BT YOUNG SCIENTIST & TECHNOLOGY Exhibition

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FACTFILE

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2016

BTYSTE

www.btyoungscientist.com

Check out the highlights from the 2015 exhibition...

BT

Bringing it all together

...and see what's in store for 2016!

BTYSTE

Foreword by

Colm O'Neill

Managing Director, BT Ireland & UK Corporate

BT YOUNG SCIENTIST & TECHNOLOGY Exhibition

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Dear principals, teachers and students

January 2016 will mark the 52nd year of the BT Young Scientist & Technology Exhibition, once again cementing its reputation as the longest running STEM event of its kind in the world – something we at BT are immensely proud of.

If you are a past participant or friend of the exhibition I do not need to explain to you role that the BT Young Scientist & Technology Exhibition plays in bringing to life the critical subjects of science, engineering, technology and maths. You'll know that many people who have entered the BTYSTE in past years have gone on to become successful entrepreneurs, academics and professionals in the fields of STEM. You might also be aware that simple project ideas created by students for the exhibition have since been developed into successful international business ventures.

What the BT Young Scientist & Technology Exhibition does is take an academic subject out of the classroom and into a vibrant environment where like-minded individuals explore fascinating new inventions, new ways of thinking, new solutions and new approaches to old ways of doing things. And this is all done by people under the age of nineteen, backed by passionate teachers and parents who encourage, motivate and support this future generation of skilled professionals.

This is the very reason that we organise this exhibition year on year. BT, as one of the world's leading communications providers, is driven by innovation in digital technology, something that would not be possible without the creative and inventive minds of our 10,000 researchers and developers who work for us across the globe. Attending the exhibition each year inspires me with hope and confidence in the next generation, for it is these young people who, by harnessing their skills in STEM, will lead and drive Ireland's continued economic success in the years to come.

More than anything however, the BTYSTE is about having fun and learning, so why not consider submitting an entry in this year's exhibition. With over 120 teacher and student awards to be won, there's so much opportunity to succeed. And at the very least, by getting involved, you could get the chance to represent your school and community at the RDS in Dublin from 6th -9th January, 2016.

Within the pages of this fact file you will find everything you need to know about how to enter this year's exhibition and why you and your school should get involved. Getting started couldn't be easier. Simply put together a one-page proposal outlining your idea before our closing date of September 29th. This Factfile will provide you with all the guidance you need as well as helpful tips and advice, including details of a financial package we have put in place to support those living a certain distance from the exhibition venue in Dublin.

Finally, we at BT could not deliver an exhibition of this scale without the support of our ever-growing eco-system of partners including the Department of Education and Skills in the Republic of Ireland, the Department of Education in Northern Ireland, Analog Devices, Perrigo, Intel and RTE.

I'd like to take this opportunity on behalf of everyone at BT, to wish you the very best of luck in your entry and we look forward to receiving your creative ideas over the coming weeks.

Colm O' Neill,
Managing Director, BT Ireland & UK Corporate.

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The BT Young Scientist & Technology Exhibition 2016 is supported by;

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Contents

This FactFile has been specifically prepared to help you and will prove invaluable as you prepare your project for the BT Young Scientist & Technology Exhibition. Of course, if you have any further queries do not hesitate to contact us at: BT Young Scientist & Technology Exhibition, BT, Grand Canal Plaza, Upper Grand Canal Street, Dublin 4. Freephone: 1800 924 362 or BT Young Scientist & Technology Exhibition Office, BT, Riverside Tower, 5 Lanyon Place, Belfast BT1 3BT Freephone: 0800 917 1297. Visit our website at: **www.btyoungscientist.com**

A Message from
Jan O'Sullivan TD

One of the highlights of my first year as Minister for Education and Skills was to be involved in BTYSTE prize giving event. The enthusiasm, creativity and fun which surrounds the entire event is infectious and I certainly fell victim to its charms!

Last year saw the highest number of entries in the history of the exhibition with a remarkable 2,077 projects submitted from all corners of this Island, both North and South . The national event in the RDS also attracted the highest number of visitors ever, with nearly 60,000 people attending. By comparison the capacity of Semple Stadium in Thurles is 53,000.

One of the most positive aspects of the BTYSTE is to see the partnership and pride of both students and teachers that the Exhibition promotes. We all know that the students are the stars of the show, however, a special word of acknowledgement has to go to the teachers who guide and encourage students on this voyage of curiosity and discovery.

Science and technology clearly have the capacity to capture the imagination of students. It is important that our education system supports students to develop their skills in science, technology, engineering and maths. That's why we are focusing on numeracy skills at primary level, revising primary and post-primary curriculums and issuing new specifications for subjects such as Biology, Physics and Chemistry at Leaving Certificate and a new Junior Cycle specification in September 2016

It is also why I am very proud that my Department provides significant financial support to the BT Young Scientist & Technology Exhibition.

This Factfile sets out the remarkable success story of the BTYSTE as it goes from strength-to-strength. The BTYSTE has a very special place in Irish education. Each year hundreds of people, many who entered projects decades ago, still express their appreciation and fond memories of the Exhibition. Each year the BTYSTE provides a platform for students to showcase their passion and their curiosity in our rapidly changing world - long may that continue.

2015 was a remarkable year for BTYSTE and I look forward to BTYSTE 2016.

Ceann de bhuaicphointí mo chéad bhliana mar Aire Oideachais agus Scileanna ab ea a bheith páirteach in ócáid bronnta duaiseanna Thaispeántas Eolaí Óg & Teicneolaíochta BT, nó an BTYSTE mar a thugtar air. Rudaí tógálacha iad an díograis, an chruthaitheacht agus an spraoi a bhaineann leis an ócáid go léir agus chuaigh siad i gcionn orm go mór!

Bhí an líon iontrálaithe ba mhó riamh i stair an taispeántais ann anuraidh nuair a chuireadh 2,077 tionscadal isteach ó ghach cearn den oileán, thuaidh agus theas. Mheall an ócáid náisiúnta sin san RDS an líon ba mhó cuairteoirí riamh chuige nuair a bhí beagnach 60,000 duine i láthair. Chun an figiúr sin a chur i gcomparáid le figiúirí eile, dá mbeadh 53,000 duine i láthair ag Staid Semple i nDurlas bheadh sé lán go doras.

Ceann de na gnéithe is dearfaí den BTYSTE is ea breathnú ar chomhpháirtíocht agus ar bhród na scoláirí agus na múinteoirí araon a chuireann an Taispeántas chun cinn. Tá a fhios againn go léir gurb iad na mic léinn réaltaí an taispeántais, ach tá aitheantas speisialta ag dul do na múinteoirí a threoraigh agus a spreag iad ar a dturais fiosrachta agus fionnachtana.

Is léir go bhfuil sé ar chumas na heolaíochta agus na teicneolaíochta samhlaíocht na scoláirí a spreagadh. Tá sé tábhachtach go dtacódh ár gcóras oideachais le mic léinn a gcuid scileanna a fhorbairt san eolaíocht, teicneolaíocht, innealtóireacht agus matamaitic. Sin an fáth a bhfuilimid ag díriú ar scileanna uimhearthachta ag leibhéal na bunscoile, agus go bhfuil athbhreithniú á dhéanamh againn ar churaclaim na bunscoile agus na hiar-bhunscoile agus ag eisiúint sonraíochtaí nua do na hábhair Bhitheolaíocht, Fisic agus Ceimic san Ardteistiméireacht agus go mbeidh sonraíocht nua againn don tSraith Shóisearach i Meán Fómhair 2016.

Agus sin é an fáth a bhfuil an-bhród orm go soláthraíonn mo Roinnse tacaíocht suntasach airgeadais do Thaispeántas Eolaí Óg & Teicneolaíochta BT.

Tá cur síos sa Chomhad Fíricí seo ar an rath iontach atá ar an BTYSTE agus é ag dul ó neart go neart. Tá áit an-speisialta ag an BTYSTE in oideachas na hÉireann. Tugann na céadta daoine a raibh a dtionscadail féin acu istigh ar an Taispeántas fiche nó tríocha bliain ó shin le fios go bhfuil an-mheas acu ar an taispeántas agus go bhfuil cuimhní ceanúla acu air.Soláthraíonn an BTYSTE ardán do mhic léinn gach bliain chun a ndíograis agus a bhfiosracht a chur ar thaispeáint sa saol seo atá ag athrú go tapa - gura fada buan é.

Bhí an rath ar BTYSTE in 2015 agus táim ag súil go mór le BTYSTE 2016.

A Message from
John O'Dowd MLA

One of the great privileges of being Minister for Education is seeing the intelligence and enthusiasm of young people in action. There are very few places I have been as Minister where this is more in evidence than the BT Young Scientist and Technology Exhibition. It was wonderful to attend last year's exhibition and see the hard work of students on display and the highest numbers of visitors visit the exhibition.

I was delighted to hear about the success which entrants in the 2015 exhibition have had at the inaugural NI BT Young Scientist Business Bootcamp in June 2015. Students had the opportunity to attend this 3 day mentoring and skills camp that aimed to help them turn a project idea into a viable business opportunity. The students involved found this a very valuable opportunity and I hope the entrants in the 2016 exhibition will also be able to benefit from this.

Innovation has clear economic value. Young people are natural innovative thinkers; competitions like this one encourage and reward this thinking. School is not all about passing exams. Developing other skills, like the ability to be creative and innovative in investigating and solving problems are just as important.

We all know just how important innovation is to our economy and science and technology are especially important in driving innovation. The business opportunities in this are clear but there are also really important social benefits to innovation. The ability to easily keep in contact with people on the other side of the world is just one example that all of us have benefitted from.

This exhibition is a great chance for students to follow their curiosity; to work in collaboration with their peers and investigate or solve problems that they see around them.

I would like to thank all of those who have supported the young people in entering this competition in the past and encourage schools that have never entered to consider it. I know that teachers are very important in encouraging their students and in guiding them where necessary. I would like to wish all students good luck in entering this competition and I look forward to hearing of their success in the 2016 exhibition.

Ceann de na pribhléidí móra a bhaineann de bheith i m'Aire Oideachais is ea díograis agus éirim daoine óga a fheiceáil agus iad i mbun gnímh. Is beag áit a raibh mé mar Aire ina raibh na tréithe sin le sonrú chomh soiléir is a bhí siad ag Taispeántas Eolaí Óg agus Teicneolaíochta BT. Bhí sé go hiontach a bheith i láthair ag taispeántas na bliana seo caite agus obair chrua na scoláirí a fheiceáil ar thaispeáint agus an líon cuairteoirí is airde ag tarraingt ar an taispeántas.

Cúis mhór áthais dom a chloisteáil faoin rath a bhí ar iontrálaithe taispeántas na bliana 2015 i gcéad Grodchúrsa Gnó Eolaí Óg BT i dTuaisceart Éireann i mí an Mheithimh 2015. Bhí deis ag na mic léinn freastal ar an gcúrsa 3 lá scileanna agus meantóireachta a bhí ceaptha le cabhrú leo chun deiseanna inmharthanacha gnó a dhéanamh de phleananna a bhí acu do thionscadail. Mheas na mic léinn a bhí páirteach go ba dheis an-luachmhar a bhí ann agus tá súil agam go mbainfidh na hiontrálaithe a chuirfidh isteach ar thaispeántas na bliana 2016 tairbhe as freisin.

Is léir go bhfuil luach eacnamaíoch ag nuálaíocht. Is é dúchas daoine óga gur smaointeoirí nuálacha iad; tugann comórtais mar seo spreagadh agus luach saothair don chineál sin smaointeoireachta. Tá níos mó i gceist le scoil ná pasanna a fháil sna scrúduithe. Tá sé lán chomh tábhachtach scileanna eile a fhorbairt, mar an cumas a bheith cruthaitheach agus nuálach ó thaobh fadhbanna a iniúchadh agus a réiteach.

Tá a fhios againn go léir cé chomh tábhachtach agus atá an nuálaíocht dár ngeilleagar agus go bhfuil an eolaíocht agus an teicneolaíocht thar a bheith tábhachtach maidir le nuálaíocht a thiomáint chun cinn. Tá na deiseanna gnó a bhaineann leis thar a bheith soiléir ach tá buntáistí sóisialta ag baint le nuálaíocht freisin. Sampla amháin de na buntáistí atá faighte againn go léir is ea an chaoi a bhfuil sé ar ár gcumas fanacht i dteagmháil go réidh le daoine ar an taobh eile den domhan.

Tugann an taispeántas seo deis iontach do mhic léinn rudaí ar díol fiosrachta dóibh a iniúchadh; a bheith ag obair i gcomhar lena bpiaraí agus fadhbanna a fheiceann siad thart timpeall orthu a imscrúdú nó a réiteach.

Ba mhaith liom buíochas a ghabháil leis na daoine go léir a thacaigh leis na daoine óga cur isteach ar an gcomórtas seo agus na scoileanna sin nár ghlac páirt sa chomórtas go dtí seo a spreagadh chun machnamh a dhéanamh ar chur isteach air. Tá a fhios agam go bhfuil ról an-tábhachtach ag múinteoirí maidir lena gcuid mac léinn a spreagadh agus a threorú nuair is gá. Ba mhaith liom ádh mór a ghuí ar na mic léinn go léir atá ag cur isteach ar an gcomórtas seo agus tá mé ag súil go mór le cloisteáil faoin rath a bheidh orthu i dtaispeántas na bliana 2016.

THE HISTORY

BT YOUNG SCIENTIST & TECHNOLOGY Exhibition

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The BT Young Scientist & Technology Exhibition was the brainchild of two UCD physics researchers, a Carmelite priest, the Rev Dr Burke and Dr Tony Scott. In 1963 the two atmospheric physicists discovered the concept of 'Science Fairs" while conducting research in Socorro, New Mexico, America. These local school science exhibitions culminated in State Fairs and ultimately a national competition. The pair thought that this hands-on science approach was something that Irish students could really benefit from by taking science outside the four walls of the classroom and showing that it is all-around.

And so the BT Young Scientist & Technology Exhibition was born. The first competition was held in 1965 in the Round Room of the Mansion House in Dublin and attracted 230 entries and the first ever winner was John Monahan from Kildare. The success and interest in the first event was such that the exhibition moved to the much larger venue of the RDS in 1966 and it has remained there ever since.

The early Young Scientist Exhibition involved individual students competing but in 1976 groups were introduced for the first time. Many more developments have happened over the fascinating 51 year history of this national institution; see key ones listed below.

1965 – First competition was held at the Mansion House, Dublin

1972 – Schools from Northern Ireland participated for the first time

1989 – First year of EU Union Contest for Young Scientists, which Ireland has won 14 times!

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1998 – Esat Telecom took over as sponsors from Aer Lingus after 33 years.

Technology category added

2001 – BT became the organisers and sponsors of the exhibition

2003 – Primary Science Fair introduced by BT

2010 – BT Young Scientist Business Bootcamp introduced

2014 – 50th BT Young Scientist & Technology Exhibition

2015 – Commemorative stamp issued by An Post

320 ENTRIES

2077 ENTRIES

BTYSTE

THE BT YOUNG SCIENTIST
BUSINESS BOOTCAMP

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BT IS DELIGHTED TO ANNOUNCE OUR SEVENTH PROGRAMME FOR STUDENTS.

A number of the exhibiting intermediate and senior students from the 2016 BT Young Scientist & Technology Exhibition will be invited to take part in one of two BT Young Scientist Business Bootcamps early next year where they will experience the world of technology commercialisation and entrepreneurship.

We have created two different programmes; one in Dublin and one in Belfast - to provide a critical link in the innovation process to provide our young scientists with commercialisation skills to carry forward into their careers and lives. The bootcamps will be held at University College Dublin (UCD) and at Queens University Belfast (QUB).

Expanding Business Leadership

As an extension of the BT Young Scientist & Technology Exhibition the BT Young Scientist Business Bootcamps have enabled BT to take a national leadership role in economic development. BT is collaborating with key private and public-sector organisations to create an opportunity to mentor the next generation of Irish innovators and entrepreneurs.

Igniting Entrepreneurial Spirit

We at BT believe that the BT Young Scientist Business Bootcamps help to bridge the gap between the worlds of education and business and mentor the next generation of young innovators and entrepreneurs.

> "The Bootcamp experience has been life changing. I feel it has really opened up doors for me in regards to career options, developing my project and communicating better with people. I have met and heard from some amazing and inspiring people and I feel I have become more creative and innovative in the way I think."

A short video of the Bootcamp can be watched here:
http://www.btyoungscientist.ie/media-centre/video-library/2014-Video/239

in association with NovaUCD

In conjunction with Queen's University Belfast

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THE WHY

If you're wondering why you should get involved in the BT Young Scientist & Technology Exhibition, here are just a few of the benefits.

The chance to represent your school and town at the exhibition in the RDS is a real honour. Plus, if you're lucky enough to win, you'll go on to represent the competition at the European Union Contest for Young Scientists.

It's a brilliant extra-curricular activity to put on your CV or application form for college/ university. It shows a real passion for science and an ability to think for yourself.

And although a love for science and technology lies at the heart of all the entries, we're sure everyone has an eye on the €5000 top prize! There are over 120 prizes to be won, including the prestigious BT Young Scientist & Technologist(s) of the Year Award.

The rewards aren't just confined to entrants. Teachers will see real, long-term benefits by getting involved. It's a great way to get pupils inspired about the vital subjects of science, technology, engineering and maths and a brilliant way to showcase your school's scientific strengths.

Check out the highlights...
http://www.btyoungscientist.ie/media-centre/video-library/2015-videos/294

DON'T JUST TAKE OUR WORD FOR IT

Teachers and pupils leave the BT Young Scientist & Technology Exhibition enthused and invigorated. Here are a few quotes from some people who were involved in previous events.

"The BT Young Scientist & Technology Exhibition is a wonderful experience for students, teachers and the public at large. From a teachers point of view, this is an ideal opportunity to do real science which is not restricted by a curriculum. The ideas are products of the imagination and curiosity of the individual or group.

The students get to ponder, trip, stumble, fall and get up again and again. They experience that problems will present themselves but that these problems can be overcome and dealt with in some shape or form. Hypotheses are proposed, pilot tests run (this in itself shows that few get it right first time) relevant experiments run, data collected, data analysed and conclusions drawn.

To see the students complete a solid scientific study, believe in it and defend it when interviewed by the judges is the highlight for me.

Padraig Harlow
Mean Scoil Muire Gan Smal
Convent of Mercy, Roscommon Town
– Chemical, Physical and Mathematical Sciences
Educator of Excellence 2015

To say that the BT Young Scientist is an incredible experience would be an understatement. The BT Young Scientist is not just a four day exhibition in the RDS but a journey that starts in the classroom and takes you to a whole new incredible world, where you meet new people, try new things, explore your imagination, think outside the box and do things that you could have only dreamed of.

The BT Young Scientist doesn't finish in the RDS, the BT Young Scientist Business Bootcamp in UCD, embarked me upon a whole new and different experience, meeting like minded people, thinking about my project from different angles and developing new skills that change your perspective on not only your project but life.

No words can describe how amazing my BT Young Scientist journey was. It has changed my career path, given me life changing opportunities and I have met friends for life. It is an experience that will stick with me for life and has given me a platform along with the self belief and confidence to pursue my dreams.

Shíofra Ryan
An Tionchar"

THE AWARDS

MAIN AWARDS

Here are all the awards that will be presented at the BT Young Scientist & Technology Exhibition 2016.

BT Young Scientist & Technologist(s) of the Year 2016 Individual or Group

- BT Young Scientist(s) of the Year Trophy (perpetual)
- Cheque for €5,000 / £4,500
- The chance to represent Ireland at the European Union Contest for Young Scientists

Best Individual or Best Group

- BT Trophy (perpetual)
- Cheque for €2,400 / £2,160

Runner-up Individual and Runners-up Group

- BT Trophy (perpetual)
- Cheque for €1,200 / £1,080

Please note if the title BT Young Scientist & Technologist of the Year is awarded to an Individual, a Best Group Award will also be made. If the title BT Young Scientist of the Year is awarded to a Group, a Best Individual Award will be made.

CATEGORY AWARDS

There are 36 prizes for Individuals and 36 prizes for group projects. The prizes take the form of 1st, 2nd and 3rd in Junior, Intermediate and Senior sections of each of the four categories:

The prizes are:

1st prize	2nd prize	3rd prize
of €300 / £270 for both Individual and Group projects	**of €225 / £202** for both Individual and Group projects	**of €150 / £135** for both Individual and Group projects

In the event of a tie in any category, the prize money will be split equally.

A number of highly commended and display awards will also be awarded in each category by the panel of judges.

TRAVEL AWARDS

STUDENT AWARDS

- **Analog Devices Student Award**

  This award is presented to an individual or group for outstanding work exhibited in the Technology category, except where the project has been selected as BT Young Scientist & Technologist(s) of the Year. The prize consists of a trophy and an all expenses paid trip to America as the guests of Analog Devices, visiting San Francisco and Los Angeles. In addition, Analog Devices will donate €2,500 to the school of the winning student(s) as a contribution towards its science laboratory equipment fund.

- **Intel Student Award**

  This award is presented to an individual or group for outstanding work exhibited in the Chemical, Physical & Mathematical Sciences category, except where the project has been selected as BT Young Scientist & Technologist(s) of the Year. The prize is an all-expenses paid trip to the USA to compete in the Intel International Science and Engineering Fair (ISEF) in Phoenix, Arizona, May 8-13, 2016. The teacher/mentor of the winner(s) of this award will also receive an all-expenses paid trip to ISEF.

- **Perrigo Student Award**

  Perrigo will be offering an award in the Biological and Ecological category to the best placed project, either group or individual, except where the project has been selected as BT Young Scientist & Technologist(s) of the Year. The winning project will be awarded €2,000.

- **RTÉ Student Award**

  RTÉ will be offering an award in the Social and Behavioural Sciences category to the best placed project, either group or individual, except where the project has been selected as BT Young Scientist & Technologist(s) of the Year. The winning project will visit RTÉ for a tour.

EDUCATOR OF EXCELLENCE AWARDS

These awards will be presented to the teachers whose commitment and encouragement have consistently enabled their students to participate successfully in all categories of the exhibition.

- **Analog Devices Educator of Excellence Award – Technology**

  The winner receives the Analog Devices Trophy and an all-expenses paid trip to America.

- **BT Educator of Excellence**

  Biological and Ecological Sciences

  The winner receives €2,000

  Social and Behavioral Sciences

  The winner receives €2,000

- **Intel Educator of Excellence Award**

  Chemical, Physical and Mathematical Sciences

  The winner will receive the Intel trophy and an all-expenses paid trip to the USA to attend the Intel International Science and Engineering Fair which takes place in Phoenix, Arizona, May 8-13, 2016. The selected teacher will also have the opportunity to attend sessions at the Intel Educator Academy.

SPECIAL AWARDS

We are pleased and proud to have a fabulous range of special awards at this year's Exhibition presented by our partner organisations. Special awards recognise excellence in specific areas, examples include projects which have a focus on innovation in technology, physics, chemistry, sustainability, recycling, the environment, research or improving cancer awareness. Each award is industry-sponsored and details of each organisation and awards can be found on the Awards section of our website **www.btyoungscientist.com**

REVEREND DR TOM BURKE BURSARY

Fr Tom was one of the co-founders of the project and sadly passed away in 2008. In memory of his contribution to the project, a €1,000 bursary is awarded in his name to an individual participant who is deemed by the judges as the best communicator. This will be paid to a student to help them in their second/third level education.

This bursary will be open to participants of all categories across all age groups - but the winner cannot be either the overall Individual Winner or Runner Up.

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THE HOW

This section details the important information on who can enter, how to enter and by when. So the first things to note are the key dates:

The BT Young Scientist & Technology Exhibition takes place

6–9 JANUARY 2016

RDS, DUBLIN

Submit online by

29 SEPTEMBER 2015

www.btyoungscientist.com

- ✓ **on-line applications**
- ✓ **detailed 'one page proposal'**
- ✓ **completed entry forms and fees**

WHO CAN ENTER

The competition is open to second-level students from Ireland, North and South, who are aged between

12 AND 19 YEARS ON 31ST OCTOBER 2015.

INDIVIDUAL

GROUP

A group is defined as comprising of no more than three people from the same school and the same age grouping.

3 AGE GROUPS

	JUNIOR	INTERMEDIATE	SENIOR
ROI	1st & 2nd year	3rd & 4th year	5th & 6th year
NI	Year 8, 9 & 10	Year 11 & 12	Year 13 & 14

WHAT CATEGORY TO ENTER

Please study the definitions closely and be careful to choose the correct project category.
An incorrect choice may result in a project not being accepted (See Rule 1.11).

Chemical, Physical & Mathematical Sciences

For a project to be accepted into this category it must be based on chemistry, physics, mathematics, applied mathematics, engineering, computer programming and language or electronics. Projects based on earth and space sciences such as meteorology, geophysics, geology and astronomy are also eligible.

Biological & Ecological Sciences

For a project to be accepted into this category it must have a biological and/or ecological focus and investigate aspects of animal, human, microbial or plant biology. Typically, projects deal with the following areas of study: agriculture, anatomy, animal science, biochemistry, biotechnology, disease, ecology, environmental science, enzymology, forestry, food science, genetics, horticulture, medical science, metabolism, microbiology, molecular biology, physiology, physiotherapy, plant science or veterinary science.

Technology

For a project to be accepted into the technology category the core of the project must be the use of technology in new or improved applications, enhanced efficiencies, new innovations or better ways to do things. The category could include things related to the Internet, communications, electronic systems, robotics, control technology, applications of technology, biotechnology, innovative developments to existing problems, computing and automation. Students are also expected to understand the basic science behind the technology so that they can get the most from the project.

Social & Behavioural Sciences

For a project to be accepted into this category it must cover social and behavioural sciences, economic, geographical, psychological or sociological studies of human behaviour, attitudes and experience, social analysis of environmental factors, demography, learning and perception as well as the study of attitudes and behaviour in relation to health, nutrition, work, leisure and living habits. Projects on consumer affairs, effects on society, social anthropology and political science, provided they involve the use of scientific methods, are also eligible.

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ANALOG DEVICES
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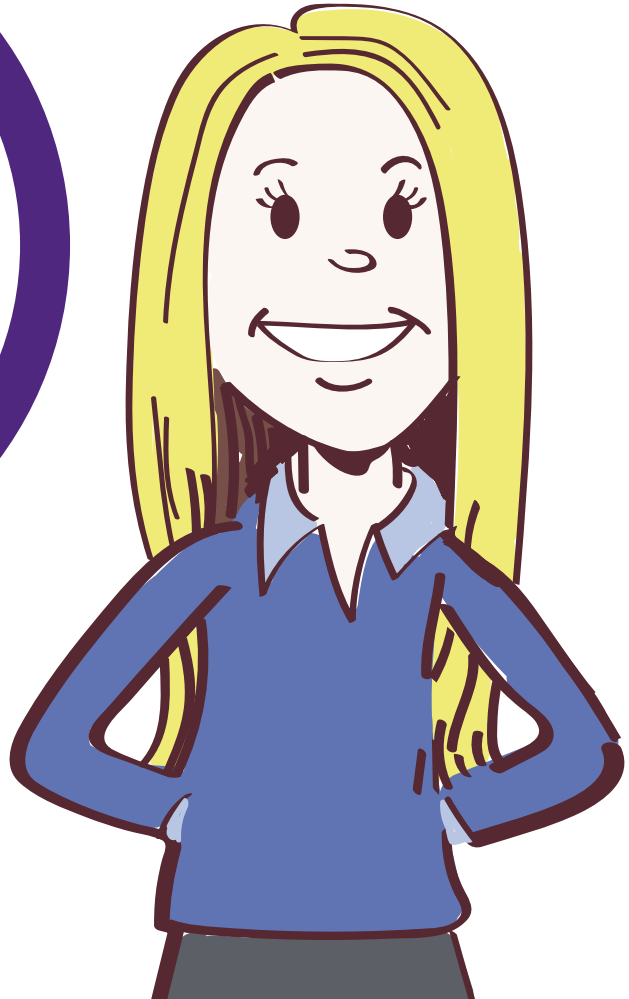
GETTING STARTED

Where to get your IDEA



To help you decide on your topic, try to get an idea of what you want to study. Ideas might come from hobbies or perhaps problems you see that need a solution.

INITIAL RESEARCH

Visit you local library or use the internet to learn everything you can about your chosen subject.

ORGANISE

Organise everything you have learned about your topic. At this point you should narrow your hypothesis by focusing on a particular idea.

MAKE A TIMETABLE

Choose a topic that not only interests you, but also can be done in the amount of time you have.
And remember to leave time to write your report and put together an exhibit.

#imagine**yourdiscovery**

ONLINE APPLICATIONS MUST INCLUDE:

1. ENTRY FORM FOR PROJECTS (COMPLETED BY STUDENTS)

In addition to other information, you will give your project a title on this form. The project title should reflect accurately the scientific content of the project. Avoid using what you may think is a smart or catchy title; such titles are generally misleading and do not necessarily impress the judges. The title you choose is the one that will appear on your stand and the printed programme should your project progress to the exhibition at the RDS.

2. PROJECT DETAILS FORM (COMPLETED BY STUDENTS)

On this form you should detail your project, how you intend to approach it and what work you have carried out to date.

3. ONE PAGE PROPOSAL (COMPLETED BY STUDENTS)

This very important document that forms a crucial part of the process by which the screening judges decide whether your project is accepted or not. It should explain to the judges what your project is all about and will help them decide whether or not you have already carried out some research. Care should be taken in preparing your proposal. More information on how to complete your one page proposal can be found online at **www.btyoungscientist.com**.

4. ENTRY FEE

An entry fee of €20/ £18 per student is payable by cheque/bank draft, postal order or credit card. Cash will not be accepted. Results of the screening of projects will not be released without full payment being made.

5. TEACHER ASSESSMENT FORM (COMPLETED BY TEACHERS)

This needs to be completed online by teachers by Wednesday 30th September.
Late entries will not be accepted.

N.B. Requests for accommodation grants (where appropriate), must be made on the Teacher Assessment Form at the time of entry. (More information available on page 22)

WHAT HAPPENS NEXT

Your entry is considered by a panel of screening judges who carefully consider every project and following their decision, you will be informed whether or not your project has qualified. The judges may also request further information on certain projects entered.

QUALIFIED

Qualified projects, teachers will receive an email confirming that the judges have accepted the project. This will also contain more details of the exhibition.

QUERIED

If your project is queried, the judges will send you or your teacher an email. With your teacher's assistance you must answer this query as soon as possible. This screening process should take around four weeks to complete, so please be patient.

NOT QUALIFIED

The judges may decide not to accept a project. This means that you will not present your project at the Exhibition in the RDS in January. The reason for the project not qualifying is sent by email to your teacher. You will also receive a letter notifying you of this decision. Included with the letter will be a certificate of participation and a family pass to admit two adults and up to two students to the BT Young Scientist & Technology Exhibition 2016.

N.B The submission of a project does not automatically mean that the project will qualify for the Exhibition in the RDS in January. The judges' decisions are final in all cases and neither BT nor its employees have any influence.

COMMON MISTAKES

The judges have identified the most common weaknesses in projects at the initial entry stage. These weaknesses could result in the project not qualifying for inclusion in the exhibition in January. Please review before submitting your project.

1. LACK OF ORIGINAL PRIMARY RESEARCH

Some studies are little more than a description of what is already known about the topic. Researching the existing body of knowledge is only the first stage of any scientific study.

2. UNRELIABLE EXPERIMENTAL METHODS

Frequently, projects state a particular method for data collection, which simply cannot collect the data required. Suppose the aim of the project was to find out which washing powder was most effective, then certain chemical experiments should be undertaken. However, all too often students say that they will distribute questionnaires to gather this information, but what in fact they are collecting are attitudes and opinions about the most effective washing powder.

3. VAGUENESS/UNFOCUSED OBJECTIVES

A study which aims to find out all about the ozone layer is not a realistic scientific study as no-one could be expected to find this out in the given time. Scientific research requires you to be very specific about what you wish to find out and setting measurable objectives is the only way to present scientific investigation. For example a project that looks at the effects on wildlife in a particular area as a result of disturbance created by industrial activity would have to focus on a very specific issue, as this topic is so broad. Much thought should be given to which category best suits your project.

4. LACK OF CLARITY IN DESCRIBING SCIENTIFIC METHODS

This information should be given on the project details form and/or the one page proposal. The judges need to know exactly what experiments are being carried out, in terms of specific experimental processes, materials or the who and how of a social survey.

5. LACK OF ORIGINALITY

The specific question raised in a project must be one that has not been posed and recorded by any previous scientist. However, this is not to say that twenty projects on the topic of, for example, radon gas or water pollution, could not be original, if they will deal in different ways with different aspects of the topics.

COMMON MISTAKES (CONTINUED)

6. UNSUITABILITY OF TOPIC

A topic must be able to be scientifically proven or disproved by research methods available to second level students. A project on whether or not Jupiter is inhabited by living creatures is really not a suitable topic.

7. LACK OF SCIENTIFIC CONTENT

Often proposals are submitted that are not scientific projects, but literature reviews. These proposals are information collection exercises and not scientific studies.

8. SAFETY ISSUES

Projects which put the students themselves or others at risk of physical injury or disease will not be accepted for the Exhibition.

9. ETHICAL ISSUES

Projects which put the students or others at risk psychologically or emotionally will not be accepted for the Exhibition.

10. INVESTIGATION PERIOD

Sometimes students propose a project that is weak because the period over which the project is being carried out is too short. Judges need to be convinced that the student has enough time to complete the project for the Exhibition.

11. CATEGORY QUOTA FILLED BY HIGHER RANKED PROJECTS

550 project places will be available for the Exhibition in the RDS in Dublin next January. However, each category is allocated a finite number of places based on the number of projects entered in that category. It is possible that some projects may not qualify if the quota for a category has been filled with higher ranked projects.

ASK YOURSELF

Before you go any further ask yourself these questions:

- Have you clearly defined the aims of your study?
- Have you been able to access the necessary apparatus and equipment?
- Has the project been published previously in part or in full? If so, give details in your project report.
- Are you using potentially dangerous chemicals, organisms or equipment in your project? If so, please discuss with your teacher to ensure that your project adheres to the correct safety regulations.
- Have you obtained meaningful results?
- Have you been successful with experiments and data collection?
- Are you confident that you can complete the project in time for the exhibition?
- Has the project been entered in any other exhibition or competition? If so, be sure to mention this in your entry form for projects and in your project report.

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YOUR PROJECT

The THREE elements of your project

Whilst waiting to hear if your project has qualified for the exhibition it is important to continue working on your project. Every project will have three elements:

1. PROJECT DIARY

Both individual and group entries must keep a diary. This diary should contain day-to-day records of how the project is progressing. Remember to record all the names of sources you have looked up and all the people or institutions you have contacted. If you are working as a group, remember to appoint a leader. The leader should keep all relevant information and appoint a group member to keep the diary.

Do not trust yourself to remember facts and details. Record everything in your diary and use it as an information store for writing your report. You can even write personal comments about how your project is going and what your progress is like.

2. PROJECT REPORT BOOK

Your report book should be no more than 50 pages of text (word processed) plus appendices and references. It should also be organised under the following sections:

- **Title page** – this contains the name of the project, name of school and name of student.
- **Comments page** – put a page into your report book which may be signed by a judge. (Please note that not all assigned judges may sign your report book.)
- **Contents page** – includes the sections and page numbers of the report.
- **Summary/Abstract** – this is a very important part of your project. Ideally it should be about two pages long and include a short summary of your project. If someone reads this summary they should understand what you were setting out to achieve and what your main results and conclusions are.
- **Introduction** – this should set the scene for your report. Why did you do the project and what did you hope to achieve?

In this section you should also refer to experiments, surveys, questionnaires and the part they played in your project. Make sure you refer to previous research in this area.

- **Experimental methods** – this section should describe the experiments you carried out. Keep in mind the value of diagrams and illustrations.
- **Results** – you should include a good sample of your measurements and all of your important results in this section. You can include the bulk of your readings and measurements in appendices.
- **Conclusions and recommendations** – you should comment on the results of your work in this unit. Be clear and concise.
  - How does your work compare with existing theories?
  - How accurate is the data you got from your study?
  - What are the strong and weak points of your methods?
  - How might your work be extended and improved?
  - Does your project contribute to scientific knowledge and research?
- **Acknowledgements** – at the end of your report acknowledge any help you received during the project for example, teachers, companies, institutions and parents.
- **Appendices** – additional information, reports and any letters or correspondence.
- **References** – list any books, articles, web pages and references that helped you in your project.

Important notes: when you arrive at the RDS please make sure that you write your stand number on the front of your report book as this will identify the stand to which it needs to be returned.

The judges will collect your report book for a closer look at your project. This may not be returned to you until the end of the exhibition. However, be assured that each report book will be studied carefully by the assigned judges in the judging rooms. Also please note that not all assigned judges will sign your report book. In some cases only the first judge will sign your book, but this does not indicate in any way that your project is weak.

3. VISUAL DISPLAY

Your display can only be a summary of your project. Do not try to display your entire project, cover just the main points and highlights. Plan your display well in advance. Use a map or plan to help you make the best use of your space. Work out the dimensions of everything you want to include. How your project is displayed on your stand will be taken into consideration by the judges when reaching their decision.

Your charts or other display material should fit within your project space. The dimensions of the display stand are as follows:

The back display panel is A0 landscape format which is 1189mm wide by 841mm high and the worktop is 1200mm wide by 600mm deep. Please plan your exhibit to fit within these dimensions. Cardboard sheets, sized to fit the back panels, will be available on site if required.

When you are finalising the planning of your display, stand back for a minute and ask yourself: Will the judges and visitors be able to move smoothly through my project, step by step, from background onto methods and from there to results and conclusions? Is the text big enough to be easily read by both the judges and the public?

Helpful hints for a good display

1. A GOOD TITLE

Your title is an extremely important attention-grabber. A good title should simply and accurately present your research. Ensure you do not use brand names in your title. The title should make the casual observer want to know more.

2. TAKE PHOTOGRAPHS

Many projects involve elements that may not be safely exhibited at the exhibition, but are an important part of the project. You might want to take photographs of important parts/phases of your experiment to use in your display. Photographs or other visual images of human test subjects must have informed consent.

3. BE ORGANISED

Make sure your display is logically presented and easy to read. A glance should permit anyone (particularly the judges) to locate quickly the title, experiments, results and conclusions. When you arrange your display, imagine that you are seeing it for the first time.

4. EYE-CATCHING

Make your display stand out. Use neat, colourful headings, charts, and graphs to present your project. Homebuilt equipment, paper and coloured markers are excellent for project displays. Pay special attention to the labelling of graphs, charts, diagrams and tables. Each item must have a descriptive title. Anyone should be able to understand the visuals without further explanation. Make sure that the text is large enough to be read easily.

5. CORRECTLY PRESENTED AND WELL CONSTRUCTED

Be sure to adhere to the size limitations and safety considerations when preparing your display. Display all required forms for your project. Make sure your display is sturdy, as it will need to remain intact for quite a while. Do not hesitate to ask for advice from adults if you need it. It is very important to check the spelling!

Carrying out the work

You now know what the project requires, so this section will provide you with some guidelines on carrying out the work.

Now, before you go any further there are a few simple questions you must ask yourself:

- What am I trying to find out?
- How am I going to do this?
- Where can I get the help I need?
- What do I expect to find out at the end of my research?
- Have I access to the apparatus or equipment to carry out the work?

Once you are satisfied that you can really get to grips with your project, then you enter the planning stage. Remember, only a few scientific discoveries are the result of chance or luck. The rest are the result of many hours of dedicated thought and experimentation.

READ BACKGROUND MATERIAL AND LITERATURE

The rule here is read, read and then read some more! This will give you real insight into your topic. Background material can be obtained from books and journals and by using the internet. Remember to keep a record of this in your project diary.

PLAN YOUR RESEARCH AND DESIGN

Decisions need to be made on which experiments you will conduct, how you will design your apparatus and, if applicable, how you will collect your data.

CARRY OUT YOUR RESEARCH

Record each and every measurement, experiment or observation. At this stage, your project may fail completely. If so, it is still important to record and report the failure. Remember a null result is still a scientific finding and an important guide to other scientists. Record all your observations and findings.

ANALYSE YOUR RESULTS

After you have completed all of your research, you need to examine and organise your results.

Try and focus on how your results relate to your original topic and its objectives. Good results merit good presentation.

MAKE YOUR CONCLUSIONS

You are now ready to develop a theory to explain your findings. Keep an open mind on the results you get and the conclusions you reach.

EVALUATE YOUR PROJECT

You are now in a position to make recommendations and perhaps contribute through these to scientific knowledge.

It is now time to ask yourself the following questions:

- Did you succeed in researching your topic?
- Do your conclusions support your original hypothesis?
- Have you added to the body of knowledge through your research?

RESEARCH IS THE ANSWER

Research is the process by which people create new knowledge about the world in which they live, in order to answer a question or solve a problem. When choosing your topic, give careful thought to how your research might enhance the world and its inhabitants.

Questioning is probably the most important part of scientific creativity and is often followed by an "if...then..." statement.

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Be curious, choose a limited subject, ask a question, identify or originate/define a problem

Review published materials related to your problem or question

Evaluate possible solutions and make your educated guess (hypothesis)

Challenge and test your hypothesis through experimentation (data collection) and analysis

Evaluate the results of your experiment and reach conclusions based on your data

Prepare your report and exhibit

Questioning usually leads to observations or experiments.

Good scientists, both young and old, use a process to study what they see in the world. By following the six stages listed below, you should be able to produce a superior scientific project.

As a scientist you should learn to be sceptical about all research results, especially your own. A good experiment may or may not answer the questions asked, but almost always leads to fresh questions which require new experiments or observations.
The final hypothesis is often developed after you have run a number of preliminary experiments, analysed a body of results, and reached a tentative conclusion.

DATA COLLECTION important guidelines

Data can be collected in four ways:

1. DOCUMENTARY SOURCES

Documents can be used to set an idea in a historical context or as the basis for an entire study. A wide variety of documents can be used, e.g. the Census of Population, available from the Central Statistics Office.

Personal documents, used judiciously, can be useful in providing information. Try to ensure that whatever documents you are using are the most current available.

Photographs and maps may also be used. These are available from the Ordnance Survey, **www.ordnancesurvey.ie** in ROI or **www.ordnancesurvey.co.uk** in NI.

2. OBSERVATIONS

This is one of the primary methods of collecting data, but care must always be taken to ensure that this data are observed in an unbiased way.

The observer's senses may not be able to record everything. Also, if the observer is watching people, animals or other organisms whose behaviour changes because they are being observed, the results may be invalid.

3. SURVEYS

If you are carrying out a survey read the following carefully:

Questionnaires, interviews and schedules are some of the techniques used in conducting survey work. Questionnaire design merits great attention.

It is very important to think through how you are going to analyse the results you will get. Your questions should be clear, concise and should gather the relevant information.

Test your questionnaire in advance on a small section of the population – this is called a pilot survey. This will identify the questions that need changing and it will lead to a more effective questionnaire.

Good interviewers do not influence the answers given during an interview. Work from prepared questions.

If you are recording any type of behaviour by animals, plants or humans, it is advisable to use a schedule to record your observations.

4. TESTS, MEASUREMENTS AND EXPERIMENTS

These should only be used if they are relevant to your research and if you are capable of doing and understanding them yourself. Particular attention should be given to the design of experiments, the requirement for controls, sufficient replication and repeat experiments where appropriate.

Ensure that any testing or experimentation you undertake is not dangerous i.e. it does not put yourself or others at risk of injury or disease.

GUIDELINES ON SAMPLING

Remember to use a representative sample. A random sample means that every member of a population had an equal chance of being chosen, e.g. pulling numbers from a hat.

A systematic sample takes every nth member from a population.

Stratified sampling uses the idea of groups or classes within the population being analysed.

Any group which shares similar characteristics and has boundaries may be termed a population. Therefore, it is perfectly acceptable to refer to plant populations.

Quota sampling means that if you want to interview, for example, 200 people about shopping, you could go to a particular part of town where you could meet shoppers. You may have pre-set guidelines, such as age group and numbers of men and women. However, it is not statistically random and people on the street may not be fully attentive.

When sampling a population, you may also need to use a control group. If, for example, you were testing the effects of a particular experience on a group of people, you would need a control group of the very same type of people, who have everything in common except the particular experience.

Case studies, which look at a small number of individuals and a particular context in depth, may be useful in helping us understand how a particular process works. They will help lead towards a better way to formulate a hypothesis for testing with a large sample.

GUIDELINES ON STATISTICS

What techniques can you use to analyse data?

There are three main procedures you might use:

1. **You could summarise your data**

   This procedure means what it says. It is a way of reducing the bulk of data to a more manageable size, as well as seeing some patterns emerging. You can put data into groups or classes. You can also measure typical values, such as the mean, mode and median.

   Some data, of course, will not be accurately described by these statistics. What is then needed is a technique to measure movement away from the average. This technique measures deviation from the mean.

2. **You could try to explain patterns which emerge, using comparison techniques**

   We can compare data in the following ways. Firstly, we could compare the similarities and differences between the data. Secondly, we could use statistical techniques to compare the data. These techniques are widely used to compare variables.

3. **You could carry out a significance test e.g. a t-test**

   When you have made your comparisons and conclusions, you need to know if they are really significant. Significance tests are used to make sure that results from comparing one data set with another are not the result of chance.

IMPORTANT ADVICE

Please read carefully

PLAGIARISM

Plagiarism is using others' ideas or words without clearly acknowledging the source of that information

How can students avoid plagiarism?

You must give credit to sources whenever you use:

- another person's idea, opinion, or theory
- any facts, statistics, graphs, drawings – any pieces of information that are not common knowledge
- quotations of another person's actual spoken or written words
- paraphrase of another person's spoken or written words

These guidelines apply irrespective of the source of the information. Plagiarism of any kind will result in immediate disqualification from the competition.

ETHICS

Scientific and technological investigations and applications must be undertaken with integrity through the use of rigorous methods.

Participating students must ensure that the involvement of people as participants in their research is always fully justified and if so, there is a duty to protect the wellbeing, dignity and privacy of individuals. The welfare of any animals that are subject to investigation must always be respected and likewise any experimentation carried out in the natural environment must avoid having adverse impacts.

PATENTS

Is your invention patentable?

The vast majority of students taking part in the BT Young Scientist & Technology exhibition will not need to consider applying for a patent.

However, if your project comprises functional or technical aspects that are new and not an obvious development on what already exists, you might consider applying for patent protection.

For an invention to be patentable it must be:

1. Totally new (search using free patent databases like espacenet or Google Patent, or even just ordinary search sites like Google or Yahoo)
2. Not obvious to a person who works in the technology field (usually an improvement with surprising benefits)
3. Capable of industrial application (e.g. manufacture)
4. Not be part of the excluded category, e.g. equipment specifically designed for human or animal torture

Prior to making a patent application, you must not make any public disclosure of your idea/invention, or put it into use publicly, for example at the exhibition. The reason for this is that the patent application itself must be the first public disclosure of the invention. Any prior disclosure of the invention will count against the invention being considered new, and could result in the patent being invalid.

If an invention is in the public domain it is considered 'prior art' and no longer patentable in most countries including the UK and Ireland.

But please remember that there are real costs involved should you decide to apply for a patent, these initial costs are:

- the basic patent office fees (a few hundred euro/pounds depending on where you file the patent application e.g. the Irish Patent Office or UK Patent Office). (The Irish Patents Office charges €125 to file a standard patent. It would cost a minimum of €550 to get it to grant)
- the optional, but advisable, Patent Attorney fees, can add up considerably (these fees are usually calculated in thousands, rather than hundreds) to the application (invention disclosure forms help reduce these costs)

If you would like more information, simply log-on to www.btyoungscientist.com and click on 'Patents' under 'Important Advice' in the 'all you need to know' section.

EXTERNAL HELP – IS IT ALLOWED?

It is expected that all or the majority of the work for a project will be conducted either in the school, home or the outside environment. Understandably, some projects may involve visiting distant locations.

Students may seek advice or information about their project from sources beyond their school, such as on the web or from government organisations, universities, institutes of technology or other experts. However, it is recommended that the majority of students' work should be conducted under the supervision of their relevant teachers with, where appropriate, suitable levels of involvement by parents, guardians or other responsible adults.

Where experimental/research work is conducted by the students themselves, or on their behalf, in a laboratory that is external to their school (e.g. in a local university, a hospital or an industry) then that work should be clearly identified and acknowledged within the project report book and presentation.

In addition, it is a requirement that a cover letter from the external facility, describing the extent of the assistance provided and the work done by the students within that facility or undertaken on behalf of the student(s), will be included in the project report book.

www.btyoungscientist.com

Our new and improved website is your number one resource for everything you need to know on the BT Young Scientist & Technology Exhibition.

You can enter online, and also check out the latest news stories and get in touch with other BT Young Scientist & Technology Exhibition fans through our social networking pages.

Teachers also have their own dedicated section on the site filled with useful resources.

So check it out **www.btyoungscientist.com**

BTYSTE

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FUNDING

ACCOMMODATION GRANT SCHEME

The accommodation grant scheme, which was first introduced in 2006, will again be available this year. The scheme is designed to help with the accommodation costs incurred by students from schools that have to travel considerable distances to compete in the event at the RDS in Dublin. These costs can prove to be an obstacle to many and can be the real reason why some students do not enter a project into the competition.

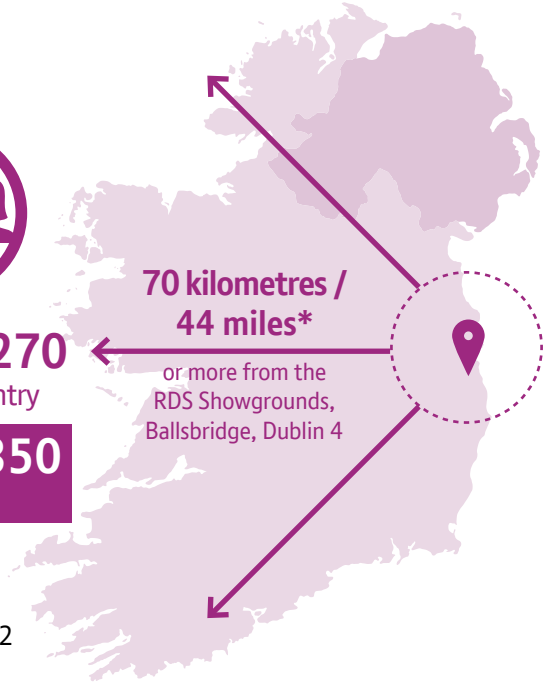
In recognition of this BT created a grant scheme under which schools can apply for assistance towards accommodation costs incurred if they have to stay overnight in Dublin. This grant scheme underlines BT's commitment to making the exhibition accessible to schools from across all parts of Ireland.

Schools eligible for a grant may be awarded either...

€150/ £135
for an individual entry

€300/ £270
for a group entry

MAXIMUM €1500/ £1350
per school



*as measured in accordance with the service on: **www.aaireland.ie/routes_beta/**

For full terms and conditions see Rules page 32 - 4.1 to 4.9.

To be considered for the grant scheme please check the appropriate box on teachers area in on-line application area, as grants will not be awarded unless they are applied for at the time of entry.

FUNDRAISING HINTS AND TIPS

All schools, not just those outside the 70km / 44 miles grant zone, might want to consider raising some extra cash to help pay for teacher cover, travel and even spending money.

In our experience, schools that raise a little bit of extra money have a much more relaxing experience at the event, not having to stress about how much things cost, or how much they have spent getting there.

It really should be all about the experience of taking part and attending so here are a few fundraising ideas we know have worked for many schools over the years:

- Car boot sales
- Sponsored events like walks or silences
- Wear your own clothes to school day
- Cake sales
- Seasonal fêtes/fairs/bazaars
- Parties and discos

You might even want to think about approaching local companies, especially those in the industrial or technology sector, to ask them for a lump sum sponsorship. They can then use this partnership to get positive PR in local newspapers.

SUBSIDISED 'HEALTHY OPTION' LUNCHES FOR STUDENTS

A 'healthy option' meal menu will again be available in the RDS exhibition halls at the BT Young Scientist & Technology Exhibition 2016. Participating students will be supplied with a €4 voucher for each full day they are at the exhibition. These vouchers can be used in part payment for one of the delicious meals on the young scientist healthy option menu.

TIMESCALES

"Sounds great, but we wouldn't have the time...."

A common misconception regarding the BT Young Scientist & Technology Exhibition is the huge, enormous, unmanageable, overwhelming, colossal, gigantic, time commitment required. And it is exactly that - a misconception.

Here is a clear guide to exactly what is required and by when...

September October November December January

14 whole weeks to get projects ready for exhibition in January

Date: 29th September 2015
Key Date 1 - Closing date for entries

Required:

- One page proposal completed by the student (literally one page, and we have even provided you with a few examples on the teacher section of the website)
- Entry form for projects (completed by the student)
- Project details form (completed by the student)
- Teacher assessment form (completed by the teacher)
- Entry fee (€20 / £18)

Results published
(This is when you find out if your school projects have made it through to the final exhibition)

Date: 6th to 9th January 2016.
Key Date 2 - The Exhibition

Required:

- Completed visual display
- Completed project report book
- Completed project diary

2015 2016

ADDITIONAL TIPS

- Some of the work could potentially be completed during class time
- Time at school science clubs could be used to work on projects
- Good planning across the 14 weeks between the closing date and the exhibition can ensure the work is manageable

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AT THE EXHIBITION

What to do when you arrive

Once you arrive at the RDS Main Hall in Dublin and register for the exhibition, you will receive your exhibitor pass and student pack.

After registration, security will allow you to bring bulky projects in through the Anglesea Road entrance to the RDS.

Security will not allow anyone to gain entrance without an exhibition ID pass. Go to your stand and set up your project in the space provided. Make sure you bring sticky tape, stapler, scissors, Blu-tac and whatever else you need to display your project.

If you have any questions or queries, ask any BT redcoat, they will do whatever they can to assist you.

REMEMBER

Your project will be part of the exhibition until it closes on Saturday 9th January 2016 at 5.30 p.m. Projects may not be removed before this time, early removal of projects will jeopardise your school's involvement in the project in future years.

You must be at your stand during judging times and at all times have one representative of your team/school present when the exhibition is open to the general public.

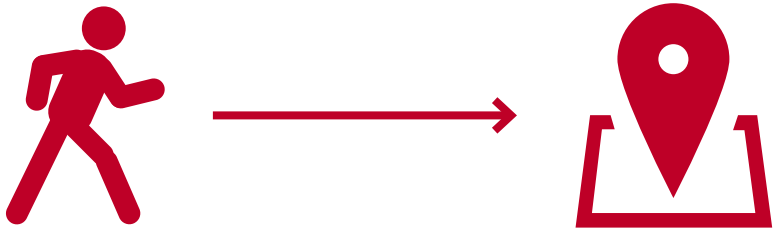
BT cannot take responsibility for any items that may be lost, stolen or misplaced during the exhibition.

THE JUDGING

Your project will be judged at least three times by three different judges, once on the Wednesday and twice on the Thursday. Before each judging session you will be given an appointment card which will indicate the approximate time the judge will arrive at your stand. Please be patient as your judge may be delayed while judging another project. The judges can only spend approximately 15 minutes at your stand, so be prepared when they arrive. They will ask you to tell them about your project and then move on to more specific questions. Make sure any mobile phones are turned off during the judging times.

If you are part of a group entry, make sure that each person from your team does some of the talking. The group leader should introduce all members and explain what sections each team member will be talking about.

The Judges have the right, should they see fit to re-assign your project to another category during assessment at the exhibition.



AT THE EXHIBITION (CONTINUED)

Judges look for well thought out research. They look at how significant your project is in its field, as well as how thorough you were. Did you leave something out? Did you start with four experiments and finish with only three?

GOOD COMMUNICATION

Judges applaud those students who can speak freely and confidently about their work. They are not interested in memorised speeches – they simply want to talk with you about your research to see if you have a good grasp of your project from start to finish. Besides asking the obvious questions, judges often ask questions to test your insight into your projects such as 'What was your role?', 'What didn't you do?' and 'What would be your next step?'
Remember a little enthusiasm goes a long way!

THE JUDGES WILL LOOK FOR:

- Creative ability
- Thoroughness
- Clarity
- Scientific thought and approach to the work
- Skill
- Teamwork

JUDGES FOCUS ON:

- How well you followed the scientific methodologies
- The detail and accuracy of research as documented in your report book and diary
- Whether experimental procedures were used in the best possible way

TIPS FROM THE JUDGES:

When it comes to being successful at the BT Young Scientist & Technology Exhibition, there really is no substitute for hard work. That being said, we want to give you as much help as we can along the way. The following advice and tips from our panel of judges might make your job a little easier.

1. Start to work on your project as soon as you can. Some projects can take a lot longer to complete than you envisaged when you started.
2. For you to succeed, you have to be interested and involved from the word go.
3. Don't leave things to chance or guesswork. Research your project well. That way you'll be able to deal comfortably with any queries that come your way, be it from the judges or members of the public.
4. Keep a detailed project diary of your work. We all forget things and this may help you answer judging queries at a later date.
5. Accurate use of scientific methods counts for a lot when judging begins, so take your time and make sure that all your facts and figures are correct. Don't be afraid to ask your teacher when unsure about something.
6. The project title should reflect accurately the aims of the project.
7. Be original. Make your project stand out from the crowd by giving good solid reasons for your choice of subject.
8. Make your exhibit as attractive as possible. Presentation may not be everything but clear, concise work shown in an attractive manner can only be of benefit to you when judging takes place.

BT YOUNG SCIENTIST & TECHNOLOGY Exhibition

BT

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TIMETABLE OF ACTIVITIES

Below is the outline of what will happen during the week of the exhibition.
This is subject to change.

5 JAN TUESDAY

2.00 p.m. - 7.00 p.m.
Registration and setting up of Dublin projects only

6 JAN WEDNESDAY

9.00 a.m. - 12 noon
Registration and setting up of all other projects

2.00 p.m. - 2.45 p.m.
Official Opening Ceremony in the BT Arena

3.00 p.m. - 6.00 p.m.
First round of judging

8.00 p.m. - 10.30 p.m.
Evening entertainment in the Students' Club

7 JAN THURSDAY

9.00 a.m. - 1.30 p.m.
Second round of judging

9.30 a.m. - 1.30 p.m.
Doors open to Primary Science groups

1.30 p.m. - 5.30 p.m.
Doors open to all schools and general public

2.00 p.m. - 5.30 p.m.
Third round of judging

8.00 p.m. - 10.30 p.m.
Evening entertainment in the Students' Club

8 JAN FRIDAY

9.00 a.m. - 1.00 p.m.
Final judging

9.30 a.m. - 5.00 p.m.
Doors open to all school groups and general public

5.30 p.m. - 7.30 p.m.
The Awards Ceremony in the BT Arena

8.30 p.m. - 11.00 p.m.
Evening entertainment in the Students' Club

9 JAN SATURDAY

9.30 a.m. - 5.30 p.m.
Doors open to all school groups and general public

11.30 a.m. - 12.30 p.m.
Teachers' feedback session

5.30 p.m.
*Exhibition closes

8.30 p.m. - 12.30 a.m.
Farewell disco

*** N.B. Students must not remove their project or leave the Exhibitions Hall before 5.30 p.m. on Saturday 9th January.**

SPECIFIC TEACHER INFORMATION

Please make sure you are familiar with all rule changes and also the closing date for entries.

JUDGING

Judging will commence on Wednesday 6th of January 2016 from 3.00 p.m. and will continue all day Thursday. Final judging will be completed on Friday morning.

WITHDRAWAL OF QUALIFIED PROJECT

When a student confirms that they will exhibit a project, one of the available stand spaces will be allocated against that project. It is the teacher's responsibility to check with students on an ongoing basis and especially before the Christmas holidays to confirm that they are still planning to participate.

If a project has to be withdrawn please let us know immediately.
Freephone 1800 924 362 from the Republic of Ireland or
0800 917 1297 from Northern Ireland or email: **youngscientist@bt.com**

TEACHER FACILITIES AT THE EXHIBITION

When you arrive at the RDS, register with the BT team at the Teachers Desk. You will receive your exhibition ID pass. It is imperative that you wear this at all times for security reasons. Tea and coffee will be served throughout the day in a designated teachers' area on the main hall balcony. You will receive complimentary lunch vouchers when you register and these can also be used in the teachers' area.

Please note that students must not take down their project or leave the hall before 5.30 p.m. on Saturday 9th January 2016 as members of the public will be visiting the exhibition. If you, as the participating teacher, are not attending the RDS for any reason and need to send a substitute supervisor in your place, this must be confirmed in writing by your school in order that this change may be recorded, by 17th December 2015.

TEACHERS NEW TO THE BT YOUNG SCIENTIST & TECHNOLOGY EXHIBITION

We are delighted to welcome new teachers to the BT Young Scientist & Technology Exhibition. Help is on hand if you run into any problems. Call our Freephone helpdesk numbers (included above) and we will direct you to a number of teachers who work with us on the BT Young Scientist & Technology Exhibition. Also check out the teachers section of our website: **www.btyoungscientist.com** to see our teachers advice blog, full of useful hints and tips.

SCHOOL VISITS

Why not celebrate your school's participation in the competition by encouraging your colleagues to bring a class along. Or if you are not participating this year why not bring your class along to experience the buzz around the event and maybe that will encourage them to enter the 2017 competition. More information will be sent to schools in October/ November with regard to booking school visits and early booking is advisable.

SPECIFIC PARENTS/GUARDIAN INFORMATION

Your child will need your support over the coming months in the planning and preparation of their project for the exhibition in January. A very good start in getting to grips with the exhibition is to thoroughly read our website, but we've included a key facts summary below:

WHERE
Royal Dublin Society premises (RDS), Ballsbridge, Dublin 4

WHEN
From Tuesday 5th to Saturday 9th January 2016 (Non-Dublin based schools will need to register by 12 p.m. on Wednesday 6th January).

ENTRY FEES
The cost to enter online is €20/£18 per student.
Entry will open online at **www.btyoungscientist.com.**
Projects will not be notified whether they have qualified or not if these fees have not been paid in full.

CLOSING DATE
29 SEPT

All on-line entries must be received by Tuesday 29th September 2015.

ACKNOWLEDGEMENT
BT will acknowledge your child's entry upon receipt. It will then be forwarded to the screening judges who will decide which projects will qualify for the exhibition in the RDS.

TICKETS
Each student entering the exhibition will be sent a Family Pass for the event. This allows admission for two adults and up to two children during ONE of the public days of the exhibition - 7th, 8th and 9th January 2016.

ACCOMMODATION
BT has negotiated special BT Young Scientist & Technology Exhibition room rates with hotels in the vicinity of the RDS in Ballsbridge. These rates together with accommodation booking forms will be published on our website during October www.btyoungscientist.com

MAIN AWARDS CEREMONY
This takes place on Friday 8th January 2016 from 5.30 p.m. and will be attended by a very special guest of honour. No seats will be available in the Arena for this ceremony but we will be streaming it live to another part of the RDS so that parents and guardians can join in the excitement. Following the awards there will be entertainment for the students in the Students' Club.

MONEY
Please make sure your child has enough pocket money to pay for meals, drinks and other expenses throughout the week. There is a restaurant and snack bar as part of the exhibition where they can buy food and drink. BT cannot take responsibility for items that may be lost or stolen.

The following advice is given to ensure that the students you accompany to the exhibition are your primary focus and that they feel a strong sense of support and security.

- Adults should set a good example and serve as role models not only for students that they accompany but for all young people at the exhibition.
- Adults should know where their students are at all times and students should know where their teacher/parent is at all times.
- Adults should oversee project set-up and be available to assist students with any complications that may arise.
- It is important that an adult should be available to cover or to arrange for cover for students, especially those entered in the Individual section. All students should be given breaks from their stands.

NB: Please remember that the judges' decisions are final in all cases and that BT or its employees have no influence over the judges.

ADDITIONAL STUDENT INFORMATION

The use of tobacco products, alcoholic beverages and illegal drugs/substances are prohibited.

All mobile phones must be switched off while judging is taking place at your stand. BT takes no responsibility for mobile phones that are lost or stolen during the week of the exhibition.

Projects may not be dismantled or removed before Saturday 9th January at 5.30 p.m. to allow the public time to view your project. Early removal of projects could jeopardise your school's involvement in the project in future years.

Neat dress is essential. School uniforms must be worn during the week of the exhibition and at the Awards Ceremony.

Exhibiting students, or a nominated representative from the school, should be at their stand during the exhibition: Wednesday 6th - Saturday 9th January 9.30 a.m. - 5.30 p.m. However, the exhibiting students themselves must be at their stand for judging:

- Wednesday 6th January from 3.00 p.m. until your project has been judged.
- Thursday 7th January from 9.00 a.m. until your project has been judged. (Remember, your project will be judged twice on Thursday).
- Friday 8th January from 9.00 a.m. until your project has been judged.
- All participating students must attend the Awards Ceremony in the BT Arena at 5.30 p.m. on Friday 8th January.

- Be respectful and considerate to others at all times. Remember that you have been selected to represent your school and your region.
- The judges' decisions are final. Participating students, teachers and parents/guardians should be aware of the rules (found on page 30) and also the statements pertaining to plagiarism and ethics.

BTYSTE

RDS Primary Science Fair at the BT Young Scientist & Technology Exhibition 2016, and in Limerick too!

The RDS Primary Science Fair is an integral part of the exhibition, showcasing STEM projects (Science, Technology, Engineering and Mathematics) from primary schools classes around the country. In displaying their projects the Fair allows children to see what their peers have been up to, get feedback from the general public, as well as feedback from science experts.

Each year, 120 places are available to schools who would like to exhibit a class project at the Fair during the three public days, from 7 – 9 January. 4th, 5th, 6th and multigrade classes in the Republic of Ireland and Key Stage 2 years in Northern Ireland are eligible to participate. Due to overwhelming demand for places in the past number of years, this year the RDS Primary Science Fair will also be held in Limerick from January 15-16.

Schools are invited to submit an expression of interest using an online form at **www.rds.ie/primarysciencefair** in September 2015. The deadline for submitting an expression of interest is 3rd October, 2015 and schools will be notified of their allocation by mid- October. Students must work as a class under the supervision of their teacher on a project which should seek to pose and answer a question related to the primary science curriculum.

For further information

please visit
www.rds.ie/primarysciencefair

email
primarysciencefair@rds.ie

or telephone
01 2407 990

RDS

RDS PRIMARY SCIENCE FAIR

BT YOUNG SCIENTIST & TECHNOLOGY Exhibition

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RULES

Rules of Entry Applicable to the BT Young Scientist & Technology Exhibition 2016 (the "Exhibition")

The following rules are designed to ensure that the BT Young Scientist & Technology Exhibition is conducted as fairly and as efficiently as possible and are subject to change at any time at the sole discretion of BT. Infringement of any of the rules listed below may lead to exclusion of individuals or schools from present and/or future participation in the BT Young Scientist & Technology Exhibition. The decision of the judges in relation to any breach of the rules shall be final.

1. General rules

1.1 The BT Young Scientist & Technology Exhibition is organised and sponsored by BT Communications Ireland Limited whose decision on all matters relating to the Exhibition will be final.

1.2. A non–refundable entry fee of €20/£18 per student is required. Entries and all associated paperwork must be submitted on-line. Postal entries will not be considered.

1.2.1 A project will not be considered for judging unless payment has been made in full.

1.3. The closing date for receipt of on–line entries is Tuesday 29th of September 2015. Under no circumstances will late entries be accepted.

1.4. Second Level students aged between 12 –19 years on 31st October 2015, resident in any part of Ireland, are eligible to enter.

1.5. Students can only win the title BT Young Scientist(s) & Technologist of the Year once. Previous winners of the title are not eligible to re–enter the competition in subsequent years.

1.6. Projects that have been entered in other competitions can be accepted as entries to the BT Young Scientist & Technology Exhibition, provided that this information is stated in the relevant area on the entry form.

1.7. Submission of an entry will not ensure the acceptance of a project for the Exhibition. A panel of screening judges will select the projects to go forward to the RDS and their decisions are final.

1.8. Students educated at home in the Republic of Ireland, i.e. not attending a registered school or college, are eligible to enter, provided that they are registered with the National Education Welfare Board (Republic of Ireland) and supply a copy of the registration certificate with their entry form. Students from Northern Ireland in similar circumstances should telephone 0800 917 1297 for guidance.

1.9. Entries can be made in the following three age groups:

- Junior
- Intermediate
- Senior

Age group is determined by the year in which the student(s) is studying at the time of the Exhibition (January 2016) and as specified in page 10 of the Factfile.

1.10. Students attending Primary Schools or Third Level Colleges are NOT eligible to enter.

1.11. Projects can be submitted in one of the following four categories:-

1. Biological & Ecological Sciences
2. Chemical, Physical & Mathematical Sciences
3. Social & Behavioural Sciences
4. Technology

1.12. Where a student wrongly classifies a project, the judges will have the right to decide its appropriate classification.

Individual/group projects

Projects must be submitted as either an Individual or Group Project.

1.13. A student may only enter one project into the competition, whether they are entering as an individual or as part of a group.

1.14. Individual projects may be submitted in any one of the four categories specified at 1.11 above (see also Factfile page 11 section 'What to Enter') and once submitted cannot be re–classified as a Group Project. In addition, if a student enters an individual project which fails to qualify they are not eligible to transfer to a qualified group project at any time.

1.15. Group Projects may be submitted in any one of the four categories specified at 1.11 above. Groups will consist of either two or three members, where possible in the same age group (Junior, Intermediate or Senior), who must be from the same school. Once a project has been accepted as a Group Project and has qualified to compete in the RDS, it cannot be re–classified as an Individual Project. In cases where groups are constructed from students who are not in the same age group, the age category in which the project is entered must align with the age group of the oldest student.

1.16. Each group must appoint a group leader who will direct the work and later act as a spokesperson. All group members must be in attendance at the Exhibition and fully participate in judging interviews.

1.17. All members of a group should be fully involved, share the work and be familiar with everything that is presented in the report book and poster. The final work should reflect the co–ordinated efforts of all group members.

1.18. In exceptional circumstances groups may wish to decrease or increase the number of people participating in their accepted Group Project team. Any such proposed changes need to be submitted in writing to BT before the 1st December 2015 detailing the proposed change(s) and the exceptional circumstances necessitating them. Failure to do so will lead to the proposed changes being rejected and the project being judged in the original grouping in which it was entered. BT's decision as to whether such changes are acceptable will be final.

1.19. Students whose projects involve studies of live animals must ensure that such studies are carried out in accordance with the statutory regulations. Copies of the regulations are available from the Department of Health, Custom House, Dublin 1. Visit http://health.gov.ie/blog/statutory-instruments/european-communities-amendment-of-cruelty-to-animals-act-1876-regulations-2002/ also visit http://ec.europa.eu/food/fs/aw/aw_legislation/scientific/86-609-eec_en.pdf

1.20. The nature of a project will determine the equipment used in the project. The merit of a project will lie in the use made of scientific apparatus and in an exhibitor's understanding of its functions, not in the equipment itself.

1.21. Before a project involving potentially dangerous, pathogenic, toxigenic or allergenic organisms (animals/insects, plants or microorganisms) is undertaken/entered, a competent expert must be consulted to advise on health and safety issues. The potential use of any such organisms must be clearly identified on the Project Details Form, and the advice of the competent expert who has been consulted made available for review by BT on request. BT reserves the right at its sole discretion, to exclude any such projects from the Exhibition.

1.22. Projects involving the use of chemicals must list those to be used as part of the exhibit in the RDS in the Project Details form. BT reserves the right at its sole discretion, to exclude any such projects from the Exhibition.

1.23. It is expected that all or the majority of the work for a project will be conducted either in the school, home or the outside environment. Understandably, some projects may involve visiting distant locations. Students may seek advice or information about their project from sources beyond their school, such as on the 'web' or from government organisations, or from universities, institutes of technology or other experts. However, the majority of students' work should be conducted under the supervision of their relevant teachers, with, where appropriate, suitable levels of involvement by parents, guardians or other responsible adults. Where experimental /research work is conducted by the students themselves, or on their behalf, in a laboratory that is external to their school (e.g. in a local university, a hospital or an industry) then that work should be clearly identified and acknowledged within the project report book and presentation. In addition, it is a requirement that a cover letter from the external facility, describing the extent of the assistance provided and the work done by the students within that facility or undertaken on behalf of the student(s), will be included in the project report book.

1.24. A student may be part of only one project. If a student having entered a project has not qualified they cannot be added to a qualified group project at any time.

2. Qualified projects

Applicable only to projects qualifying to exhibit at the RDS

2.1. Some students who have had their project accepted for exhibition may find themselves unable to complete it. It is very important that the organisers are immediately notified of this. Failure to notify BT of a withdrawal in good time results in empty stands at the RDS and causes disappointment with both other students and the visiting public. If a project has to be withdrawn the organisers must be notified immediately by e–mail at youngscientist@bt.com. N.B. Schools failing to notify the organisers of a withdrawal in writing, a minimum of two weeks in advance of the Exhibition, will be liable to a penalty of €100.

2.2. Project content and material remains the property of the exhibitors but may be used by BT for exhibition or publication. If students have a project with elements that have commercial potential, it is recommended that they consider patent protection. Please see the BT Young Scientist & Technology Exhibition website and Factfile for further information on patents, as this process has been updated for the BT Young Scientist & Technology Exhibition 2016.

2.3. Projects shown at previous BT Young Scientist & Technology Exhibitions will not be accepted unless the project has undergone significant further development. Projects that represent a continuation of previously entered work in the BT Young Scientist & Technology Exhibition should have a significant amount of new material. Previously presented data must be clearly indicated as such in the report books and in the display.

2.4. The Overall BT Young Scientist(s) of the Year may not represent any other country or organisation in respect of this science/technology project until the following year's prizewinner(s) are announced. The BT Young Scientist(s) may not represent themselves as BT Young Scientists at any time without the prior written consent of BT.

2.5. The Overall BT Young Scientist(s) of the Year will be the only project that will be eligible to be entered by the National Organiser for Ireland in the EU Young Scientist competition each year.

2.6. The judges reserve the right to withhold awards in the event of projects not reaching a satisfactory standard.

2.7. If a project has not adhered to all the rules and regulations of this competition, the judges have the right to withhold awards or exclude the project at any stage during the judging process.

2.8. The judges' decision in all matters relating to the award of prizes will be final. BT and other sponsors will have no input into the judges' decisions.

3. Display of exhibits at the RDS

Refers only to projects that qualify to participate at the RDS

3.1. BT provides exhibition stands of uniform size and design. Exhibits must be within the limits of the stand dimension. Back display panel is 1189mm wide by 841mm high and the worktop is 1200mm wide by 600mm deep. Projects not conforming to this regulation size may be disqualified.

3.2. Exhibitors will be responsible for transporting their projects to and from the Exhibition hall within the time allocated and to supply all ancillary apparatus and mountings used for their display of their projects.

3.3. Exhibitors will be required to assemble their own projects in the RDS Main Hall within the time allocated.

3.4. BT will NOT accept responsibility for damage to, or loss of, exhibits or personal belongings. Exhibitors are advised to remove valuable equipment from unattended stands.

3.5. Exhibits MUST be safely designed and constructed and MUST NOT use as part of the display, any dangerous equipment or open flames, any toxic, flammable, explosive or irritant chemicals, or any pathogenic, toxigenic or allergenic organism (animals/insects, plant or microorganisms). Live mammals, birds, amphibians or reptiles MAY NOT be presented in exhibits.

3.6. Exhibitors are asked to refrain from using brand names of firms/sponsors in their display or in the title of their project. Reference to brands or firms must be confined to report books.

3.7. Exhibiting students must be present at their stands during all rounds of judging of projects at the RDS.

3.8. Exhibiting students must remain at their stands during the Exhibition to speak with the visiting public about their projects. They must not leave the RDS before 5.30 p.m. on any day of the Exhibition without prior arrangement with the Young Scientist organisers.

3.9. BT will NOT be responsible for any expenses incurred by the exhibitors in traveling to or from the Exhibition, or during their stay outside those offered in the Accommodation Grant Scheme.

3.10. Each exhibitor should write his/her name on all equipment, charts and report books.

3.11. BT will provide wireless Internet access only if specified on the Entry Form by closing date Tuesday 29th of September 2015. All usage costs for the duration of the week of the Exhibition may be charged to the student or school.

4. Grant scheme

4.1. The Accommodation Grant Scheme (the 'Grant Scheme') means the availability, subject to compliance with the rules contained herein and those generally applicable to the Exhibition, of grants of €150/£135 payable to a school in respect of each individual pupil project entry and grants of €300/£270 payable to a school in respect of each group project entry, subject always to a maximum aggregate grant payment under the Grant Scheme per school of €1,500/£1,350 (and subject to section 4.8 below). If the Fund is exceeded, the above payments will be made on a pro rata basis.

4.2. In order to be eligible for any grant under the Grant Scheme, a school must be located (i) in the Republic of Ireland or Northern Ireland, and (ii) more than 70 kilometres from the RDS Showgrounds in Ballsbridge, Dublin 4 (measured in accordance with the service on www.aaireland.ie/routes).

4.3. An application for a grant under the Grant Scheme from a school in respect of a project must be submitted by the teacher on behalf of the school (in the on-line Teacher Assessment Area) at the same time as submission of the application for entry of that project. In accordance with the general rules for submission of projects, application for all project entries must be received by BT on or before Tuesday 29th of September 2015. Late applications for grants will not be processed (save at the absolute discretion of BT). It is important therefore that all grant applications be returned by Tuesday 29th of September 2015.

4.4. The Grant Scheme only applies to the BT Young Scientist & Technology Exhibition 2016.

4.5. Eligibility of a school for consideration for any grant in respect of a project under this Grant Scheme is conditional upon that project entry application from that school for the Exhibition having successfully progressed through the Exhibition screening process and having qualified to take part in the finals of the Exhibition.

4.6. Any grant(s) paid to a school hereunder must be used entirely by the school to fund in whole or in part the travel and/or accommodation expenses only of those pupils in respect of whose project(s) the grant(s) was paid.

4.7. BT shall endeavour to pay grants awarded to schools in accordance with and subject to these rules on or before 15th January 2016 but BT shall have no liability for failure to pay any such grant on or before such date. In the event that a school has not received a grant payment, which it has been awarded by BT under these rules by such date, it should contact the BT Young Scientist Organisers' Office during the Exhibition or email a request for payment of same to: youngscientist@bt.com

4.8. Notwithstanding anything else stated herein, the Grant Scheme is subject always to a total limit on the amount of grants payable under the Grant Scheme of €75,000 (the 'Fund') and the Fund will be allocated on a pro rata basis to qualifying applicants of the scheme.

4.9. In the event that a project, in respect of which BT has either paid a grant to a school hereunder, or, confirmed to a school that a grant shall be paid to it hereunder, does not subsequently participate as

an entrant in the Exhibition for any reason whatsoever or howsoever arising, the grant shall be reimbursed by the school to BT within thirty (30) days of BT requesting reimbursement of same where the grant has already been paid, and the grant shall be deemed not payable where a grant has not yet been paid.

4.10. BT's decision on eligibility of a school or a project entry for a grant hereunder is final.

5. BT Young Scientist Business Bootcamps

5.1. If a project is to be included in these programmes then the student must indicate this by ticking the opt in box on the project details form. Failure to do this will mean exclusion of the projects from the Business Bootcamp programmes.

6. Prize money

6.1. Prize money will be paid by cheque to an individual or to the team leader and posted to the home address listed on BT's database. BT shall endeavour to pay prize money in accordance with and subject to these rules on or before 30th March 2016 but BT shall have no liability for failure to pay prize money on or before such date.

7. Intel travel awards

7.1. The winner(s) of the Intel Student and Intel Educator of Excellence Awards must confirm in writing to Intel their acceptance to attend ISEF in May 2016 by 31st January 2016, failure to do so will disqualify the winners from attending the event.

7.2. Under exceptional circumstances the judges will have the right to award an additional student award for ISEF in 2016 – this will be at the discretion of the judges and in consultation with Intel.

8. Print photography and film

8.1. The BT Young Scientist & Technology Exhibition will commission a photographer to take photographs of the BT Young Scientist & Technology Exhibition. BT retains the right to use any photograph taken of participants in the BT Young Scientist & Technology Exhibition.

8.2. Such photographs may be used on the BTYSTE website and for BT marketing purposes, without media, time, use or geographic limitation. Note BT is under no obligation to make use of any photographs taken.

8.3. BT also retains the right to publish information in regards to all projects entered into the BT Young Scientist & Technology Exhibition. Information relating to projects may be used on the BTYSTE website and for BT marketing purposes, without media, time, use or geographic limitation.

8.4. As media partner of the BT Young Scientist Exhibition, RTÉ will be at the event interviewing and filming footage for use on its broadcast channels, online, in social media and for marketing purposes. All successful candidates must complete an RTÉ release form prior to the event, with parental consent required in respect of minors under the age of 18.

8.5. For the avoidance of doubt, all students applying to enter the competition (or their lawful parents or guardians in respect of entrants under the age of 18) shall be deemed by virtue of the submission of an application and completion of the application process to have agreed to the use of photographs, project information, interview film and recording material, in the manner and for the purposes set out in clauses 8.1-8.4 above.

9. Intellectual property rights

9.1. BT may pass contact details of all qualified projects to The Patents Office. The Patents Office will mail individuals directly in relation to Intellectual Property Rights.

10. European Union Contest for Young Scientists (EUCYS)

10.1 The host country for EUCYS will pay the travel and accommodation expenses of contestants.

10.2 The host country for EUCYS will pay travel and accommodation expenses of one adult escorting person per country, for the Irish delegation this will be the Irish National Organiser, who is the head of the BT Young Scientist & Technology Exhibition. Any others that wish to travel to EUCYS will travel solely and fully at their own expense and this cannot be subsidised in anyway by BT.

BT YOUNG SCIENTIST & TECHNOLOGY Exhibition

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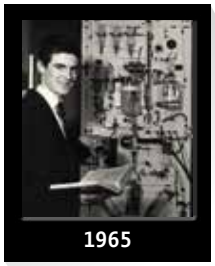
OVER FIFTY YEAR



1965

John Monahan

1966

Máire Caitríona Ní Dhomhnaill / Mary Finn

1967

Walter Hayes

1968

George Andrew Reynolds

1969

Luke Drury

1970

Maria Edgeworth

1971

Peter Short

1972

Seán Mac Fheorais

1973

Tadgh Begley

1983

William Murphy, Gareth Clarke, Turan Mirza

1984

Eoin Walsh

1985

Ronan McNulty

1986

Breda Maguire, Niamh Mulvaney

1987

Emma Donnellan, Henry Byrne

1988

Siobhan Lanigan O'Keeffe

1989

Grace O'Connor, Sinead Finn

1990

Anna Minchin-Dalton

1991

Barry O'Doherty, Daniel Dundas

2001

Shane Browne, Peter Taylor, Michael O'Toole

2002

David Michael O'Doherty

2003

Adnan Osmani

2004

Ronan Larkin

2005

Patrick Collison

2006

Aisling Judge

2007

Abdusalam Abubakar

2008

Emer Jones

2009

John D. O'Callaghan, Liam McCarthy

S OF INNOVATION

BT YOUNG SCIENTIST & TECHNOLOGY Exhibition

BT

Driven by innovation, delivered by BT

1974

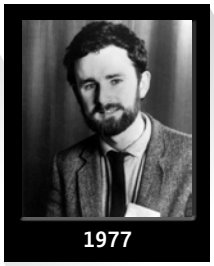
Richard Elliott

1975

Noel Boyle

1976

Mary Kelly-Quinn

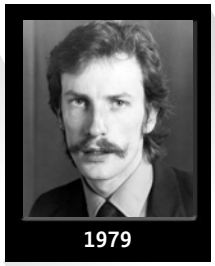


1977

Micheal Og O'Briain

1978

Donald P McDonnell



1979

Jervis Good

1980

Karen Ruddock

1981

Catherine Conlon

1982

Martynn Sheehan

1992

Elizabeth Dowling, Jean Byrne R.I.P.

1993

Donal Keane, Rodger Toner

1994

Jane Feehan

1995

Brian Fitzpatrick, Shane Markey

1996

Elsie O'Sullivan, Rowena Mooney, Patricia Lyle

1997

Ciara McGoldrick, Emma McQuillan, Fiona Fraser

1998

Raphael Hurley

1999

Sarah Flannery

2000

Thomas Gernon

2010

Richard O'Shea

2011

Alexander Amini

2012

Eric Doyle, Mark Kelly

2013

Ciara Judge, Emer Hickey, Sophie Healy-Thow

2014

Paul Clarke

2015

Ian O'Sullivan, Eimear Murphy

> **"One of the things that always strikes me when I come back is the creativity of young Irish students. It is really exceptional. It just creates an atmosphere of creativity and a little bit of competition. It allows students interested in science to get motivated and get involved at an early age."**
>
> JOHN MONAHAN
> **YOUNG SCIENTIST OF THE YEAR 1965**

BT YOUNG SCIENTIST & TECHNOLOGY Exhibition

Driven by innovation, delivered by BT

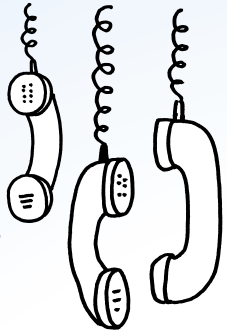
Ian O'Sullivan and Eimear Murphy from Kanturk, Co Cork
BT Young Scientist(s) & Technologist(s) of the Year 2015

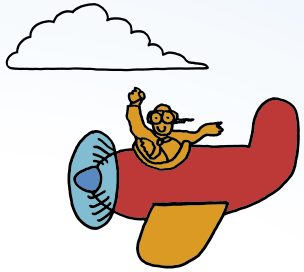
BTYSTE

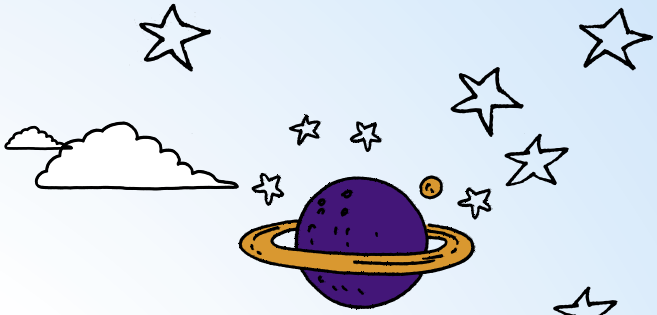

WELCOME FÁILTE
4,616
STUDENTS
2,077
PROJECTS
367
SCHOOLS
120+
AWARDS
60+
EXHIBITORS

BT

Bringing it all together





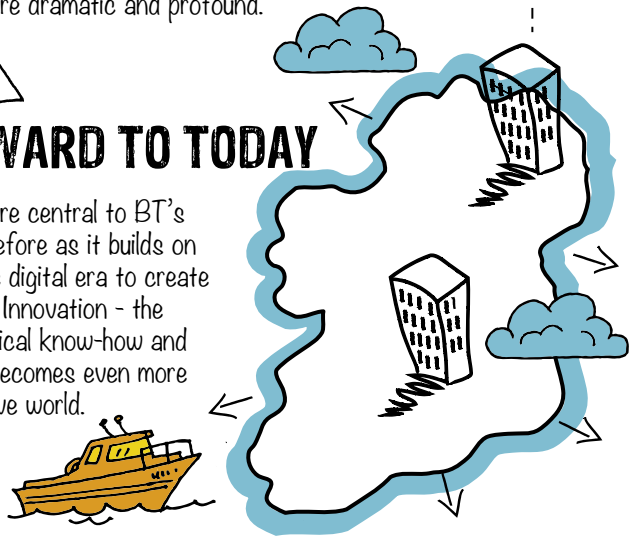


BT is the world's oldest communications company

with a direct line of descent from the first national telecommunications undertaking in the world. Incorporated in 1846, it was the first anywhere to develop a nationwide communications network exploiting leading edge telegraphy technology. Within ten years an international network had been developed, making communications possible within minutes and hours instead of days and weeks. The consequences for every aspect of society were dramatic and profound.

FAST FORWARD TO TODAY

and technology is more central to BT's business than ever before as it builds on the foundation of the digital era to create the information age. Innovation - the combination of technical know-how and commercial acumen becomes even more crucial in a competitive world.



BT has gone on to become one of the world's leading communications services companies.

Every day we touch the lives of thousands of people on the island of Ireland, helping them communicate, do business and be entertained and informed.

In Northern Ireland, we continually lead the way in bringing exciting new services to our customers - everything from TV to high speed fibre broadband to IT services for some of the largest organisations in the market.

IN THE REPUBLIC OF IRELAND, BT HAS GROWN FROM A CHALLENGER BRAND TO A HIGHLY SUCCESSFUL COMPANY WITH A BREADTH OF SERVICES THAT WE BELIEVE IS UNRIVALED.

We operate the 999/112 emergency call answering service on behalf of the Irish State, connect ATMs for banking institutions, build networks for other communications companies, process millions of transactions through our data centres, train thousands in our ICT Training Centre – and the list goes on.

IN 2013, BT LAUNCHED BT SPORT its very own TV sports channels, covering sports such as soccer, rugby, motorsport and more. Irish rugby legend Brian O'Driscoll joined BT Sport as a rugby presenter in 2014.

AND THEN THERE IS...

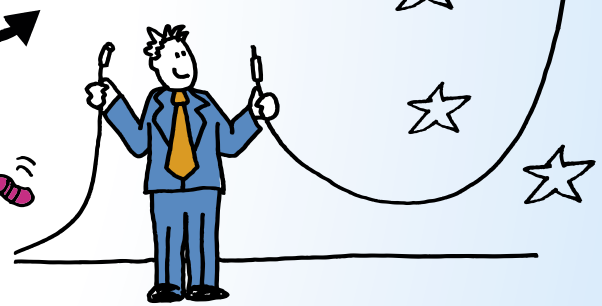
Our role in the community

We're committed to using the power of communications to create a better future – from connecting people digitally, to making sure BT does more environmental good than harm, to using our skills and technology to support good causes.

OVER THE PAST YEAR, BT VOLUNTEERS SPENT **1,500 WORK DAYS** SUPPORTING COMMUNITIES AND CHARITIES, ACROSS THE ISLAND OF IRELAND.

Our biggest event is the **BT Young Scientist and Technology Exhibition**, which we've been proud to organise for the past 16 years.

Find out more at
www.btplc.com/betterfuture
and www.btireland.com



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