



**BT YOUNG SCIENTIST
& TECHNOLOGY Exhibition**



Driven by innovation, delivered by BT



BT YOUNG SCIENTIST & TECHNOLOGY EXHIBITION

FACTFILE

Will you be taking part?

#CreateTodayShapeTomorrow

Check out some of our videos on the links below



BTYSTE 2019 highlights



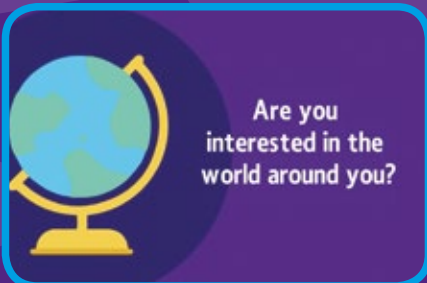
<http://www.youtube.com/embed/I5avDe4GAfk>



BTYSTE – What is it?



<http://www.youtube.com/embed/tF403KKHb88>



Why you should enter



http://www.youtube.com/embed/pkB_dM67XzA

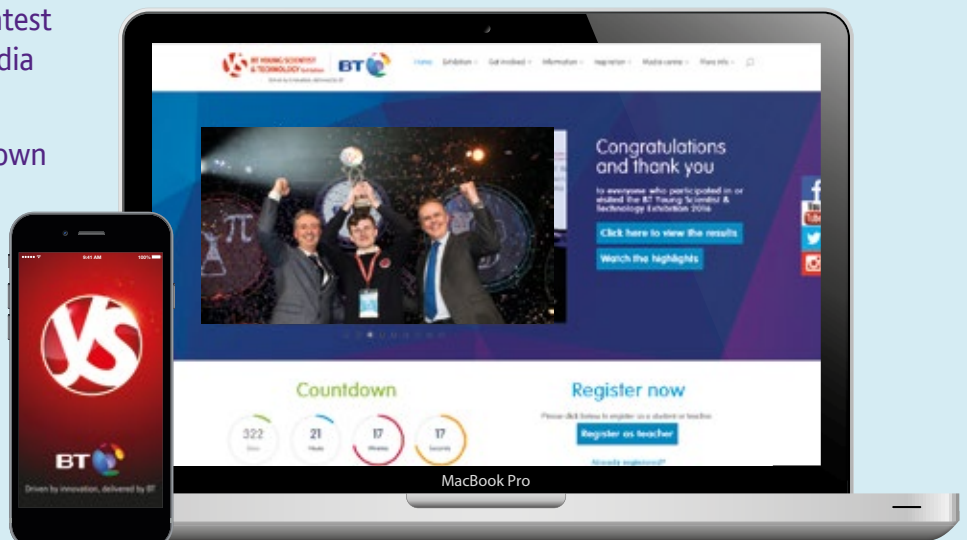
We have additional videos on our website <http://btyoungscientist.com/video-archive> and on our YouTube channel <https://www.youtube.com/user/BTYoungScientists>

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

You can enter online, check out the latest news stories and access our social media channels through our website.

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

So check it out at www.btyoungscientist.com





Will you be part of it?

#CreateTodayShapeTomorrow

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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**

Email: youngscientist@bt.com

Visit our website at: www.btyoungscientist.com

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A message from

Shay Walsh

Ireland's national celebration of science and technology returns to the RDS this January and I sincerely hope that you and your school are going to join us for this incredible event. Now in its 56th year, the BT Young Scientist & Technology Exhibition to this day remains the most popular and most highly regarded science event in the country, welcoming 50,000 visitors over three days every January.

The 2020 BTYSTE is an extra special year for us at BT Ireland because it marks our 20th year as organiser and lead sponsor of the Exhibition. I have been privileged enough to have been part of this journey spanning two decades and to have seen first-hand the incredible number of talented young students who have achieved huge success after entering a project in the BTYSTE.

What is even more special is that many of our alumni return year after year to support the new participating students, to offer advice, to volunteer or to even become judges themselves. This includes John Monahan, the first ever young scientist winner in 1965 who, despite living in the United States returns every year to help judge the Exhibition.



We are a family, united in our mission to bring the world of science and technology alive to people everywhere and to shine a light on the creative and talented young people in our schools across the country. Our mission is for every school in the country to either visit the Exhibition or get involved by entering a project either as a group or individually.

In doing so, we're showcasing the wealth of talent coming through our school system by giving them a platform to shine and hopefully put them on the path to future success.

More than anything however, the BTYSTE is about fun learning, broadening horizons and making new friends for life along the way. So as teachers, I would ask you to please encourage your students to enter a project and to support them this year. With over 200 student and teacher awards to be won, there are so many opportunities 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 this January.

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. It 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 strategic partners and sponsors including the Department of Education and Skills in the Republic of Ireland, the Department of Education in Northern Ireland, Analog Devices, Cisco, Perrigo and RTE.

I wish you all the very best of luck with your projects and we look forward to receiving your entries over the coming weeks.



Shay Walsh
Managing Director, BT Ireland

**Proud sponsor and organiser of the
BT Young Scientist & Technology Exhibition**

Teachtaireacht ó Shay Walsh, Stiúrthóir Bainistíochta, BT Ireland Eagraí bródúil Taispeántas Eolaí Óg & Teicneolaíochta BT

Tá ceiliúradh náisiúnta na hÉireann ar an eolaíocht agus ar an teicneolaíocht ag teacht ar ais go dtí an RDS i mí Eanáir agus tá súil agam go mbeidh tú féin agus do scoil ann linn le haghaidh na hócáide dochreidte seo. Is í seo an 56ú bliain den taispeántas a bheith ann, agus fós, sa lá atá inniu ann, is í Taispeántas Eolaí Óg agus Teicneolaíochta BT an ócáid eolaíochta is mó tóir agus is mó meas sa tír, ina dtugtar fáilte roimh 50,000 cuairteoir thar thréimhse trí lá i mí Eanáir gach uile bhliain.

Is bliain speisialta ar leith í BTYSTE 2020 dúinn ag BT Ireland toisc gurb í an comóradh 20 bliain dúinn a bheith mar eagraí agus mar phríomhurrathitheoir ar an Taispeántas. Bhí sé de phribhléid agam páirt a ghlacadh ar chuid den aistear seo a théann siar scór bliain agus a fheiceáil dom féin an líon dochreidte de dhaltáí óga a bhfuil an-rath tagtha orthu tar éis dóibh tionscadal a chur isteach sa BTYSTE.

Is éard atá níos speisialta ná sin fiú ná go dtagann cuid mhaith do na daltaí ar ais bliain i ndiaidh bliana chun tacú leis na daltaí nua atá ag glacadh páirte ann, chun comhairle a thabhairt dóibh, chun obair dheonach a dhéanamh, nó fiú le bheith ina mbreithiúna ar an gcomórtas iad féin. I measc na daoine sin, áirítear John Monahan, an chéad eolaí óg riamh ar éirigh leis an bua a fháil sa taispeántas, in 1965, agus a thagann ar ais gach uile bhliain, in ainneoin go bhfuil sé ina chónaí sna Stáit Aontaithe, chun cuidiú leis an meastóireacht ar an Taispeántas.

Is teaghlach muid, teaghlach atá aontaithe tríd an misean atá againn chun saol na heolaíochta agus na teicneolaíochta a chur ina beo do dhaoine i ngach uile áit agus chun aird a tharraingt ar na daoine óga cruthaitheacha agus cumasacha sin atá inár scoileanna ar fud na tíre. Is é an misean atá againn ná go dtabharfaidh gach aon scoil sa tír cuairt ar an Taispeántas nó go nglacfaidís páirt i dtionscadal, bíodh sé sin mar ghrúpa nó ina n-aonar.

Agus é sin á dhéanamh againn, tá an raidhse tallainne atá ag teacht tríd an gcóras scoile againn á taispeáint againn trí ardán a chur ar fáil dóibh chun barr a gcumas a bhaint amach agus, le cúnamh Dé, iad a chur ar an mbealach chun rath a bhaint amach sa todhchaí.

Thar aon ní eile, áfach, is éard atá i gceist leis an BTYSTE ná an fhoghlaím spráilúil agus an leathnú dearcaidh i dtimpeallacht ina bhfaightear cairde nua a bheidh agat as seo amach. Agus mar sin iarraimse oraibh, mar mhúinteoirí, bhur ndaltaí a spreagadh chun tionscadal a chur isteach agus tacú leo i mbliana. Agus breis is 200 dámhachtain dhaltáí agus mhúinteora le buachan, tá an oiread sin deiseanna ann chun an rath a bhaint amach agus, ar a laghad, ach amháin páirt a ghlacadh, tapófar an deis chun ionadaíocht a dhéanamh ar son do scoil agus do phobal féin san RDS i mBaile Átha Cliath, mí Eanáir seo chugainn.

Beidh tú in ann teacht ar gach rud atá de dhíth a bheith eolach fúthu faoi conas dul isteach sa taispeántas i mbliana sa chomhad fíricí seo, chomh maith leis an bhfáth ar chóir duit féin agus do scoil a bheith páirteach ann. Cuirfear gach a dteastaíonn uait ar fáil duit ann, chomh maith le leideanna agus comhairle chuiditheach, lena n-áirítear sonraí faoi phacáiste airgeadais atá curtha ar fáil againn chun tacú leo siúd atá ina gcónaí achar ar leith ón ionad taispeántais i mBaile Átha Cliath.

Mar fhocal scoir, ní fhéadfaimis in BT taispeántas ar an scála seo a sheachadadh gan an tacaíocht a fhaighimid ónár gcomhpháirtithe straitéiseacha agus ónár n-urrathitheoirí, lena n-áirítear an Roinn Oideachais agus Scileanna i bPoblacht na hÉireann, an Roinn Oideachais i dTuaisceart Éireann, Analog Devices, Cisco, Perrigo agus RTÉ.

Guím gach rath oraibh agus ar bhur dtionscadail agus táimid ag tnúth go mór le bhur gcuid iontrálacha a fháil sna seachtainí atá amach romhainn.

Shay



A Message from **Joe McHugh TD** Minister for Education and Skills

It is an honour to be Minister for Education and Skills and to have the opportunity to introduce the 2020 BT Young Scientist and Technology Exhibition. This is the longest running Science Fair in Europe and one which is only going from strength to strength.

Since 1965, 200,000 students with 90,000 individual projects have put an astounding level of innovation and dedication into the competition. The range and scale of talent is phenomenal.

After almost one year as Minister it stands out for me as one of the most inspiring and impressive events that I have seen students engage in. Their passion is infectious.

I was delighted to get the chance to speak to so many articulate and talented young people who explained their projects with confidence and enthusiasm.

The BT Young Scientist and Technology Exhibition is a credit to the organisers, sponsors, teachers, parents and students, so much so that it's evident that it has become an integral date in the calendar for schools across the country.

Teachers are key to its success. Their work in the classroom drives the importance of the exhibition and the creativity that empowers students.

The exhibition is a partnership between students and teachers. This is one of its most positive aspects. While the students rightly get most of the plaudits and public attention, we also owe a debt of gratitude to teachers who guide and encourage them.

And let's not forget the role of the mothers, fathers and families. Their dedication to their children's education and the constant support they provide is vital.

The 2020 exhibition is in the diary. I am sure there will be the same desire from students to tackle the big issues in society like climate change, health and fitness, gender equality, the next tech solution and ethics.

It is crucial that our students have a chance to put their ideas on the agenda and the exhibition is one of the best places to make their voices heard.

Those months of preparation and the few days in the RDS every January are a superb platform for students to explore research, discovery and critical thinking which can only inspire creative and inventive projects. It is a celebration of science and innovation and I've no doubt the 56th exhibition will be as memorable as ever.

Is onóir dom bheith mar an tAire Oideachais agus Scileanna agus an deis a bheith agam Taispeántas Eolaithe Óga agus Teicneolaíochta BT 2020 a chur i láthair. Seo an tAonach Eolaíochta is faide atá ar siúl san Eoraip agus tá sé ag dul ó neart go neart gach bliain.

Ón mbliain 1965, léirigh 200,000 dalta a thug faoi 90,000 tionscadal ar leith leibhéal dochreidte de nuálaíocht agus de thiomantas sa chomórtas. Tá réimse agus scála na tallainne dochreidte.

I ndiaidh beagnach bliain amháin mar Aire, tá an t-imeacht ar cheann de na himeachtaí is spreagúla agus is iontaí dom ina nglacann daltaí páirt. Téann a bpaisean go mór i gcion orm.

Bhí gliondar croí orm an deis a fháil chun labhairt leis an oiread sin daoine óga deaslabhartha agus ildánacha a thug míniú dom ar a dtionscadail le muinín agus díograis.

Ní féidir Taispeántas Eolaithe Óga agus Teicneolaíochta BT a chur ar siúl murach na heagraithe, na hurraitheoirí, na múinteoirí, na tuismitheoirí agus na daltaí agus, mar gheall ar obair dhian na ndaoine seo, breactar síos an t-imeacht ar an bhféilire do scoileanna ar fud na tíre.

Bíonn baint lárnach ag múinteoirí sa rath a bhíonn ar an taispeántas. Déanann an obair a dhéanann siad sa seomra ranga tábhacht an taispeántais agus an chruthaitheacht a chumasaíonn daltaí a chur chun cinn.

Comhpháirtíocht atá sa taispeántas idir daltaí agus múinteoirí. Tá seo ar cheann de na gnéithe is dearfaí den taispeántas. Cé go dtugtar an chuid is mó den mholadh agus d'aird an phobail do na daltaí, mar is ceart, tá ár mbuíochoas le cur in iúl freisin do na múinteoirí a dhéanann na daltaí a threorú agus a spreagadh.

Agus ná déanaí dearmad ar ról na máithreacha, na n-aithreacha agus na dteaghlach. Baineann ríthábhacht lena dtiomantas d'oidreachas a leanai agus don tacaíocht sheasta a thugann siad.

Tá taispeántas 2020 breactha sa dialann. Táim cinnte go mbeidh an fonn céanna ar na daltaí chun dul i ngleic leis na saincheistanna móra sa tsochaí cosúil le hathrú aeráide, sláinte agus corpachhainn, comhionannas inscne, an chéad réiteach teicneolaíochta eile agus eitic.

Tá sé ríthábhachtach go mbíonn deis ag ár ndaltaí chun a smaointe a chur leis an gclár agus tá an taispeántas ar cheann de na háiteanna is fearr a n-éistfear lena nglórtha.

Ardán iontach iad na míonna siúd a chaitear ag ullmhú agus an cúpla lá a chaitear san RDS gach Eanáir do dháltaí chun taighde, fionnachtain agus smaointeoireacht chriticiúil a fhiosrú agus caithfidh go ndéanann é seo tionscadail chruthaitheacha agus airgtheacha a spreagadh. Ceiliúradh atá sa taispeántas ar an eolaíocht agus an nuálaíocht agus níl amhras ar bith orm go mbeidh an 56ú taispeántas chomh speisialta céanna.



A Message from Derek Baker

Permanent Secretary, Department of Education

As Permanent Secretary of the Department of Education in Northern Ireland, it was a pleasure to have the opportunity to once again attend the BT Young Scientist & Technology Exhibition at the RDS in January.

Over the past couple of years, I have seen for myself just how BTYSTE provides a fantastic opportunity for our young people to develop their interest in STEM subjects and compete at the highest level. It allows participants to collaborate with their peers and demonstrate their creativity, problem solving and team working – skills which are highly sought after by employers.

Developing the knowledge and skills of our current and future workforce is more important to our future economic growth and prosperity than ever before. It is vital that we promote STEM courses from an early age so that young people can take advantage of growing job opportunities in these fields and help drive the NI economy.

Over the years, NI entrants have enjoyed considerable success at the Exhibition and this year was no exception – but everyone who goes is a winner. I look forward to seeing yet more exciting projects translate into awards on the RDS stage, offering exciting career opportunities for the winners and the potential for scientific advances of benefit to society as a whole.

I hope to see more NI schools and colleges get involved and am delighted to see teachers get the recognition they deserve at BTYSTE for inspiring their students and showcasing their school's scientific strengths.

I wish all the participating young scientists, technologists and innovators (and their teachers) every success for 2020.

I have seen for myself just how
BTYSTE provides a fantastic
opportunity for our young people
to develop their interest in STEM
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BT Young Scientist & Technology Exhibition 2019



Best Overall School from Northern Ireland Award
South Eastern Regional College, Co Antrim



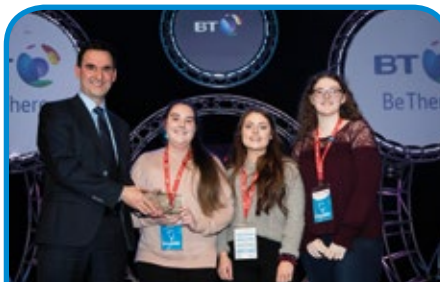
BT Best Project in Irish – Oisín Ó Fearáin,
Colaiste Ailigh, Letterkenny, Co Donegal



Analog Devices™ Best Technology Project –
Alice Shaughnessy, Calasancius College, Galway



Best Republic of Ireland School Award
St Andrew's College, Dublin



BT – Northern Ireland Best Project
Izzy McConkey, Kerri-Melissa Burns, Sarah Scannell



Perrigo Best Biological and Ecological Project –
Yasmin Ryan, St Andrew's College, Co Dublin

How it began

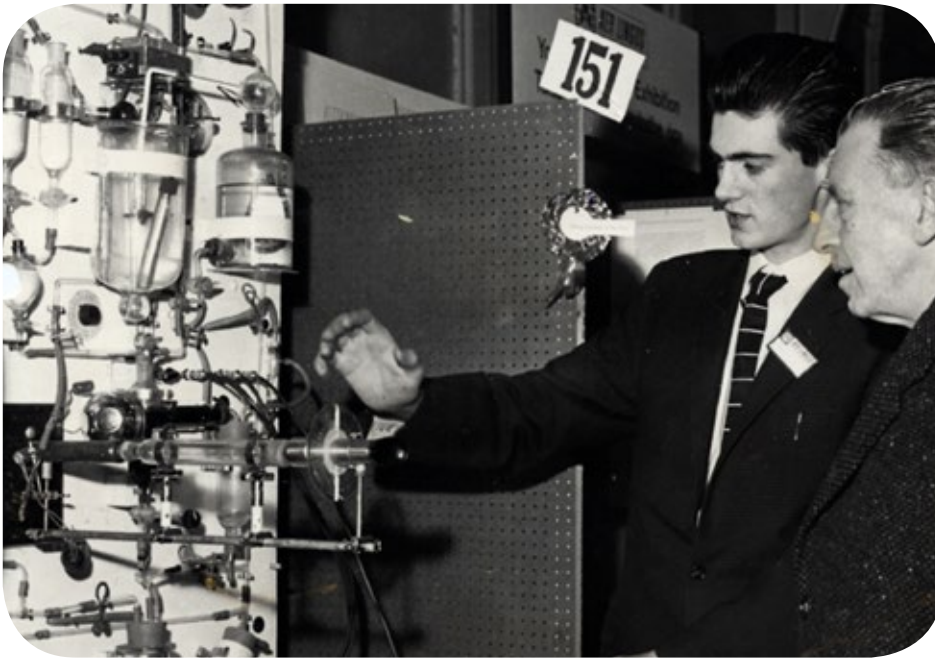
The BT Young Scientist & Technology Exhibition is the brainchild of two UCD physics researchers, a Carmelite priest, the Rev Dr Burke, and Dr Tony Scott. In 1963 these two atmospheric physicists discovered the concept of 'science fairs' while conducting research in Socorro, New Mexico, USA. The local 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 us.

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. 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 student competitors, but in 1976 groups were introduced for the first time. Many more developments have happened over the fascinating 56 year history of this national institution, a few key milestones are listed opposite.

- 1963** The concept was born at a science fair in New Mexico, USA
- 1965** First ever Young Scientist exhibition was held at the Mansion House
- 1972** Schools from Northern Ireland participated for the first time
- 1976** Group projects introduced for the first time
- 1977** New range of categories introduced for projects
- 1983** Participated in International Science & Engineering Fair for the first time
- 1989** First year of the European Union Contest for Young Scientists (EUCYS), which Ireland has won 14 times!
- 2002** First year of the Primary Science Fair
- 2010** New BT Business Bootcamp launched
- 2014** 50th anniversary of the Young Scientist & Technology Exhibition
- 2019** 3,773 students from 374 schools entered projects for the 2019 BT Young Scientist & Technology Exhibition
- 2020** The exhibition will celebrate its 56th year, making it one of the longest standing exhibitions of its kind in the world, and BT's 20th year as sponsor and organiser.





Awards

Main awards

BT Young Scientist & Technologist(s)
of the Year 2020

Individual or Group

- BT Young Scientist(s) of the Year Trophy (perpetual)
- Cheque for €7,500 / £6,750
- 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 BT Young Scientist & Technologist of the Year is awarded to an Individual, a Best Group Award will also be made.

If the BT Young Scientist of the Year is awarded to a Group, a Best Individual Award will also 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:



Technology

e.g. communications, electronic systems, robotics, computing, control technology, applications of technology, biotechnology, automation.



Biological & Ecological Sciences

e.g. agriculture, anatomy, biochemistry, biotechnology, ecology, horticulture, physiology, medical science, veterinary science.



Social & Behavioural Sciences

e.g. economic, geographical, psychological or sociological studies of human behaviour, nutrition, social anthropology, political science.



Chemical, Physical & Mathematical Sciences

e.g. chemistry, physics, mathematics, applied mathematics, geology, engineering, computer programming, meteorology, astronomy.

The prizes are:

1st prize €300 / £270

for both Individual and Group projects

2nd prize €225 / £202

for both Individual and Group projects

3rd prize €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.

Gold Partner awards

Student awards

Analog Devices Student Award

Analog will present an award in the Technology 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. 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*.

Perrigo Student Award

Perrigo will present 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 present 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.

CISCO Student Award

An award will be presented in the Chemical, Physical and Mathematical category to the best placed project, either group or individual, except where the project has been selected as the BT Young Scientist & Technologist(s) of the year.

*Analog Devices will contact winner with details, terms and conditions.

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 a bursary of €2,000 and an Analog Trophy.

Perrigo Educator of Excellence - Biological and Ecological Sciences

The winner receives a bursary of €2,000 and a Perrigo Trophy.

BT Educator of Excellence - Chemical, Physical & Mathematical Sciences

The winner receives a bursary of €2,000 and a BT trophy.

BT Educator of Excellence - Social and Behavioural Sciences

The winner receives a bursary of €2,000 and a BT Trophy.



Rev 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 to be the best communicator. This will be paid on application 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.

Special awards

We are 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 with 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 the awards can be found on the Awards section of our website www.btyoungscientist.com

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**:



Closing date for students
**24th Sept. 2019
by midnight**



Closing date for teacher
assessments
25th Sept. 2019 by 5pm



BTYSTE 2020
RDS, Dublin
8th – 11th January

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 2019. Please note, students cannot enter if they are due to start University in September.



*A group is defined as comprising of no more than three people from the same school and the same age grouping. If a group is made up of students in different years, these students should be entered into the oldest member's group i.e. If a student in 4th year/Year 12 partners up with a student in 5th year/Year 13 this group should be entered into the Senior category.

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



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**.



Getting the chance to represent your school/town at the exhibition is a real buzz and an experience you will never forget.

Plus, if you're lucky enough to win, you'll go on to represent the competition at the European Union Contest for Young Scientists.



Although a love for science and technology lies at the heart of all the entries, we're sure everyone also has an eye on the prizes!

There are over 140 prizes to be won, including the prestigious BT Young Scientist & Technologist of the Year Award which comes with a cash prize of €7,500.



It's a brilliant extra-curricular activity to put on your CV or university application.

It shows a real passion for science, maths, an ability to think for yourself along with time management and communication skills.



The rewards aren't just confined to entrants. Teachers will also see real, long-term benefits by getting involved.

It's a great way to get pupils fired up about the vital subjects of science and technology and a brilliant way to showcase your school's scientific pedigree. It also helps to inject a fun element into traditionally 'serious' subjects like science and maths.

Getting started

To help you decide on a topic, think about what you would like to study. Ideas might come from hobbies or perhaps problems you have observed that need a solution.

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.

Questioning usually leads to observations or experiments.



Initial research

Visit your 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.

Which 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).



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 or perception. The study of attitudes and behaviour in relation to health, nutrition, work, leisure and living habits will also be considered. Projects on consumer affairs, effects on society, social anthropology and political science, provided they involve the use of scientific methods, 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.



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.

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.



10 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 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. All too often students write that they will gather this information via questionnaire. This only allows them to collect attitudes and opinions about the most effective washing powder, but what is really required for a scientific study is a chemical experiment.



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 of industrial activity on wildlife 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.



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.



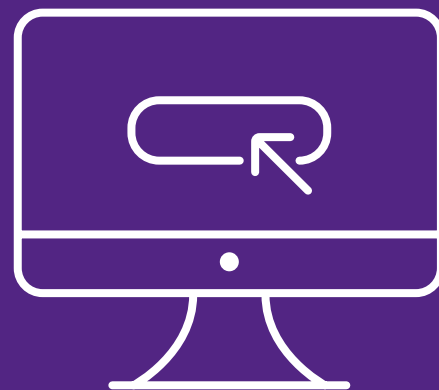
10 Investigation period

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.

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.

Online application



You must include:



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 accurately reflect 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.



Project details form (completed by students)

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



One page proposal (completed by students)

This very important document 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 and examples can be found online at <http://btyoungscientist.com/submission-process/>



Entry fee

An entry fee of €20/ £18 per student is preferably payable online by credit or debit card but can also be paid by cheque/ bank draft or postal order. Cash will not be accepted. Results of the project screening phase will not be released without full payment being made.



Teacher assessment form (completed by teachers)

This needs to be completed online by teachers by **Wednesday 25th 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 19).

Already entered a science or technology competition?

If your students have already completed projects in another science/technology/innovation/entrepreneurship competition, why not get some more mileage from them and enter the BT Young Scientist & Technology Exhibition?

Who knows? You could already have the winning project.

All you have to do is tick the appropriate box on your Entry Form for Projects.

Good luck!





Funding

Accommodation grant scheme

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

This grant scheme underlines BT's commitment to making the exhibition accessible to schools from 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

For full terms and conditions, see the Rules section on page 38, 4.1 – 4.9.

To be considered for the grant scheme please check the appropriate box in the teachers' area of the online application. Grants will not be awarded unless they are applied for at the time of entry.

*as measured by www.aaireland.ie/routes_beta/

**70 km
(44 miles)***

or more from the
RDS Showgrounds,
Ballsbridge,
Dublin 4

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 attending and taking part. A few fundraising ideas we know have worked for many schools over the years include sponsored walks, car boot sales etc.

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 2020. 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 enormous, unmanageable, and overwhelming time commitment required. And it is exactly that - a misconception.

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

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



Closing date for students

Required:

- One page proposal, entry form for projects & project details form (completed by the student)



Closing date for teachers

Required:

- Teacher assessment form (completed by the teacher)
- Entry fee (€20 / £18)



Beginning of November - Results published

This is when you find out if your school projects have made it through to the final exhibition.

Completed confirmation forms should be returned by 8th November 2019



8th - 11th January 2020 The Exhibition

Required:

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

That’s 14 whole weeks to get projects ready for the exhibition in January!



What happens next?

Your entry is considered by a panel of screening judges who carefully consider every project. Following their decision, you will be informed whether or not your project has qualified. The judges may also request further information at this stage. This screening process should take around four weeks to complete, so please be patient.

QUALIFIED

Teachers will receive an email confirming that the judges have accepted the project. This will also contain more details of the exhibition. Results will also be posted to the home address of the lead student alongside entry forms which must be completed to accept your place.

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.

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 non-qualification 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 code for a complimentary family pass to admit two adults and up to two students to the BT Young Scientist & Technology Exhibition 2020.

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.

Good scientists use a process to study what they see in the world.

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. By following the six stages listed below, you should be able to produce a superior scientific project.



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



Data collection

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, photographs and maps.

2 Observations

This is one of the primary methods of collecting data, but care must always be taken to ensure that the data is 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

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.

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.

Random sampling

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

Case studies

These 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.

Stratified sampling

The idea of using groups or classes within the population being analysed.

Quota sampling

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.

Systematic sampling

A systematic sample takes every "nth" member from a population.

Guidelines on statistics

What techniques can you use to analyse data?

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 could try to explain patterns which emerge, using comparison techniques

These techniques are widely used to compare variables.

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

Significance tests are used to make sure that results from comparing data sets are not the result of chance.

Important information

please read carefully

.....

Plagiarism

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

You must give credit to sources whenever you use:



another person's idea, opinion, or theory



quotations of another person's actual spoken or written words



any facts, statistics, graphs, drawings or any piece of information that is not common knowledge



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 (see Rule 1.13 on Page 38).

.....

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 in their research is always fully justified and if so, there is a duty to protect the wellbeing, dignity and privacy of those individuals. The welfare of any animals 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 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 an 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, e.g. at BTYST. 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 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 Patents 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 the grant phase.
- The optional, but advisable, patent attorney fees can add up considerably (these fees are usually thousands, rather than hundreds). Invention disclosure forms can help reduce these costs.

More information - www.patentsoffice.ie

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, 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 their behalf, will be included in the project report book.



GAISCE The President's Award

Put your BTYSTE project work towards a Gaisce Award!

The BT Young Scientist & Technology Exhibition is an official Gaisce Challenge Partner. Are you over 15 and taking part in BTYSTE this year? Does your school, or an organisation you're involved with, offer Gaisce – The President's Award?

Make the most of your BTYSTE project work by putting it towards the Personal Skills challenge area, one of four areas you will undertake as part of the Gaisce programme.

Gaisce is a personal development programme for young people aged 15–25 that encourages you to find your passion, get active and make a difference in your community!

For further information

visit www.gaisce.ie/btyste or ask the President's Award Leader (PAL) at your school.



Your project

The THREE main elements

When waiting to hear if your project has qualified it is important to continue working on your project.

Every project will have three elements:

Project Diary



All entries **must** keep a diary which should contain:

day-to-day records of how the project is progressing, a full record of the names of sources you have looked up and all the people/institutions you have contacted. Record everything in your diary and use it as an information store for writing your report. You can write personal comments about how your project is progressing.

If you are working as a group, appoint a leader who should keep all relevant information and appoint a group member to keep the diary.

Visual Display



Your display is 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 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, you cannot place any parts of your display on the floor in front of your stand for health and safety reasons. The dimensions of the display stand are as follows:

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

When finalising the planning of your display, ask yourself: Will the judges/visitors be able to move 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?



Project Report Book



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

- **Title page**

This contains the names of the project, school and student(s).

- **Comments page**

A page which may be signed by a judge.

- **Contents page**

Includes the sections and page numbers of the report.

- **Summary/Abstract**

Essential part of your project. It should be about two pages long and include a short summary of your project.

When 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 surveys, experiments, 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**

Comment on the results of your work in this unit, be CLEAR and CONCISE.

How...

..does your work compare with existing theories?

..accurate is the data you got from your study?

..might your work be extended and improved?

What...

..are the strong and weak points of your methods?

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/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 will 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. You will need to have two copies of your report book, one for the judges and the other on display at your stand.

Your project

Helpful hints for a good display

1. A good title

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

2. Take photographs

Many projects involve elements that may not be safely exhibited at the exhibition, but are an important part of the project. 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 use of colour 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. 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!



Student display board dimensions

1189mm wide x 841mm high

NB. Table top is curved maximum depth 600mm as indicated. Your charts or other display material should fit within your project space, you cannot place any parts of your display on the floor in front of your stand for health and safety reasons.



Carrying out the work

You now know what the project requires, here are some guidelines on carrying out the work involved.

Before you go any further ask yourself these simple questions:

- 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 dedicated thought and experimentation.

Read background material and literature

The advice 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. 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.

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?

At the exhibition



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



After registration, security will allow you to bring bulky projects into the exhibition.



Set up your project in the space provided. Make sure you bring everything you need to display your project e.g. sticky tape, scissors, stapler etc.



Security will not allow anyone to gain entrance without an exhibition ID pass.



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

Judging

Your project will be judged at least three times by three different judges, once on Wednesday, twice on Thursday and finally on Friday.

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 reassign your project to another category during assessment at the exhibition.



Remember

Your project will be part of the exhibition until it closes at 5.30 p.m. on Saturday 11th January 2020. Projects may not be removed before this time and 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 have one representative of your team/school present at all times while the exhibition is open to the general public.

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



Preparing for the judging

Judges look for well thought out research. They look at how significant your project is within its field, and how thorough your research was. 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 also look for:

- Creative ability
- Thoroughness
- Clarity
- Scientific thinking and approach
- Skill
- Teamwork

Judges focus on:

- How well you followed 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

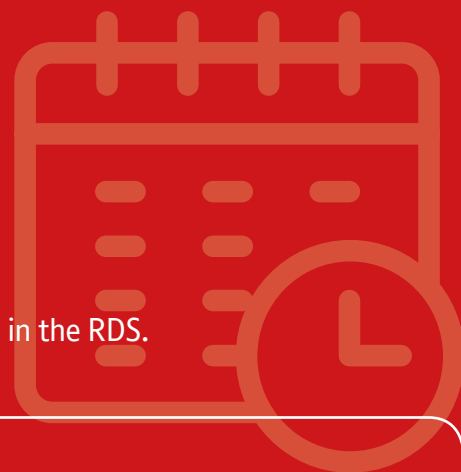
Tips from the judges:

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 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 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 accurately reflect the aims of the project.**
- 7 Be original.**
Make your project stands out from the crowd by giving 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 benefit you when judging takes place.

Timetable of activities

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



Tuesday 7 January

2.00 p.m. – 7.00 p.m.	Registration and setting up of Dublin projects only
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Wednesday 8 January

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

Thursday 9 January

9.00 a.m. – 1.30 p.m.	Second round of judging
9.30 a.m. – 5.30 p.m.	Doors open to Primary Science groups, 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

Friday 10 January

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

Saturday 11 January

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 11th January.**

Information for teachers

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

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 encourage them to enter the 2021 competition? More information will be sent to schools in October/November with regard to booking school visits. Early booking is advisable.

Withdrawal of qualified projects

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 via the contact details below.

Teacher facilities at the exhibition

When you arrive at the RDS, register with the BT team at the Teachers' Desk where 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. Parents and students are not permitted in the teacher area.

Please note that students must not take down their project or leave the hall before 5.30 p.m. on Saturday 11th January 2020 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 so that the change may be recorded, by 16th December 2019. If the teacher's name is not on the registered teacher list, they will not be permitted entry to the exhibition.

Judging

Judging will commence on Wednesday 8th January 2020 from 3.00p.m. and will continue all day Thursday. Final judging will be completed on Friday morning.

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. Just call our freephone helpdesk - we will be happy to answer any questions and put you in touch with other teachers who have experienced the 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.

Freephone **1800 924 362** from the Republic of Ireland
or **0800 917 1297** from Northern Ireland
or email: youngscientist@bt.com



Information for parents and guardians

Your child will need your support over the coming months as they plan and prepare their project.



Where

Royal Dublin Society (RDS),
Ballsbridge, Dublin 4



When

Tuesday 7th – Saturday 11th
January 2020.

Non-Dublin based schools will need to register
by 12 p.m. on Wednesday 8th January.



Closing date for students

All online entries must be received
by Tuesday 24th September 2019
by midnight.



Closing date for teachers

All online entries must be
completed by Wednesday 25th
September 2019 by 5pm,
including teacher assessment and
entry fee.



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 or receive their code for a complementary family pass if these fees have not been paid in full.



Money

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



Main awards ceremony

The award ceremony will be held on Friday 10th January 2020 from 5.30 p.m. and will be attended by a very special guest of honour. Seats will not be available for parents in the arena for this ceremony but we will be streaming it live in another part of the RDS. There will be entertainment for the students in the Students' Club following the ceremony.



Tickets

Each student entering the exhibition will be sent a code for a complimentary 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 – 9th, 10th and 11th January 2020.

Please note that the code is redeemable on the ticketing site and is to be used to book a ticket. The code alone cannot be used to gain entry to the exhibition. Please make sure to book well in advance to avoid disappointment.



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.



Accommodation

There are a number of hotels and B&B's in close proximity to the RDS. Sites like hotels.com and booking.com can be a good resource when trying to find accommodation.

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



The following advice is given to ensure that the students you accompany to the exhibition are your primary focus and that they have 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.
- An adult should be available to cover or to arrange cover for students, especially those entered in the Individual section. All students should be given breaks from their stands.

Additional student information



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



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 8th – Saturday 11th January 9.30 a.m. – 5.30 p.m. The exhibiting students must be at their stand for judging:

- Wednesday 8th January from 3.00 p.m. until your project has been judged.
- Thursday 9th January from 9.00 a.m. until your project has been judged. (Remember, your project will be judged twice on Thursday).
- Friday 10th 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 10th 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 38) and also the statements pertaining to plagiarism and ethics.

BT YS Business Bootcamp

Programme for students



in association
with UCD Innovate



**Check out the videos from the
BT YS Business Bootcamp 2019
participants**

<https://www.youtube.com/user/BTYoungScientists/videos>

A number of the exhibiting intermediate and senior students from the 2020 BT Young Scientist & Technology Exhibition will be invited to take part in a BT Young Scientist Business Bootcamp in February/ March next year where they will experience the world of technology commercialisation and entrepreneurship.

We have created this programme to encourage further innovation by our young scientists and provide them with commercialisation skills to carry forward into their careers and lives. The bootcamp will be held at University College Dublin (UCD).



Best Individual 2019

Anna O'Connor with Shay Walsh, MD BT



Expanding Business Leadership

As an extension of the BT Young Scientist & Technology Exhibition, the BT Young Scientist Business Bootcamp has 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 Bootcamp helps 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.



Winners of the Best Group Award

Danila Fedotov, Jennifer McCarthy, Michael Kirby, Roisin O'Connor, Jack O'Connor

“Helping Hemp Heal: The Design of a Nano-Formulation to increase the absorption of Cannabidiol in the Gastro-intestinal Tract”

Rules

Rules of Entry Applicable to the BT Young Scientist & Technology Exhibition 2020 (the “Exhibition”).

Rules are correct at time of print, final rules in relation to the exhibition can be found at www.btyoungscientist.com/rules

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, at any time, of individuals or schools from present and/or future participation in the BT Young Scientist & Technology Exhibition.

1. General rules

- 1.1 The BT Young Scientist & Technology Exhibition is organised and sponsored by BT Communications Ireland Limited (“BT”) 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.

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 by midnight on Tuesday 24th of September 2019 for students and by 5pm on Wednesday 25th of September 2019 for teachers. Under no circumstances will late entries be accepted.
- 1.4 Second Level students aged between 12 –19 years on 31st October 2019, resident in any part of Ireland, are eligible to enter.
- 1.5 Students can only win the title BT Young Scientist(s) & Technologist(s) 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 and provided there is no 3rd party restriction on entry.
- 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 • SeniorAge group is determined by the year in which the student(s) is studying at the time of the Exhibition (January 2020) and as specified in page 12 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 by 25th September 2019:-
 1. Biological & Ecological Sciences
 2. Chemical, Physical & Mathematical Sciences
 3. Social & Behavioural Sciences
 4. Technology
- 1.12 Notwithstanding the classification a student(s) assigns to its project, the judges will have the right to decide its appropriate classification.



- 1.13.** Plagiarism is prohibited. Plagiarism is the presentation of someone else's work as a student's own without appropriate attribution. Whether done deliberately or inadvertently it is unacceptable and applies not just to text, but to graphics, tables, formulae or any representation of ideas in print, electronic or any other media in addition to computer software and algorithms, which could be implied as being the work of the student. As part of the application students are required to sign a declaration that the project is wholly their own work except where this is clear acknowledgment and appropriate reference to the work of others. To maintain the integrity of the competition, where the judges suspect plagiarism they are entitled to exclude a project at any stage of the competition and the student(s), the student(s)'s parents, and/or the student(s)'s school may be notified.

Individual/group projects

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

- 1.14.** A student may only enter one project into the competition, whether they are entering as an individual or as part of a group.
- 1.15.** Individual projects may be submitted in any one of the four categories specified at 1.11 above (see also Factfile page 15 section 'What category 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.
- 1.16.** 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.
- 1.17.** 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.
- 1.18.** 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.
- 1.19.** 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 2019 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.
- 1.20.** 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. BT reserves the right at its sole discretion to exclude any such projects from the Exhibition.

- 1.21.** 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.
- 1.22.** 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.
- 1.23.** 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.
- 1.24.** 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.
- 1.25.** 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 charge of €100 to cover administration costs.

- 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 2020.
- 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 Wednesday 25th of September 2019. 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 Wednesday 25th of September 2019. 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 Wednesday 25th of September 2019.

- 4.4. The Grant Scheme only applies to the BT Young Scientist & Technology Exhibition 2020.
- 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 20th January 2020 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 for consideration 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 2020 but BT shall have no liability for failure to pay prize money on or before such date.

7. Not used

8. Print photography and film

- 8.1. The BT will use your personal information only as set out in our privacy notice which you can find here www.btyoungscientist.com/privacy. If you have any further questions or comments concerning your privacy, wish to access your personal data held about you, delete, or update information we hold about you, the relevant details are here <http://www.btireland.com/privacy>.
- 8.2. 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 in accordance with our privacy notice.
- 8.3. Such photographs may be used on the BTYSTE website and for BT marketing purposes in accordance with our privacy notice. N.B. BT is under no obligation to make use of any photographs taken.
- 8.4. BT also retains the right to publish information in regards to all projects entered into the BT Young Scientist & Technology Exhibition in accordance with our privacy notice.
- 8.5. 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.

9. Intellectual property rights

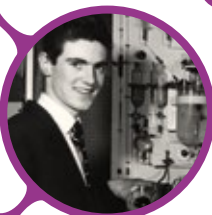
- 9.1. BT may pass contact details of all qualified projects to The Patents Office. The Patents Office will mail individuals directly in relation to Intellectual Property Rights.

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.



DRIVEN BY I



1965

John Monahan



1966

Máire Caitríona Ní Dhomhnaill / Mary Finn



1967

Walter Hayes R.I.P.



1968

George Andrew Reynolds



1969

Luke Drury



1975

Noel Boyle



1976

Mary Kelly-Quinn



1977

Micheal Og O'Briain



1978

Donald P McDonnell



1979

Jervis Good



1980

Karen Ruddock



1987

Emma Donnellan,
Henry Byrne



1988

Siobhan Lanigan
O'Keefe



1989

Grace O'Connor,
Sinead Finn



1990

Anna Minchin-Dalton



1991

Barry O'Doherty,
Daniel Dundas



1992

Elizabeth Dowling,
Jean Byrne R.I.P.



1999

Sarah Flannery



2000

Thomas Gernon



2001

Shane Browne,
Peter Taylor,
Michael O'Toole



2002

David Michael
O'Doherty



2003

Adnan Osmani



2009

John D. O'Callaghan,
Liam McCarthy



2010

Richard O'Shea



2011

Alexander Amini



2012

Eric Doyle,
Mark Kelly



2013

Ciara Judge,
Emer Hickey,
Sophie Healy-Thow



2014

Paul Clarke

INNOVATION



1970

Maria Edgeworth



1971

Peter Short



1972

Seán Mac Fheorais



1973

Tadgh Begley



1974

Richard Elliott



1981

Catherine Conlon



1982

Martynn Sheehan



1983

William Murphy,
Gareth Clarke,
Turan Mirza



1984

Eoin Walsh



1985

Ronan McNulty



1986

Breda Maguire,
Niamh Mulvaney



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



2004

Ronan Larkin



2005

Patrick Collison



2006

Aisling Judge



2007

Abdusalam Abubakar



2008

Emer Jones



2015

Ian O'Sullivan,
Eimear Murphy



2016

Diana Bura,
Maria Louise Fufezan



2017

Shane Curran



2018

Simon Meehan



2019

Adam Kelly



2020

Winner announced
Friday 10th January



BT is one of the **world's leading providers of communications services and solutions**, serving customers in 180 countries. Every day, we touch the lives of thousands of people on the island of Ireland, helping them communicate, collaborate, and be entertained and informed.

Innovation

At BT, we can trace our roots back to the very first communications company, the Electric Telegraph Company, founded in 1846.

For more than 170 years, technologies pioneered by BT have truly built the modern world, and in that time, we've never stopped innovating.

In 1984 our research team perfected the use of single mode optical fibre. Today this technology plays a role at the heart of all global networks, including our own – a network that reaches customers in more than 180 countries. Now, we've over 14,000 scientists and technologists working for us around the world, and have invested €2.8 million in research and development in the past five years.

BT's global presence means that we innovate globally too. Our worldwide scouting network, combined with strong relationships with leading universities, allows us to find the best innovations from across the globe, blend them with our own capabilities and in-house research, and create new possibilities for our customers.

That's why we are so proud to organise the BT Young Scientist & Technology, for 20 years, to increase youth engagement in science and technology, and give them a platform to showcase their innovative ideas nationally and internationally.

BT in Ireland

BT Ireland is the trusted provider to some of the world's biggest multi-national corporations and indigenous exporters. Our job is to help them solve and manage their complex communication needs using our global network. Every day, we process millions of transactions through our state-of-the-art data centres, develop agile contact centres, pre-empt and solve emerging cyber threats, build networks for other communications companies and more. We also serve major public sector organisations, operating the 999/112 emergency call answering service on behalf of the Irish state.

Sustainability in BT

Our purpose is to use the power of communications to make a better world, by connecting people and society, protecting the environment, maintaining a healthy, progressive workplace and by using our skills and resources to benefit good causes throughout our communities.

Last year, BT Ireland employees spent more than 12,700 hours volunteering across the island of Ireland. Our annual BT Shop for Change campaign has raised over €610,000 for the Irish Cancer Society in the last six years. In November 2018, BT Ireland was awarded the Business Working Responsibly Mark, the official standard of excellence for sustainability and corporate social responsibility. We have also been recognised as one of Ireland's Healthiest Places to Work.

We are committed to supporting the local communities in which we live and work through education, digital inclusion, charity fundraising and volunteering.

Northern Ireland

BT is one of the largest private sector employers in the province. We are leading the way in delivering 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.

Find out more at:

btireland.com and **btyoungscientist.com**



Be There