



SCIENCE BLAST

DELIVERED BY
THE RDS

Exhibition Booklet
Limerick
May 21–23 2019

#esbscienceblast
esbscienceblast.com

ESB Science Blast is a non-competitive education programme where students work as a class to investigate the science behind a simple question and then showcase their work at a national event. Science is everywhere, so every 3rd–6th class in Ireland is encouraged to think, wonder, investigate, create, design, explore and learn new skills.



Michael Duffy, RDS Chief Executive

The RDS is delighted to welcome you to ESB Science Blast!

This amazing way of engaging with science in the primary school classroom has been developed and delivered by the RDS and this year we are delighted to welcome ESB as title sponsors.

This is our 4th year in Limerick, but our first as ESB Science Blast. We have been delighted with the response from schools and their teachers. The engagement and learning by the participating students has been brilliant and, with numbers growing each year, 2019 will be the biggest Limerick event yet.

Science skills are skills for life. Through their participation in ESB Science Blast we want students to wonder and investigate, learn and think. We know that participation at this young age can have significant benefits, from an individual level right through to the entire school community. And that benefit goes beyond the science curriculum. Students' literacy, numeracy and confidence all improve through participation in ESB Science Blast.

Every class investigation that you see will have a question at the heart of it. Questions are amazing things. They can lead to us to incredible possibilities. During your visit I would encourage you to dive in and put questions to the students, see what they have found and what they have learned. Your interest in their work will make a tangible difference to their experience and may even open up some new possibilities for you.

Pat O'Doherty, ESB Chief Executive

On behalf of ESB, I am delighted to welcome you to ESB Science Blast, delivered by the RDS.

Our new partnership with the RDS builds on a shared commitment to promote STEAM (science, technology, engineering, arts and maths) education and learning, creating a opportunities not just for the children who participate directly, but for all of society.

Participation in events like ESB Science Blast helps to equip children with the crucial 21st century skills of creativity, critical thinking, communication and collaboration, supporting them not only to become creative and innovative problem solvers, but also active and engaged citizens, capable of making informed choices to tackle climate change and other global challenges.

We are delighted to have 145 schools from across Ireland participating in Limerick this week.

ESB Science Blast would not be possible without the dedication and support of schools from across all four provinces. We are especially grateful to the teachers involved, and hope that the experience of taking part has helped to make science fun, stimulating, and engaging for your students. Our thanks also to the team of judges from academia and industry that volunteer their time to provide productive and insightful feedback on each project.

Mary Immaculate College will be buzzing with positive energy and excitement this week; a wonderful reminder of the potential of this young generation to create a brighter future for all.

Investigation Framework

Have you ever wondered how boats stay afloat? What are the best ingredients to make slime? Or if people with longer legs run faster? Start your class thinking about questions that they can investigate and use the ESB Science Blast Investigation Framework to help structure your ideas.

1 What is your class question?

What is your class going to investigate? This should include phrases like 'How many?' or 'What happens if?' or 'Why does?'

2 What is your class prediction?

This should include a prediction or estimation based on what the students know or their previous experience. What do they think might happen? Or what do they think they will find?

3 How will your class gather evidence to answer the question?

This should include:

- Observing
- Counting, timing or measuring
- Changing something to see what happens
- Building, coding, designing or making something to use (e.g. a tool, model or ICT solution)
- Recording

6 How can you piece all your information together to answer your class question?

This could include:

- Did what you expect to happen, happen?
- Did anything unexpected happen and can you explain why?
- If repeating your investigation, would you do anything differently?
- Can you relate your findings to a real life situation?
- Can you think of any other questions you could investigate?

5 What do your findings mean?

This could include:

- What can you tell from the graphs or charts or other information?
- What might cause any of the patterns that you found?

4 How will your class organise information?

This could include:

- Drawing a chart or plotting a graph
- Identifying patterns
- Classifying things or putting them in order



Tuesday May 21st

	Stand
Learning Hub Limerick, Kileely, Co. Limerick Can seaweed be used as a viable fuel source?	1
Knockea NS, Ballyneety, Co. Limerick Do earthworms help growth in plants?	2
Skeheenarinky NS, An Chathair, Co. Thiobraid Arann What happens if soccer is played with an oval ball instead of a round ball and vice versa?	3
Ballygar NS, Ballygar, Co. Galway Which is more corrosive for your teeth – Coke or orange juice?	4
Bruree NS, Bruree, Co. Limerick What materials can be recycled and how can we reduce plastic waste?	5
Carnane Mxd NS, Fedamore, Kilmallock, Co. Limerick Does gender affect heart rate during exercise?	6
Our Lady Of Mercy NS, Bantry, Co. Cork Why do some thought patterns get 'stuck' in our brains, and can we change negative thought patterns?	7
Ballincarriga Mxd NS, Dunmanway, Co. Cork Does a hip-strengthening programme increase speed in children aged 11-13 years?	8
Rathkeale NS 2, Rathkeale, Co. Limerick What type of paper makes the best paper aeroplane?	9
Garrydoolis NS, Pallasagreen, Co. Limerick How do varying light, heat, location and feed affect plant growth?	10
Derryclough N.S., Drinagh, Dunmanway, Co. Cork What happens to milk when it is turned into cheese and can we make our own cheese?	11
Canovee Mxd NS, Carrigadrohid, Macroom, Co. Cork What causes decomposition and why is it important to us?	12
Togher BNS, Carrigadrohid, Macroom, Co. Cork How much energy do energy drinks really give you?	13
Hollyford NS, Hollyford, Co. Tipperary How does using Squishies during the day affect our stress levels?	14
Kilteely NS, Kilteely, Co. Limerick Does practice really make perfect?	15
Nicker NS, Pallasgreen, Co. Limerick Can we reduce our school's energy usage by identifying which electrical appliances use the most energy?	16

	Stand
St Nessian's NS, Mungret, Co. Limerick What is the Greenhouse effect and how do human activities affect it?	17
Doon Convent NS, Doon, Co. Limerick Why do reactions differ in the Mentos Challenge?	18
Cappawhite NS, Cappawhite, Co. Tipperary How does sound or music affect plant growth?	19
Killavullen NS, Mallow, Co. Cork How does milk straight from cows differ from shop bought milk?	20
Firies Mxd NS, Killarney, Co. Kerry How does moss grow on a roof?	21
Clarecastle NS, Inis, Co. Clare How do the valves in the heart work?	22
Galmoy Mxd NS, Galmoy, Co. Kilkenny Can Morse Code be used to warn ships of dangers near the coastline or when they are in shallow waters?	23
Ovens NS, Galmoy, Ovens, Co. Cork Does a woodland environment allow for more biodiversity than a grassland environment?	24
Herbertstown NS, Herbertstown, Co. Limerick Which spuds cook the best?	25
Caherconlish NS, Caherconlish, Co. Limerick What genres of music make me run faster for longer?	26
Ballyvaughan NS, Ballyvaughan, Co. Clare What affect will acids have on dairy products and lactose-free products?	27
Moyne NS, Thurles, Co. Tipperary Do sports drinks work?	28
Courtenay NS, Newcastlewest, Co. Limerick Which fizzy drink is actually the worst for our teeth?	29
Ballygown NS, Castletownroche, Co. Cork Is there a relationship between auditory and visual memory?	30
Dromdhallagh NS, Drimoleague, Co. Cork How does friction affect an object in motion?	31
St Joseph's NS, Barrack Hill, Fermoy, Co. Cork Why is the sky blue?	32

Tuesday May 21st

Stand

Raheen NS, Ballinasloe, Co. Galway What happens if a mission decides to set up a base on the moon?	33
Scoil Naomh Mhuire, Fearann, Co. Chorcaí Why do liquids mix, float, sink and react differently with one another?	34
S N Lios Na Groi, Lisnagry, Co. Limerick What affects a marble's ability to go through a complete loop in a pipe insulation roller coaster?	35
Scoil Mhuire NS, Newcastle, Clonmel, Co. Tipperary Do the materials or terrain affect the speed of a car?	36
S N Chathair Aodha, Ennis, Co. Clare In our school, why is the junior room so much colder than the senior room?	37
Lisavaird Mxd NS, Clonakilty, Co. Cork Do effective road signs have a positive effect on driver's behaviour?	38
Doora NS, Ennis, Co. Clare Does using both hands instead of just one hand increase the speed of writing, typing or other tasks?	39
St Conaire's NS, Shannon, Co. Clare What type of bread molds the fastest?	40
Scoil Mhuire, Moycullen, Co. Galway How clean is the air in our locality and what causes air pollution?	41
Timoleague NS, Bandon, Co. Cork What muscles are used to charge a phone (the renewable way)?	42
Scoil Naomh Cualán, Borrisoleigh, Thurles, Co. Tipperary Why and how does drinking minerals/juices effect the enamel on your teeth?	43
Milford Grange NS, Castletroy, Co. Limerick How far will an air powered rocket travel?	44
Scoil Na Maighdine Mhuire, Inis, Co. An Chláir What is the best natural replacement for weedkiller?	45
Scoil Na Maighdine Mhuire, Inis, Co. An Chlair Which household pet carries the most bacteria?	46
Gaelscoil Ó Doghair, Caisleán Nua Thiar, Co. Luimnigh Does the treatment of seeds prior to sowing have an effect on their germination?	47
Scoil Mhuire JS, Wellington Rd., Cork City What causes people to have different hair colour/eye colour/height/talents?	48

Wednesday May 22nd

Stand

Dromleigh NS, Macroom, Co. Cork Can algae be used to purify water?	1
Lackamore NS, Newport, Co. Tipperary Can listening to a certain type of music improve your concentration?	2
Caherdaniel NS, Cill Airne, Co. Chiarraí What changes can we make to save water at school and at home?	4
Shandrum NS, Charleville, Co. Cork What ingredients make the best slime?	5
Shinrone Mxd NS, Shinrone, Co. Offaly How does bacteria cause infection and what is it's effect on the human body?	6
Glenahulla NS, Mitchelstown, Co. Cork Is it time to make the switch to electric or hybrid cars or stick with petrol and diesel?	7
Baltydaniel NS, Newtwopothouse, Mallow, Co. Cork What is hydraulic and pneumatic pressure?	8
St Joseph's Convent, Newcastle West, Co. Limerick How does the cost of hand soap affect it's effectiveness in killing bacteria?	9
Scoil Mhuire , Oranmore, Co. Galway BIN THE BEADS!	10
Scoil Mhuire Lourdes, Carrigaline, Co. Cork How much air can my lungs hold and can I increase it?	11
S N Dhrom Athain, Mallow, Co. Cork Why do foods with a high sugar content appeal to children more than healthy foods?	12
Bulgaden NS, Kilmallock, Co. Limerick Does your choice of sliotar matter?	13
Moveen NS, Kilkee, Co. Clare What natural products can we use to clean our school desks?	14
Cloverfield NS, Pallasgreen, Co. Limerick How can a playground be inclusive?	15
St Mary's NS, Templemore, Co. Tipperary Does the colour of light affect plant growth?	16
Ahane NS, Lisnagry, Co. Limerick How often should we clean our school desks?	17

Wednesday May 22nd

	Stand
Ballygarvan NS, Ballygarvan, Co. Cork What is the difference between top brand and own-brand biscuits?	18
Dunderrow NS, Kinsale, Co. Cork What is the most efficient way to exercise?	19
Parteen NS, Parteen, Co. Clare Are boys better than girls?	20
Scoil An Spioraid Naomh, Ballysheedy, Co. Limerick Are we experiencing more frequent storms?	21
Gaelscoil Droichead Na Banndán, Cloughmacsimon, Bandon Bypass, Co. Cork An féidir leictreachas a ghiniúint ó bheith ag rothaíocht?	22
An Mhodhscoil, Ascail Uí Chonaill, Luimneach Bús, bús, bús: An bhfuil beacha tábhachtach dúinn?	23
An Mhodhscoil, Ascail Uí Chonaill, Luimneach Cad a chuireann isteach ar thorthaí tástála Stroop?	24
Gaelscoil Mhichíl Uí Cholleáin, Cloch Na gCoillte, Co. Chorcaí An bhfuil tionchar ag athrú Aeráide ar an Aimsir i réigiún éagsúla na hÉireann?	25
An Mhodh Scoil, Ascail Uí Chonaill, Luimneach Cad a tharlóidh lenár scileanna caitheamh má fhoghlaimoimid na sé phointe teagaisc le haghaidh caitheamh?	26
Scoil An Spioraid Naomh, Ballysheedy, Co. Limerick Are the increasing numbers of satellites floating in space a threat planes?	28
Scoil Mhuire Muigheo, Crettyard, Co. Carlow Why do skyscrapers not fall down or sway in the wind?	29
Crosshaven BNS, Crosshaven, Co. Cork What factors affect a conker in a school conker competition?	30
Shanagolden NS, Shanagolden, Co. Limerick How does the surface of a ramp affect the distance travelled by a toy car?	31
S N Aine Naofa, Gort, Co. Galway How big is your carbon footprint?	32
Our Lady Queen Of Peace School, Janesboro, Co. Limerick Does skipping help to improve your sprinting speed?	33
Castleconnell NS, Castleconnell, Co. Limerick Do flower bulbs grow any differently in different liquids?	34

	Stand
St Anne's PS, Rathkeale, Co. Limerick Can we charge our smart phones using only renewable energy?	35
Faithlegg NS, Portlairge, Co. Waterford How many ways can we find to conduct energy?	36
Togher GNS, Togher, Co. Cork How does screen-time affect students' learning and does reading from different colour pages improve learning?	37
S N Cill Lachtain, Newcastle West, Co. Limerick Is it possible to grow and harvest crystals at school?	38
Scoil Ide, Corbally, Co. Limerick How could humans live on Mars?	40
Kilmeen NS, Clonakilty, Co. Cork Can you feel sound?	41
St Paul's NS, O'Connell Avenue, Limerick What is the best material to make a homemade wind turbine?	43
Holy Family BNS, Askea, Co. Carlow Which shape — square or triangle — expands kinetic energy more effectively?	44
St Mary's NS, Enniskeane, Co. Cork How do different types of exercise effect your heart rate?	45
Our Lady of Lourdes NS, Rosbrien, Limerick What are the advantages and disadvantages associated with wind energy?	46
St Teresa's Special School, Ballinalsoe, Co. Galway Why is the sea salty?	47
Scoil Aonghusa Community NS, Mallow, Co. Cork How do spectacles work?	48

Thursday May 23rd

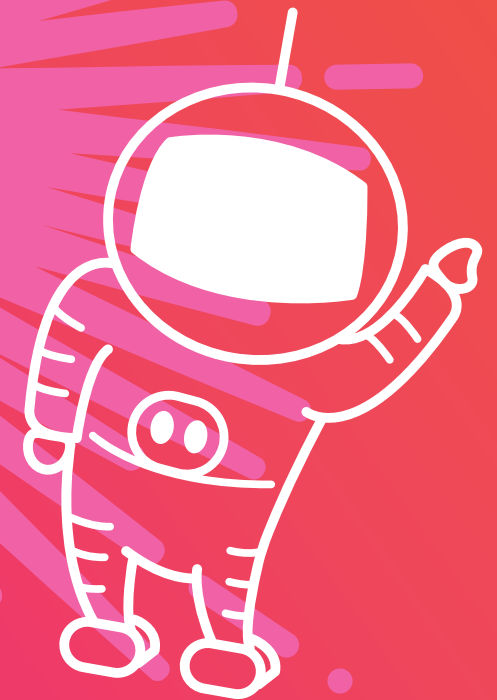
	Stand
Scoil Mhuire, Brierhill, Co. Galway Are flushable wipes biodegradable?	1
Scoil an Spioraid Naoimh , Bishopstown, Co. Cork How do wind turbines generate electricity today?	2
Knockavilla NS, Dundrum, Co. Tipperary Is one sheet 'Plenty'?	3
Spa NS, Tralee, Co. Kerry What happens if we continue with unnecessary plastic waste and what environmental effect will this have?	4
S N Na Heaglaise, Tralee, Co. Kerry Is our school bee-friendly?	5
St Anne's PS, Charleville, Co. Cork How can we improve our fundamental movement skill of hopping through our physical education lessons?	6
Burncourt NS, Cahir, Co. Tipperary Will flying cars ever exist?	7
Johnswell NS, Johnswell, Co. Kilkenny How can we attract more native species to the grounds of our school?	8
Ardfert Central NS, Ardfert, Co. Kerry Are weeds useful?	9
Coachford NS, Coachford, Co. Cork Can we make ourselves run faster?	10
Killasolan NS, Caltra, Co. Galway How is the Irish love of take-away tea and coffee negatively impacting on our environment?	11
Carrickerry NS, Athea, Co. Limerick Could an electric quiz game help learning?	12
Carrickerry NS, Athea, Co. Limerick Can we identify and recommend the most absorbent kitchen paper?	13
S N Na Coille Glaise, Ballinasloe, Co. Galway Are changing ocean salinity levels and acidity levels a big deal and should we blame climate change?	14
Coachford NS, Coachford, Co. Cork Can we change the level of oxygen in our bodies?	15

	Stand
Salesian PS, North Circular Rd, Limerick Pass on Plastic: How many solutions are there to our Pollution?	16
Soeey NS, Cul Atha Boyle, Co. Roscommon Can I trust the 5-second rule?	17
Burncourt NS, Cahir, Co. Tipperary Does caffeine really keep you awake?	18
Cloonliffen NS, Ballinrobe, Co. Mayo Can you enlarge and project an image/video onto a surface?	20
Gael Scoil Thomáis Dáibhís, Magh Ealla, Co. Chorcaí Conas go gcuireann rollchóstöirí eagla orainn?	21
Gaelscoil Aonach, Aonach Urmhumhan, Co. Thiobraid Arann Conas gur féidir leat carr Lego a chruthú agus a thógáil d'ubh a bheadh go tapa agus sabháilte?	22
Scoil Dean Cussen, Bru Na Ndeise, Co. Luimnigh Does wind turbine rotor design affect the efficiency of the production of energy at a certain wind speed?	23
Kanturk BNS, Kanturk, Co. Cork How clean is our local river?	24
Feakle NS, Feakle, Co. Clare Which music genre increases concentration the most?	25
Scoil Dean Cussen, Bru Na Ndeise, Co. Luimnigh Which bridge design will be able to bear most weight?	26
Gaelscoil Uí Drisceoil, Glanmire, Co. Cork Cén tionchar atá ag dálaí éagsúla ar ráta fáis plandaí?	27
Gael Scoil Thomáis Dáibhís, Magh Ealla, Co. Chorcaí Taos fialcla Aquafresh — conas a thagann na dathanna amach gan meascadh?	28
Freastogáil Mhuire Mxd, Abbeydorney, Tralee, Co. Kerry How many bees are in our school garden?	29
Scoil Iosef Naofa, Roscrea, Co. Tipperary Do different materials attract different mini-beasts within a bug hotel?	30
S N Toinn An Tairbh, Cappamore, Co. Limerick How much fuel can our parents save by driving slower for a fortnight?	31
Thomond PS, Ballynanty Road, Co. Limerick Can we charge a phone using foods we find in our kitchen?	32

Thursday May 23rd

Stand

Scoil Mháirtín, Kilworth, Co. Cork How many environmentally sensitive and sustainable alternatives can be found to Glyphosate in the average Irish household?	33
S N Brighde, Beal Atha Hamhnais, Co. Mayo What affect does friction have on the movement of a ball/person on various surfaces?	34
CBS Primary School, Ennis, Co. Clare Can magnetic force cause objects to float?	35
S N Ath An Mhuillinn, Rathluirc, Co. Cork Why do things fall down and not up?	36
S N Ath An Mhuillinn, Rathluirc, Co. Cork Why are triangles used in structures?	37
S N Mhuire Bainrioghan, Biorra, Co. Uíbh Fhailí Does music have an effect on plant growth?	38
Scoil Mhuire, Mullinahone, Thurles, Co Tipperary Does the height of a ramp and the material it is made from affect the distance a toy car will roll?	39
Liscannor NS, Liscannor, Co. Clare Can we invent a device to prevent pipe-based house flooding?	40
Lackagh NS, Turloughmore, Co. Galway Think Fast!! Which variables affect a person's reaction time?	41
Shanballymore NS, Corbally, Co. Limerick How important is recycling?	42
Clouna NS, Ennistymon, Co. Clare Why do some fruits and vegetables conduct electricity?	43
St Multose NS, Kinsale, Co. Cork Can dog drool kill bacteria?	44
Scoil Ailbhe, Thurles, Co. Tipperary Playing music for plants – does it affect plant growth?	45
St Fergus' PS, Glin, Co. Limerick Which fruit will make a better light?	46
Clondrohid NS, Clondrohid, Macroom, Co. Cork Rollercoasters: why don't we fall out?	47
Knockanean NS, Inis, Co. Clare How do you win the All Ireland Hurling Final?	48



As well as showcasing hundreds of primary school class investigations, ESB Science Blast features a science entertainment programme specially curated for a primary school audience.



What's On!

The Project Showcase Zone is the heart of ESB Science Blast! Pick up a copy of the **STEM Trail** at the **Information Desks** to guide you through the many class investigations on display in the Project Showcase area.

The XX Factor – Meet six amazing women who have made incredible discoveries in the world of science, from sparks, light and gravity, to musical moments and crazy paper chains!

Litter Lab – Don't Mess with our Place! From dog poop to chewing gum and even polystyrene cups, join Scientific Sue to learn more about how the things we throw away affect our natural environment.

Gastronaut EXTREME – BBC Gastronomer Stefan Gates explores the bizarre science of food in this high-octane show featuring rockets, robots, giant cannons, edible chemistry and a very loud fart machine.

Dangerous Equations – Marty Jopson, BBC One Show's resident scientist, explains how fluffy string can travel at 900 miles per hour, the science of seriously loud explosions and the maths behind a karate chop.

A Rapper's Guide to the Solar System – Join science rapper Jon Chase for a tour of the solar system with a difference! Using raps, demos and lots of audience participation this is a show not to be missed!

Judges' Feedback – One of the highlights of the day at ESB Science Blast is the positive Judges' feedback (and take-home trophy!) for every school.

ESB Science Blast Judges

ESB Science Blast is a non-competitive initiative which aims to support the development of core science and maths skills in primary school children. The role of Judges is to provide constructive feedback to students and their teachers on their work, to provide them with insight for how they could extend their investigation (for example by plotting data or changing a variable to see what happens) and to encourage children to think scientifically about the world around them. A big thank you to all of our Judges who voluntarily give of their time to support the next generation of inquiring minds!

Frank Barry

Hydro Operations, ESB

Dr Liam Brown

Vice-President Research,
Limerick Institute of Technology

Rena Buckley

Chartered Physiotherapist,
Winner of 18 All-Ireland Medals

Áine Colleran-Bleahene

RDS STEM Learning Facilitator,
Teacher, Creagh NS, Galway

Paul Collins

General Manager/Founder,
Design Pro Limerick

Róisín Cullinane

Policy Manager, Commission
for Regulation of Utilities

Dr Siobhán Curtin

Lecturer in Science,
Limerick Institute of Technology

Prof. Derek Doherty

Head of Immunology,
Trinity College Dublin

Lorcan Egan

Engineer, ESB

Sinéad Ginnane

Primary District Inspector,
Department of Education and Skills

Diane Hassett

Senior Engineering Manager,
Johnson & Johnson Vision Care Ireland

Dr Siobhán Hendrick

Senior Executive –
Education & Public Engagement
Science Foundation Ireland

Madeline Hickey

Specialist Lead, National Council
for Special Education (NCSE)

Derek Hynes

Head of Projects Delivery, ESB

Ciana Jones

Mechanical Engineer, ESB

David Keenahan

Teacher Network Coordinator,
Institute of Physics in Ireland

Liam Kitson

Operations Manager, ESB

Yvonne Lawlor

Civil Engineer, ESB

Dr Maeve Liston

Director of Enterprise &
Community Engagement,
Mary Immaculate College

Sean Mangan

Mechanical Engineer, ESB

Elaine Nic Reámoinn

Múinteoir Eolaíochta,
Meánscoil Gharman

Tomas O'Brien

Civil Engineer, ESB

Colm O'Callaghan

Assistant Principal,
Scoil an Chroí Ró Naofa Íosa

Sinéad O'Donnell

Area Manager Limerick,
Ennis & Roscrea, ESB

Dr Anne O'Dwyer

Lecturer in Science Education,
Mary Immaculate College

Dr Niamh O'Meara

Lecturer in Maths
Education, EPISTEM,
University of Limerick

Virgil Porter

Regional Manager, ESB

Olive Walsh

RDS STEM Learning Facilitator
Teaching Principal, Glasnevin NS

Keith Young

Educational Consultant & PHD
Candidate, Maynooth University





Founded in 1731 to support the cultural and economic development of Ireland, in 2018, the RDS invested €2.5 million across our work areas of the arts, science, agriculture and business.

Funded by

Supported by



ESB Science Blast is a key project within our science and technology work programme. It is underpinned by the RDS STEM Learning Programme, which supports primary school teachers to integrate science, technology, engineering and mathematics into their classroom practice.

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