving a medal.

Nevertheless, I had the experience of a lifetime and was honoured to have represented my country at the international level.