'The Seed will Grow'
Blessed Edmund Rice

Síol

Iontaobhas Scoileanna Éamainn Rís
Edmund Rice Schools Trust

February, 2012

Edmund Rice Schools Trust Newsletter / Special Edition **/** *BT Young Scientist & Technology Exhibition 2012*

Welcome

Congratulations to all our Young Scientists!

Welcome to this special edition of Síol, which celebrates the wonderful achievements of our students in this year's BT Young Scientist and Technology Exhibition. I congratulate all our schools who entered the competition and also all who were recognised with awards.

Along with the entire country I applaud the achievement of Eric Doyle and Mark Kelly, students from Synge Street CBS, who took home the top prize as overall winners of the BT Young Scientist and Technology Exhibition 2012. What an achievement for Eric and Mark, their teachers and the entire school community at Synge Street CBS. How appropriate that an Edmund Rice school should win the top award in this particular year, which marks the 250th anniversary of the birth of Edmund Rice, on 1st June 1762, the founder of the Christian Brothers and of our schools.

Our Edmund Rice schools not only seek to transform the lives of all of our students and help them to reach their full potential, but also through our students seek to transform and contribute to our communities, local and global. I am so pleased to see our students using knowledge tools for the good of wider society.

Read through the work, experiments and developments of the young scientists captured in these pages. Enjoy, marvel and wonder at their amazing achievements. They speak for themselves.

Best Wishes,
Gerry Bennett, Chief Executive.

Synge Street CBS win the overall award at the BT Young Scientist and Technology Exhibition for the third time!

Synge Street, CBS

Eric Doyle and Mark Kelly, Winners of this year's BT Young Scientist Exhibition, with their teacher, Ms Kate Walsh.

Two Leaving Certificate students from Synge Street CBS, Eric Doyle and Mark Kelly, were declared the overall winners at the recent BT Young Scientist and Technology Exhibition. The Annual awards ceremony at the RDS was attended by the Minister for Education and Skills, Mr. Ruari Quinn, who also presented the main award.

The project title, "Simulation accuracy in the gravitational many-body problem", represented an extension of the work of an Irish mathematician from Cork, Diarmuid O' Mathuana, who studied at MIT and subsequently worked for NASA, the North American Space Agency. Mark and Eric are of the view that their project highlights the importance of the work of an Irish mathematician. Additionally they believe that their project can have application in many different fields, such as ensuring that satellites can be more accurately targeted at the end destination.

Eric and Mark were awarded several prizes as part of their success. Naturally they are delighted with the €5,000 on offer but, additionally, they now go on to represent Ireland at the European Young Scientist Exhibition in September 2012. They also received invitations to the London Olympics and the Paralympics.

continued over …

… continued from page 1

The judging of the Young Scientist is a vigorous experience for all who participate. Each entrant experiences three judges and, if there is a serious award at stake, it likely that there will be others who wish to examine the work. In the case of Mark and Eric they had in excess of twenty eminent judges who came to talk to them.

The two lads hope to go on to study aspects of Physics after they complete the Leaving Certificate. No doubt they will be hoping to benefit from the Con Creedon Education Bequest. This is a €1,000,000 Trust Fund available to students from Synge Street CBS who progress to further education. This year in excess of 70 of our immediate past pupils are in receipt of funding under the terms of the Trust. The donor of this extremely generous gift was the late Con Creedon, a past pupil of the school.

Synge Street CBS have had many recent prize winners at this prestigious event. The entries started with the support and guidance of science teacher Jim Cooke.

There have been many adventures over the years which have been followed with interest throughout the entire school community. Jim, an ex-Synge Street student himself, from the class of 1966, was the instigator of the involvement with the BT Young Scientist Exhibition. Although he has now retired, the successes have continued and teacher Kate Walsh is to be complemented on her involvement with the BT Young Scientist Exhibition. Since 2003, the school has won a total of 24 awards.

Michael Minnock (Principal) / Brendan Keenan (Deputy Principal)

Three proud Ladies – Margaret Kelly and son Mark, Mary Doyle and son Eric and teacher Kate Walsh.

Below is a short sample of the awards which students in the school have taken in recent times:

2012 - Overall winner – Mark Kelly and Eric Doyle
2009 – Best individual – Andrei Triffo
2008 – 3rd Senior Individual – Olawale Hassan
2007 – Overall winner – Abdusalam Abubakar
2006 – Best group – Keith Forea, Adrian Chisa, Sandeep Sihag
2006 – Individual runner up – Gohar Abassi
2005 – Best group – Francis Wasser (lead student)
2004 - Overall winner – Ronan Larkin

"Lights! Camera! Action!"

Ardscoil Rís Limerick

Keith Clifford from Ardscoil Rís, Limerick got the chance of a lifetime at this year's BT Young Scientist and Technology Exhibition when he was the lucky winner of a competition run in conjunction with RTE 2. The prize was an unbelievable opportunity to present a piece to camera live from the exhibition at the RDS for Web2News which broadcasts each day at 4.25pm on RTE 2.

For his broadcasting debut Keith gave an introduction to the YSE, interviewed two groups of entrants and finished with a look at the Science Festival which accompanied the event.

Keith, a natural on TV, is no stranger to performing in public. He had a lead role in Grease in the University Concert Hall last year and will be treading the boards in The Millennium Theatre in LIT in Ardscoil's production of the Elvis inspired musical "All Shook UP" from Feb 29th – March 3rd.

Keith Clifford giving his piece to the RTE2 camera outside the RDS.

Keith's TV debut can be watched on the following link:
http://www.rte.ie/player/#!v=1130849

Comórtas na nEolaithe Óga Coláiste Eoin 2011/2012

Colaiste Eoin

I mbliana ghlac ceathrar dalta ó Choláiste Eoin páirt i gcomórtas na n-Eolaithe Óga.

Fearas chun Paistéarú a dhéanamh ar Uisce a rinne Aodh Ó hEireamhóin, dalta sa tríú bliain. Bhí sé ag scrúdú modhanna chun a chinntiú go mbíonn uisce glan. Spreag an fhadhb le *Cryptosporidium* in iarthar na tír anuraidh a chuid oibre. Bhuaigh sé an *Business, Science and Enterprise Award* agus fuair an tionscnamh ard-mholadh ó mholtóirí an phríomh chomórtais freisin.

Aodh Ó hEireamhóin, Ciarán Ó Tighearnigh, Ciarán Paircéir, Eoghan Ó Naoire.

Scrúdaigh Ciarán ó Tighearnaigh agus Ciarán Paircéar, daltaí Idirbhliana *Cloch, Páipéar, Siosúr – Rudaí a imríonn tioncharar do rogha".* Rinne na scoláirí staidéar ar níos mó ná 20 duine. Sa deireadh fuair siad amach gurb é siosúir an rogha ceannasach ach go bhfuil tionchar láidir ag ord na bhfocal agus ag an teanga ina n-imrítear an cluiche freisin.

Rinne Eoghan ó Naoire,dalta Idirbhliana eile, tionscnamh ar *GAERLA – Staidéar teangeolaíochta ar thionchar an Bhéarla ar an nGaeilge agus a mhalairt, i measc déagóirí dhá theangacha.* Thug sé Gaerla ar theanga mheascaithe a labhrann daltaí go neamhspleách lena chéile i gColáiste Eoin. Fuair sé féin amach go mbíonn tionchar ag teanga amháin ar an teanga eile ach gur rud nádúrtha é seo a bhaineann le daoine dhá-theangacha agus luíonn sé leis na torthaí a fuarthas i dtaighde idirnáisiúnta eile. Fuair sé ard-mholadh dá thionscnamh sa chomórtas.

It's Getting Hot in Here

St Laurence O'Toole's

This was the first year that St. Laurence O'Tooles C.B.S. entered the BT Young Scientist Awards and we were delighted that our project, 'It's Getting Hot in Here' was one of the few chosen to display at the main event.

The aim of our project was to investigate global warming and the effect that it is having on the world. Over the course of three months we learned about the Greenhouse Effect and the consequences this is having on the polar bear. We chose this topic because our school is currently working towards our third green flag.

Ms Sunderland, Anthony Keane, Cian Joyce and Conor Darcy.

We carried out an experiment to see how polluted the air is around Seville Place. The results weren't pretty!

We're pleased to say though, that after investigating how the students and staff commute to school, that we are not adding to the problem of air pollution. An impressive 70 out of 86 people surveyed either walk or cycle to school.

We had a great day at the exhibition. We saw some really cool and interesting projects. Some of the boys even got to meet Michael D. Higgins and Gerry Adams. Every boy in Ms. O' Carroll's 5th Class received a certificate for our hard work and we were also presented with a beautiful crystal plaque for the school.

Four Exhibits for St David's Artane

St David's CBS, Artane

It is the third year we've had teams representing St David's at The BT Young Scientist & Technology Exhibition. With 1,790 applications from every county in the country and with only 500 places available in the final, it is a prestigious certified affair to compete at the The BT Young Scientist in the RDS. Our first year, we had a pilot of one team representing us, who immediately drew attention from RTE and were interviewed for Nationwide. 2011 saw five teams from St David's CBS, Artane! Two of these were awarded and listed in The Irish Times winners. This year, 2012 again we were very proud of our students, our four teams who qualified for the final. Months of research, and for some of the teams years of ongoing research culminated in January, 2012 at the RDS.

The four teams impressively spanned across each of the four scientific disciplines. There was 13 year old Aaron Dunne (who placed in the competition last year), in the Technology section, who developed an idea, a microchip that would allow not only 'Cash Back' at Point of Sale devices in shops, but now also 'Cash In', allowing increased access to lodging our money. He was interviewed, speaking fluent Irish for TG4 about his project. He was also published on broadsheet.ie. He worked alongside Bank of Ireland to do this. He has patented his idea and has since been approached by O2 to help further develop the *Young Peoples Savers Card*.

Our wonderful 6th years, Shane Boylan, Carl Burke & Cathal Fagan, a star team who were already going in with the title of 'INTEL BEST PROJECT OF THE YEAR AWARD', from The SciFest competition, competed in the biological category. They were invited to INTEL headquarters in October, 2011 to compete against the thirteen other teams from the 32 counties that INTEL had shortlisted to represent Ireland in the world finals in America this year. They correlated brain size to memory function in ducks, rodents & primates. After finding a strong correlation they then delved into these findings using them as supporting documentation in the argument to use stem cells in the treatment of Alzheimer's.

Rohith Roy Philip competed in the mathematical, chemical and physical category with his project developing a mathematical formula as to how to score the perfect goal in soccer. He is currently extending his work further with an iPhone App and also a book on the mathematics in each of the more popular sports. He was interviewed on NearTV.

David Mulcahy & Ahmar Nawaz competed with *'Gender Differences in Multitasking Abilities'* (in the Social & Behavioural Sciences category) finding out how scientifically accurate the statement is that "females are better at multitasking". They discovered that it wasn't gender, but more due to practice and the number of tasks involved that were the determining factors. They were interviewed on both RTE1 and RTE2.

The teams were selected to feature in RTE1's Nationwide programme to cover the run up to the BT Young Scientist Final. I too also got to speak on how wonderful an event it is and what I think are the key factors to which judges are looking for. It was a full day of filming with Mary Kennedy which brought much excitement and pride to St David's CBS.

Although the teams did not win the BT final, their qualifying to compete, their numerous media selects, TV, radio, newspaper coverage and interest from several companies and TDs were all awards in themselves and make up for a very impressive CV. They also excelled in communication and confidence having had several meetings and judges each day for the week. They left the RDS having had their minds opened to the discipline of scientific research and delivery of their findings, but also to people they met from a vast range of places and sectors and areas of specialty. They've become part of the society that is The BT Young Scientist and have made me, their mentor teacher and all of St David's CBS very, very proud. Thank you. Well done lads! Exemplar CBS students!

Thank you,

Jennifer Dixon
Science, Biology & Maths Teacher at St David's CBS, Artane, Dublin 5

Ahmer Nawaz, Jennifer Dixon and David Mulcahy

Jennifer Dixon and Aaron Dunne

Shane Boylan, Carl Burke, Cathal Fagan, Sheila Porter INTEL and Jennifer Dixon

Rohith Roy Philip, Padraic Kavanagh Principal St David's and Jennifer Dixon

Large Hadron Collider

CBC Monkstown Junior School

One of the boys in my 5th class approached me to take part in this year's BT Young Scientist Exhibition. He had come up with lots of topics for us to work on, but after discussion with the whole class, we all decided that the "Large Hadron Collider" was our favourite. The concept of re-creating "The Big Bang" and splitting the atom had us all intrigued.

We set out to gather information on the LHC when another boy mentioned that his dad had worked as an engineer on the actual LHC in CERN, Geneva, Switzerland. He kindly came into the class with a fantastic presentation about the work the scientists in CERN do. With the help of a PowerPoint presentation and photos the whole class received a clear understanding of it all.

The class was divided into groups and started working on their presentation board for the exhibition by putting the information learned into their own words.

Then we started to think about how we were going to re-create our own LHC. Needless to say some very interesting and slightly farfetched ideas came about. But after a lot of discussion and trial and error, we cut a bottle in half, made 2 holes on either side of the bottom half and placed a 120 cm (approximately) clear tube into the two holes. Our chemical reaction took place inside the bottle and represented the atoms colliding and splitting. Through two funnels, which were attached into the top of the tube, the boys poured vinegar mixed with two types of food colouring. They had put baking powder in the bottle and once the vinegar and the powder mixed together, it started to bubble up and produce a new colour.

Fifth Class CBC Monkstown Junior School with Principal Duileach Molloy

The exhibition day on the 12th of January 2012 was an exciting one for children and adults. Finally the boys got to show off their knowledge and demonstrate the experiment which was well received by all the visitors and judges. The boys spoke confidently and politely to strangers, family members and friends and even got interviewed by RTE's Aidan Kelly for News2Day. They also met Minister Joan Burton. The fact they got on TV had them all on a high and allowed family and friends who could not make the exhibition to partake in our excitement. We were presented with a glass trophy which will receive a proud position in our presentation case in our school.

We all had an amazing day and some of the boys are already thinking of next year's project.

Alizia Gisler and 5th Class
CBC Monkstown Park

Ennistymon CBS submitted 3 entries in this year's BT Young Scientist's Competition

Ennistymon CBS

Michael McInerney and Daniel Beggan's project entitled: How many triangles do you see?

John Cotter: Using Codes, how hard can it be?

Ross O Doherty,and James O Conor,Damien O Loughlin: How much sugar are teenagers really consuming?

Exploring the insulating properties of materials and the importance of insulating our homes

CBS Primary School Tralee

Fifth class students at CBS Primary School recently took part in the Primary Science Fair at the RDS on Friday next. The RDS Primary Science Fair is an integral part of the BT Young Scientist and Technology Exhibition. While not part of the main competition, it provides an opportunity for students from primary schools across Ireland to display their class projects at a major exhibition. The Fair provides an opportunity for students to think about science in practical and fun ways and helps to develop their skills in communicating their interest and knowledge of science to others.

Miss Culloty's class applied to take part in September. The class expressed an interest in doing their project on the theme of Insulation. They were delighted to be informed that their project had been granted a stand and have been working hard since. The title of their chosen project is "Exploring the insulating properties of materials and the importance of insulating our homes"

Over the past two months, fifth class students have completed individual projects based on the theme. Many of the children constructed impressive model houses to demonstrate the concept of heat loss and thermal insulation. Angela Wall (Travel, Education and Development Officer) from An Taisce visited the classroom to view the projects and was very impressed with the effort that each child went to. In addition to the individual projects, the class has been conducting a range of experiments, and research based around the topic and they have had visits from Insulation experts.

The culmination of all of their efforts was the BT Young Scientist Exhibition They had their own individual stand to display their project and discuss their findings with other children and adults.

Top: Fifth Class group at the RDS

Above: Robert Jones with previous winners of the Young Scientist of the Year.

They spent the day at the Exhibition, now in its 48th year, and were given a chance to view all of the Secondary School competition entries.

Project Asimov and Bee Feeder Exhibitions

CBS Thurles

We had two projects representing C.B.S. Thurles in this year's Young Scientist Competition.

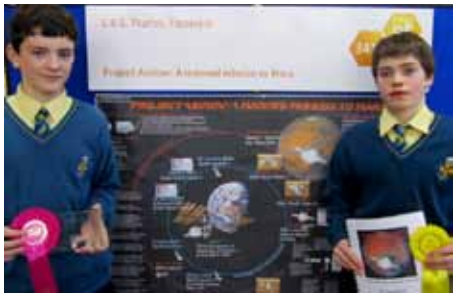
The first group are Tommy O' Sullivan and Darren O' Sullivan from Class 1 NO. (First Year) who qualified with a project titled: *Project Asimov.*

Project details: The project looked at the design feature and requirements for a manned mission to Mars. Given the limited resources available to us on earth, it is likely that future generations will look to other planets to satisfy our energy requirements or potentially as a new 'home'.

They studied current available technologies and designed a craft, taking into account possible limitations and special requirements for such a journey.

Our second group to qualify are Thomas Bourke (3 NI) and Gary Kerrigan (3 NS). (Third Year). Thomas and Gary qualified with a project titled: *Bee Feeder.* Their project looked at existing bee hive feeders and examined their flaws. We designed and built a new type of bee feeder for hives that is simple to use, clean and allows bees to be fed without disrupting the bee hive. We were able to increase the feeding area by 56% over existing feeders and eliminate the drowning of bees.

Tommy O'Sullivan and Darren O'Sullivan won 3rd place in the Junior Group and also the Jack Restan Displays Best Display award.



Left: Tommy O'Sullivan and Darren O'Sullivan - Project Asimov

Right: Thomas Burke and Gary Kerrigan – Bee Feeder

The comparative analysis of raw versus pasteurised milk and the potential use of natural preservatives in milk to mitigate the effects of poverty in rural Africa

St Mary's Academy, Carlow

St. Mary's Academy, Carlow is particularly proud of its impact on Development Education in Ireland and the winning of the Irish Aid/Self Help Africa '*Science for Development'* Award at the BT Young Scientist and Technology Exhibition 2012 is a fantastic tribute of the being done work done in the school.

Third year students DJ Hanley and Keane Nolan's project '*The comparative analysis of raw versus pasteurised milk and the potential use of natural preservatives in milk to mitigate the effects of poverty in rural Africa'* won the Irish Aid/Self Help Africa '*Science for Development'* award. As part of this award the students and their teacher, Aileen Tennant, will be taken on learning exchange trip to Ethiopia this Easter.

DJ and Keane were inspired to conduct scientific research in the area of milk preservation for people living in the developing world. The initial idea arose from the heated debate in the media surrounding the proposed ban of raw milk in Ireland and the EU. The students were also inspired by a presentation made by two 5th year students that had travelled to Zambia the previous Easter on a Development Education research trip. These students highlighted the problems with food security stemming from the lack of food preservation and refrigeration. There are major difficulties in preserving milk and the spoilage of food and milk is a major problem in rural Sub-Saharan African communities. Keane and DJ set about finding a sustainable solution to this problem. They researched and tested the antibiotic qualities of honey and propolis in milk. They showed that honey and propolis prevented the growth of bacteria in raw milk. This finding has the potential to provide food security and benefit those people living with HIV and AIDS. The students will have an opportunity to test their hypothesis while in Ethiopia.

The school has had a proud tradition with Development Education. St. Mary's Academy piloted '*Development Issues – A Course for Transition Year*' with the support of Irish Aid back in 2006/2007.

Our Science Teacher, Joe Clowry and RE teacher, Katrina Foley from Portlaoise CBS worked with Patsy Toland, the Education Officer with Self-Help Africa on developing the syllabus for this innovative course. News of the success of the course spread and by the end of the first year many more schools showed interest in incorporating the course in their Transition Year programme. Irish Aid provided funding to further develop this course over a five year period and the course was validated by NCCA in 2011.

Joe Clowry was offered a position in NUIM as Education Officer with Combat Diseases of Poverty Consortium (www.cdpc.ie) in 2008 but the work in St. Mary's Academy continued under Aileen Tennant and Lorna Canavan. As a result of Joe Clowry's work with CDPC the *Young Scientist Exhibition* concept has been launched in Tanzania and the first Exhibition will take place in October this year. The launch of '*Young Scientists Tanzania'* took place in Dublin just before the Irish exhibition in the RDS and Joe Clowry's role in this project and his inspirational work in Development Education in St. Mary's Academy was highlighted.

The profile of Development Education in the school has flourished. Last year Aileen Tennant took two students on a Development Education research trip to the Eastern Province in Zambia for two weeks. Theresa O'Neill and James Cronin brought a group of 10 students to Calcutta as part of the *Immersion Project*. Both groups reported back to students, teachers, parent

Above: DJ Hanley, Keane Nolan and teacher Aileen Tennant

Top: Minister Joe Costello with DJ Hanley and Keane Nolan

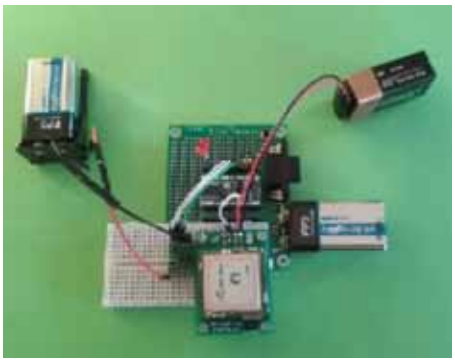
council and the BOM and their experiences left a lasting impression on the school community. A measure of the success of our Development Education programme was highlighted by the invitation to attend the Development Education week at NUI Maynooth in December 2011, in which we showcased all of the positive work and projects linked to our Development Education course. Feedback from the student teachers was very positive and our students inspired the Post-graduate Diploma in Education students to become involved with Dev Ed in their future careers.

The winning of this major prize is a further manifestation of the positive engagement with Development Education in our school and testament to the dedication and hard work of Aileen Tennant and her students.

Crash Detector and Geographical Coordinates Sender

St. Joseph's C.B.S. Fairview

With a record number of 1735 applications for just 550 places, competition for the 2012 BT Young Scientist was tough. However all the months of hard work paid off for our very own second year student Manolito Aviles when his project was accepted for the BT Young Scientist Exhibition 2012. This was a wonderful achievement for Manolito who was inspired to create his project following a road traffic accident involving a family member. His interest in robotics gave him the idea to build his "Crash Detector and Georgraphical Coordinates Sender".



Manolito Aviles

Manolito built a sensory device that detects a crash and transmits this information to a microcontroller which acquires the geographical coordinates via a GPS receiver and autonomously sends these to the emergency services through a transmitter. The microcontroller was programmed by Manolito to distinguish between minor and serious collisions using a triaxial accelerometer, meaning the signal will only be transmitted if the crash is above 7Gs and not every time there is a minor bump.

The exhibition kicked off with an opening ceremony on Wednesday 11th January with entertainment from science rock band 'Amoeba to Zebra' and juggling act 'Little Big Top' followed by rousing speeches from An Taoiseach Enda Kenny and BT's CEO Colm O'Neill. Over the next few days the judging commenced with each project undergoing three rounds of interviews with expert judges.

A huge range of projects were on view within the Technological, Behavioural, Chemical, Mathematical and Biological Science categories. Other activities included Eco Theatre, Robotwars and a 3D "Celestial Adventure" presented by Dunsink Observatory. The Arena adjacent to the main hall hosted several shows every day and each evening various activities were organized for the students taking part including table quizzes, karaoke and the much anticipated disco.

With almost 1200 students competing and an estimated 40,000 visitors attending the exhibition this year's competition was bigger and better than ever. The energy and enthusiasm shown by the students competing was outstanding. This exhibition is not just about science and technology – participants had plenty of time and opportunities to meet like-minded peers, make new friends and exchange ideas.

Having attended the exhibition to support Manolito, our own first and second year students are eager to develop ideas for new projects and are already thinking about their submissions for next year's exhibition. As for Manolito, he intends to further develop his project based on the feedback he received at the exhibition.

Congratulations to Manolito on his achievement. I have no doubt that it will be the first of many.

Ms. A Duane, Science Teacher, St. Joseph's C.B.S. Fairview.

Published at Áras Éamainn Rís
Meadow Vale
Blackrock
Co. Dublin
Tel: 01 289 7511

Tel: 01 289 7511
Fax: 01 289 7540
e-mail: reception@erst.ie
web: www.erst.ie

Iontaobhas Scoileanna Éamainn Rís
Edmund Rice Schools Trust