



BT YOUNG SCIENTIST & TECHNOLOGY Exhibition

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Curriculum Mapping Document

THE BT YOUNG SCIENTIST AND TECHNOLOGY EXHIBITION

In its 46th year the BT Young Scientist & Technology Exhibition is much more than a competition; it is an unforgettable experience of a lifetime for the students who take part. The exhibition itself is the final stage in the competition which is open to all second level students from Ireland, both North and South. Students enter a project within one of four categories (as detailed below), for the chance to be part of the final exhibition in Dublin. Our Entry Details booklet enclosed provides a full overview of the BT Young Scientist & Technology Exhibition and you can find any further information you may need on our website www.btyoungscientist.com

The 4 Category Choices:

Biological and 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 and 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. Also eligible are projects based on earth and space sciences such as meteorology, geophysics, geology and astronomy.

Social and Behavioural Sciences

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

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.



Examples of projects 2009 (further examples from <http://www.btyoungscientist.com/qualified/a-zschool.php>)

Project title	Category	Group/Individual	Age Group
Sonic Pathways	Technology	Group	Senior
The development of a non-invasive, cuff-less Blood Pressure Monitor and the study of people's awareness of Blood Pressure	Technology	Group	Intermediate
Blind sensor aid	Technology	Individual	Junior
An Investigation into the Effectiveness of Sunscreens	Chemical, Physical & Mathematical Sciences	Group	Intermediate
Can changing the albedo of urban surfaces (roofs and pavements) reduce global warming and thus lower CO2 emissions?	Chemical, Physical & Mathematical Sciences	Group	Senior
Under the Influence: Drink or Diet	Chemical, Physical & Mathematical Sciences	Individual	Junior
The viability and sustainability of marine ecosystems under common manmade conditions	Biological and Ecological	Group	Intermediate
To Investigate the Different Species of Micro-Organisms and their Ability to Survive Depending on the Concentration of Chlorine Found in Various Treated Water Samples	Biological and Ecological	Group	Senior
Enabling Diabetics to Participate in Sport Better	Biological and Ecological	Individual	Junior
To investigate music's effect on the performance of athletes	Social and Behavioural Sciences	Group	Intermediate
The Stages of Change of smokers in relation to their smoking habits	Social and Behavioural Sciences	Group	Senior
Do boys or girls of different ages have better visual memory?	Social and Behavioural Sciences	Group	Junior

RELEVANCE TO THE NORTHERN IRELAND CURRICULUM KEY STAGES 3 & 4 AND POST 16

All topics chosen for the competition must be able to be scientifically proven or disproved by research methods available to second level students i.e. the project must involve the use of scientific methods.

Specific curriculum links to Whole Curriculum Skills and Capabilities at Key Stage 3

Key Stage 3 The BT Young Scientist and Technology Exhibition meets some of the statutory requirements relating to Cross-Curricular Skills:	
Skills	Opportunities for Skills development
Developing Communication Skills across the curriculum	Pupils should be given opportunities to engage with and demonstrate the skill of communication and to transfer their knowledge about communication concepts and skills to real-life meaningful contexts across the curriculum.
Using Mathematics across the curriculum	Pupils should be given opportunities to transfer their understanding, as appropriate, to other contexts across the curriculum. Children can demonstrate their mathematical knowledge, understanding and skills in a variety of ways to communicate, manage information, think critically, solve problems and make decisions.
Using Information and Communications Technology across the curriculum	Pupils should have opportunities, using ICT, to engage in genuine research and purposeful tasks set in meaningful contexts. They should be encouraged to re-work information, present and exchange their ideas and translate their thinking into creative products and productions which show an awareness of audience and purpose.

KEY STAGE 3 - The BT Young Scientist and Technology Exhibition meets some of the statutory requirements relating to: Thinking Skills and Personal Capabilities	
Area	Involves:
Managing Information	Asking, Accessing, Selecting, Recording, Integrating, Communicating
Working with Others involves:	Being Collaborative, Being Sensitive To Others' Feelings, Being Fair and Responsible
Thinking, Problem-Solving and Decision-Making	Searching for Meaning, Deepening Understanding, Coping with Challenges
Being Creative	Imagining, Generating, Inventing, Taking Risks for Learning
Self-Management	Evaluating Strengths and Weaknesses, Setting Goals and Targets, Managing and Regulating Self, for example

Specific curriculum links to Areas of Learning and Subject Strands at Key Stage 3

JUNIOR AGE GROUP CATEGORY	KEY STAGE 3 AREA OF LEARNING	SUBJECT STRANDS	CONTRIBUTION OF THE BT YOUNG SCIENTIST & TECHNOLOGY EXHIBITION
Chemical, Physical and Mathematical Sciences	Mathematics and Numeracy	Mathematics Financial Capability	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to Mathematics and Financial Capability:</p> <ul style="list-style-type: none"> • Knowledge of number, algebra, shape, space and measures and handling data • Knowledge and understanding of personal finance issues • The application of mathematical skills to real life and work situations • The creative use of technology to enhance mathematical understanding and give opportunities to demonstrate skills and application of knowledge and understanding of Mathematics (Learning Outcomes)
Biological and Ecological Sciences Social and Behavioural Sciences Chemical, Physical and Mathematical Sciences	Environment and Society	Geography	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to Geography:</p> <ul style="list-style-type: none"> • develop geographical skills to interpret spatial patterns including atlas and map-work skills • develop enquiry and fieldwork skills: questioning, planning, collecting, recording, presenting, analysing, interpreting information and drawing conclusions relating to a range of primary and secondary sources • develop critical and creative thinking skills to solve geographical problems and make informed decisions • develop an understanding of: <ul style="list-style-type: none"> – physical processes of landscape development – the interrelationships between physical and human environments – the dynamic nature of physical and human environments – the ways in which places are interdependent – the need for social, economic and environmental change to be sustainable and give opportunities to demonstrate skills and application of knowledge and understanding of Geography (Learning Outcomes)



Key Stage 4 The BT Young Scientist and Technology Exhibition meets some of the statutory requirements relating to **Skills:**

Skills	Opportunities for Skills development
Communication	Teachers should enable pupils to develop skills in: <ul style="list-style-type: none">• communicating meaning, feelings and viewpoints in a logical and coherent manner• making oral and written summaries, reports and presentations, which take account of audience and purpose• participating in discussions, debates and interviews• interpreting, analysing and presenting information in oral, written and ICT formats• exploring and responding, both imaginatively and critically, to a variety of texts
Using Mathematics	Teachers should enable pupils to develop skills in: <ul style="list-style-type: none">• using mathematical language and notation with confidence• using mental computation to calculate, estimate and make predictions in a range of simulated and real life contexts• selecting and applying mathematical concepts and problem-solving strategies in a range of simulated and real-life contexts• interpreting and analysing a wide range of mathematical data• assessing probability and risk in a range of simulated and real life contexts• presenting mathematical data in a variety of formats which take account of audience and purpose
Using Information and Communications Technology	Teachers should enable pupils to develop skills in: <ul style="list-style-type: none">• making effective use of information and communications technology in a wide range of contexts to access, manage, select and present information, including mathematical information.
Problem solving (including thinking, decision making and being creative).	
Working with Others	
Self Management	

Specific curriculum links to Areas of Learning at Key Stage 4

CCEA Qualifications

INTERMEDIATE AGE GROUP CATEGORY	KEY STAGE 4 STATUTORY AREAS OF LEARNING	SUBJECT (CCEA Qualification)	CONTRIBUTION OF THE BT YOUNG SCIENTIST & TECHNOLOGY EXHIBITION
Chemical, Physical and Mathematical Sciences	Mathematics and Numeracy	Mathematics	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the four areas of study in Mathematics listed below:</p> <ul style="list-style-type: none"> • Using and Applying Mathematics • Number and Algebra • Shape, Space and Measures • Handling Data <p>and give opportunities to:</p> <ul style="list-style-type: none"> • develop their mathematical knowledge and oral, written and practical skills in a manner which encourages confidence • read mathematics, and write and talk about the subject in a variety of ways • develop a feel for number, carry out calculations and understand the significance of the results obtained • apply mathematics in everyday situations and develop an understanding of the part which mathematics plays in the world around them • solve problems, present the solutions clearly, check and interpret the results • develop an understanding of mathematical principles • recognise when and how a situation may be represented mathematically, identify and interpret relevant factors and, where necessary, select an appropriate mathematical method to solve problems • use mathematics as a means of communication with emphasis on the use of clear expression • develop the abilities to reason logically, to classify, to generalise and to prove • appreciate patterns and relationships in mathematics • produce and appreciate imaginative and creative work arising from mathematical ideas • develop their mathematical abilities by considering problems and conducting individual and co-operative enquiry and experiment, including pieces of work of a practical and investigative kind • appreciate the interdependence of different branches of mathematics



<p>Biological and Ecological Sciences</p> <p>Social and Behavioural Sciences</p> <p>Chemical, Physical and Mathematical Sciences</p>	<p>Environment and Society</p>	<p>Geography</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Units of Study in Geography:</p> <p>Understanding Our Natural World</p> <p>Living in Our World</p> <p>And could encourage pupils to:</p> <ul style="list-style-type: none">• actively engage in the process of geography to develop as effective and independent learners and as critical thinkers with enquiring minds• develop their knowledge and understanding of geographical concepts and appreciate how these concepts affect our changing world• develop and apply their learning to the real world through fieldwork and other learning outside the classroom; and• use geographical skills, appropriate technologies, and enquiry and analysis skills
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INTERMEDIATE AGE GROUP CATEGORY	OTHER NON-STATUTORY SUBJECTS AT KEY STAGE 4 (CCEA Qualifications)	CONTRIBUTION OF THE BT YOUNG SCIENTIST & TECHNOLOGY EXHIBITION
Biological and Ecological Sciences Social and Behavioural Sciences	Home Economics	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Units in Home Economics</p> <p>Unit 1: Diet and Health, and Consumer Awareness</p> <p>Unit 2: Diet and Health</p> <p>Unit 3: Consumer Awareness</p> <p>and help students to:</p> <ul style="list-style-type: none">• increase their knowledge and understanding of relevant technological and scientific developments• develop a critical and analytical approach to decision-making and problem-solving in relation to the specified content• examine issues that affect the quality of human life, including an appreciation of diversity• evaluate choices and decisions to develop as informed and discerning consumers• actively engage in the processes of home economics to develop as effective and independent learners

<p>Biological and Ecological Sciences</p> <p>Chemical, Physical and Mathematical Sciences</p> <p>Technology</p>	<p>Science and Technology</p>	<p>Physics</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's skills, knowledge and understanding of the four sections that make up the subject content:</p> <ul style="list-style-type: none"> • How Science Works (integrated and delivered in the context of the content in Physics 1, Physics 2 and Physics 3) • Unit Physics 1 • Unit Physics 2 • Unit Physics 3 <p>And develop their interest in, and enthusiasm for, science develop a critical approach to scientific evidence and methods acquire and apply skills, knowledge and understanding of how science works and its essential role in society acquire scientific skills, knowledge and understanding necessary for progression to further learning and allow pupils to demonstrate the abilities detailed under assessment objectives:</p> <p>A01 - Knowledge and understanding of science and how science works A02 - Application of skills, knowledge and understanding and A03 - Practical, enquiry and data handling skills</p>
<p>Biological and Ecological Sciences</p> <p>Chemical, Physical and Mathematical Sciences</p> <p>Technology</p>	<p>Science and Technology</p>	<p>Chemistry</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's skills, knowledge and understanding of How Science Works. (integrated and delivered in the context of the content in Chemistry 1, Chemistry 2 and Chemistry)</p> <ul style="list-style-type: none"> • Unit Chemistry 1 • Unit Chemistry 2 • Unit Chemistry 3 <p>And develop their interest in, and enthusiasm for, science develop a critical approach to scientific evidence and methods acquire and apply skills, knowledge and understanding of how science works and its essential role in society acquire scientific skills, knowledge and understanding necessary for progression to further learning and allow pupils to demonstrate the abilities detailed under assessment objectives:</p> <p>A01 - Knowledge and understanding of science and how science works A02 - Application of skills, knowledge and understanding and A03 - Practical, enquiry and data handling skills</p>
<p>Biological and Ecological Sciences</p> <p>Chemical, Physical and Mathematical Sciences</p> <p>Technology</p>	<p>Science and Technology</p>	<p>Biology</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's skills, knowledge and understanding of the subject content How Science Works(integrated and delivered in the context of the content in Biology 1, Biology 2 and Biology 3)</p> <ul style="list-style-type: none"> • Unit Biology 1 • Unit Biology 2 • Unit Biology 3 <p>And develop their interest in, and enthusiasm for, science develop a critical approach to scientific evidence and methods acquire and apply skills, knowledge and understanding of how science works and its essential role in society acquire scientific skills, knowledge and understanding necessary for progression to further learning</p> <p>Participating in the BT Young Scientist & Technology Exhibition could allow pupils to demonstrate the abilities detailed under assessment objectives: A01 - Knowledge and understanding of science and how science works A02 - Application of skills, knowledge and understanding and A03 - Practical, enquiry and data handling skills</p>



AQA offer a wide range of subjects at GCSE including those listed below. Teachers of these subjects could consider entering projects to the **BT YOUNG SCIENTIST & TECHNOLOGY EXHIBITION**

INTERMEDIATE AGE GROUP CATEGORY	OTHER NON-STATUTORY SUBJECTS AT KEY STAGE 4 (AQA) Qualifications)	CONTRIBUTION OF THE BT YOUNG SCIENTIST & TECHNOLOGY EXHIBITION
Social and Behavioural Sciences	Sociology Health and Social Care	Participating in the BT Young Scientist & Technology Exhibition could develop pupil's skills, knowledge and understanding of the subject content and provide opportunities to assess the Assessment Objectives
Biological and Ecological Sciences Social and Behavioural Sciences	Home Economics	
Biological and Ecological Sciences Social and Behavioural Sciences	Psychology	
Chemical, Physical and Mathematical Sciences Technology	Electronics	

Specific curriculum links to GCE qualifications

CCEA Qualifications

SENIOR AGE GROUP CATEGORY	Subject at GCE (CCEA Qualification)	CONTRIBUTION OF THE BT YOUNG SCIENTIST & TECHNOLOGY EXHIBITION
<p>Chemical, Physical and Mathematical Sciences</p> <p>Technology</p>	<p>ICT</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Modules in ICT</p> <p>Module 1: Fundamentals of Information and Communication Technology</p> <p>Module 2: Components of Information and Communication Technology</p> <p>Module 3: Use of Generic Application Software for solving a given task</p> <p>Module 4: Development of Information Systems</p> <p>Module 5: Uses of Information Systems</p> <p>A project for the BT Young Scientist & Technology Exhibition could be used for Module 6: Development of an Application Package for a third party which requires candidates to identify and research an open-ended realistic problem for which there must be a real end-user and to provide a detailed solution which should incorporate the use of a range of advanced software features and functionalities.</p>
<p>Biological and Ecological Sciences</p>	<p>Biology</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Modules in Biology:</p> <p>Module 1: Cell Biology</p> <p>Module 2: Physiology and Populations</p> <p>Module 4: Co-ordination, Biochemistry and Ecosystems</p> <p>Module 5: Reproduction, Genetics and Taxonomic Diversity</p> <p>and encourage students to :</p> <ul style="list-style-type: none"> • develop essential knowledge and understanding of concepts of biology, and the skills needed for the use of these in new and changing situations • develop an understanding of scientific methods • be aware of advances in technology, including information technology, relevant to biology <p>w.r.t. Assessment Objective AO3 Experiment and investigation participating in the BT Young Scientist & Technology Exhibition could provide opportunities to:</p> <ul style="list-style-type: none"> • devise and plan experimental and investigative activities, selecting appropriate techniques • demonstrate safe and skilful practical techniques • make observations and measurements with appropriate precision and record these methodically • interpret, explain, evaluate and communicate the results of their experimental and investigative activities clearly and logically using biological knowledge and understanding and using appropriate specialist vocabulary

<p>Chemical, Physical and Mathematical Sciences</p> <p>Technology</p>	<p>Physics</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Modules in Physics</p> <p>Unit AS 1: Forces, Energy and Electricity</p> <p>Unit AS 2: Waves, Photons and Medical Physics</p> <p>Unit A2 1: Momentum, Thermal Physics, Circular Motion, Oscillations and Atomic and Nuclear Physics</p> <p>Unit AS 3: and Unit A2 3: Practical Techniques</p> <p>w.r.t Assessment Objectives, participating in the BT Young Scientist & Technology Exhibition could provide opportunities to:</p> <ul style="list-style-type: none"> • Use theories, models and ideas to develop and modify physical explanations • Use knowledge and understanding to pose physical questions, define physical problems, present physical arguments and physical ideas • Use appropriate methodology, including ICT, to answer physical questions and solve physical problems • Carry out experimental and investigative activities, including appropriate risk management, in a range of contexts • Analyse and interpret data to provide evidence, recognising correlations and causal relationships • Evaluate methodology, evidence and data, and resolve conflicting evidence • Appreciate the tentative nature of physical knowledge • Communicate information and ideas in appropriate ways using appropriate terminology • Consider applications and implications of physics and appreciate their associated benefits and risks
<p>Chemical, Physical and Mathematical Sciences</p>	<p>Chemistry</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Units in Chemistry</p> <p>Unit AS 1: Basic Concepts in Physical and Inorganic Chemistry</p> <p>Unit AS 2: Further Physical and Inorganic Chemistry and Introduction to Organic Chemistry</p> <p>Unit A2 1: Periodic Trends and Further Organic, Physical and Inorganic Chemistry</p> <p>Unit A2 2: Analytical, Transition Metals, Electrochemistry and Further Organic Chemistry</p> <p>In addition the competition could contribute to the achievement of the Assessment Objectives: A01: Knowledge and understanding of Chemistry and of how Chemistry works A02: Application of knowledge and understanding of Chemistry and of how Chemistry works A03: How Chemistry works</p>

<p>Chemical, Physical and Mathematical Sciences</p>	<p>Mathematics</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Modules in Mathematics:</p> <ul style="list-style-type: none"> • Core Mathematics • Further Pure Mathematics • Mechanics • Statistics <p>and encourage students to:</p> <ul style="list-style-type: none"> • develop their understanding of mathematics and mathematical processes in a way that promotes confidence and fosters enjoyment • develop abilities to reason logically and recognise incorrect reasoning, to generalise and to construct mathematical proofs • extend their range of mathematical skills and techniques and use them in more difficult, unstructured problems • develop an understanding of coherence and progression in mathematics and of how different areas of mathematics can be connected • recognise how a situation may be represented mathematically and understand the relationship between 'real world' problems and standard and other mathematical models and how these can be refined and improved • use mathematics as an effective means of communication • read and comprehend mathematical arguments and articles concerning applications of mathematics • acquire the skills needed to use technology such as calculators and computers effectively, recognize when such use may be inappropriate and be aware of limitations • develop an awareness of the relevance of mathematics to other fields of study, to the world of work and to society in general • take increasing responsibility for their own learning and the evaluation of their own mathematical development
<p>Biological and Ecological Sciences</p> <p>Social and Behavioural Sciences</p> <p>Chemical, Physical and Mathematical Sciences</p>	<p>Geography</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Units in Geography:</p> <p>AS 1: Physical Geography (including Fieldwork skills)</p> <p>AS 2: Human Geography (including skills and techniques)</p> <p>A2 1: Human Geography and Global Issues</p> <p>A2 2: Physical Geography and Decision-Making</p> <p>Through participating in the BT Young Scientist & Technology Exhibition students could become conversant with the following skills and techniques:</p> <ul style="list-style-type: none"> • Data collection • Data processing • Methods of statistical analysis <p>and be encouraged to:</p> <ul style="list-style-type: none"> • develop and apply their understanding of geographical concepts and processes to understand and interpret our changing world • develop their awareness of the complexity of interactions within and between societies, economies, cultures and environments at scales from local to global • develop as global citizens who recognise the challenges of sustainability and the implications for their own and others' lives • improve as critical and reflective learners aware of the importance of attitudes and values, including their own • become adept in the use and application of skills and new technologies through their geographical studies both in and outside the classroom



Technology	Technology and Design	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Units in Technology and Design:</p> <p>AS 1 Product Design and Systems and Control AS 2 Coursework: Product Development A2 1 Systems and Control A2 2 Coursework: Product-System, Design and Manufacture</p> <p>A project for the BT Young Scientist & Technology Exhibition could be particularly useful for Units AS 2 and A2 2</p> <p>Participating in the BT Young Scientist & Technology Exhibition could encourage pupils to:</p> <ul style="list-style-type: none">• make use of tacit knowledge and reflective practices in order to work with tasks that are challenging and often require definition• develop and sustain their creativity and innovative practice• recognise and overcome challenges and constraints when working towards the production of high-quality products• develop a critical understanding of the influences of the processes and products of design and technological activities from a contemporary and historical perspective• draw on a range of skills and knowledge from other subject areas• draw on and apply knowledge; understanding and skills of production processes to a range of design and technological activities
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Specific curriculum links to GCE qualifications

AQA Qualifications

SENIOR AGE GROUP CATEGORY	Subject at GCE (AQA Qualification)	CONTRIBUTION OF THE BT YOUNG SCIENTIST & TECHNOLOGY EXHIBITION
<p>Chemical, Physical and Mathematical Sciences</p> <p>Technology</p>	<p>ICT</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Units in ICT</p> <p>Unit 1 Practical Problem Solving in the Digital World</p> <p>Unit 2 Living in the Digital World</p> <p>Unit 3 The Use of ICT in the Digital World</p> <p>Unit 4 Coursework: Practical Issues Involved in the Use of ICT in the Digital World</p> <p>A project for the BT Young Scientist & Technology Exhibition could be used for Unit 4: which requires pupils to complete a substantial project involving the production of an ICT-related system over an extended period of time.</p> <p>W.r.t. Assessment objective A02 Skills, participating in the BT Young Scientist & Technology Exhibition would enable pupils to:</p> <ul style="list-style-type: none"> • investigate and analyse problems and produce a specification • design effective solutions • select and use appropriate application software • test and implement an effective ICT-related system • document specifications and solutions • evaluate solutions and their own performance
<p>Biological and Ecological Sciences</p>	<p>Biology</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Units in Biology:</p> <p>Unit 1 - Biology and disease</p> <p>Unit 2 - The variety of living organisms</p> <p>Unit 3 - Investigative and practical skills in AS Biology</p> <p>Unit 4 - Populations and environment</p> <p>Unit 5 - Control in cells and in organisms</p> <p>Unit 6 - Investigative and practical skills in A2 Biology</p> <p>A project for the BT Young Scientist & Technology Exhibition could be particularly useful for demonstrating Investigative and practical skills as required in Unit 3 and Unit 6 .It could be an additional opportunity used to enable understanding of How Science Works and promote pupils' skills in solving scientific problems by developing an understanding of:</p> <ul style="list-style-type: none"> • the concepts, principles and theories that form the subject content • the procedures associated with the valid testing of ideas and, in particular, the collection, interpretation and validation of evidence • the role of the scientific community in validating evidence and also in resolving conflicting evidence

<p>Chemical, Physical and Mathematical Sciences</p> <p>Technology</p>	<p>Physics</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Modules in Physics</p> <p>Unit 1 – Particles, quantum phenomena and electricity</p> <p>Unit 2 – Mechanics, materials and waves</p> <p>Unit 3 – Investigative and practical skills in AS Physics</p> <p>Unit 4 – Fields and further mechanics</p> <p>Unit 5 – Nuclear Physics, Thermal Physics and one of the four optional topics: Astronomy and Cosmology, Medical Physics, Applied Physics, Turning points in Physics</p> <p>Unit 6 – Investigative and practical skills in A2 Physics</p> <p>A project for the BT Young Scientist & Technology Exhibition could be particularly useful for demonstrating Investigative and practical skills as required in Unit 3 and Unit 6 . It could be an additional opportunity used to enable understanding of How Science Works and promote pupils' skills in solving scientific problems by developing an understanding of:</p> <ul style="list-style-type: none"> • the concepts, principles and theories that form the subject content • the procedures associated with the valid testing of ideas and, in particular, the collection, interpretation and validation of evidence • the role of the scientific community in validating evidence and also in resolving conflicting evidence
<p>Chemical, Physical and Mathematical Sciences</p>	<p>Chemistry</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Units in Chemistry</p> <p>Unit 1 – Foundation Chemistry</p> <p>Unit 2 – Chemistry In Action</p> <p>Unit 3 – Investigative and practical skills in AS Chemistry</p> <p>Unit 4 – Kinetics, Equilibria and Organic Chemistry</p> <p>Unit 5 – Energetics, Redox and Inorganic Chemistry</p> <p>Unit 6 – Investigative and practical skills in A2 Chemistry</p> <p>A project for the BT Young Scientist & Technology Exhibition could be particularly useful for demonstrating Investigative and practical skills as required in Unit 3 and Unit 6. It could be an additional opportunity used to enable understanding of How Science Works and promote pupils' skills in solving scientific problems by developing an understanding of:</p> <ul style="list-style-type: none"> • the concepts, principles and theories that form the subject content • the procedures associated with the valid testing of ideas and, in particular, the collection, interpretation and validation of evidence • the role of the scientific community in validating evidence and also in resolving conflicting evidence



<p>Biological and Ecological Sciences</p> <p>Social and Behavioural Sciences</p>	<p>Psychology A</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Units in Psychology A where the emphasis is on applying knowledge and understanding rather than just acquiring knowledge, thereby developing pupils' transferable skills of analysis, evaluation and critical thinking.</p> <p>Unit 1 – Cognitive Psychology, Developmental Psychology and Research Methods</p> <p>Unit 2 – Biological Psychology, Social Psychology and Individual Differences</p> <p>Unit 3 – Topics in Psychology</p> <p>Unit 4 – Psychopathology, Psychology in Action and Research Methods</p> <p>A project for the BT Young Scientist & Technology Exhibition could be an additional opportunity used to enable understanding of How Science Works and promote pupils' skills in solving scientific problems by developing an understanding of:</p> <ul style="list-style-type: none"> • the concepts, principles and theories that form the subject content • the procedures associated with the valid testing of ideas and, in particular, the collection, interpretation and validation of evidence • the role of the scientific community in validating evidence and also in resolving conflicting evidence
<p>Biological and Ecological Sciences</p> <p>Social and Behavioural Sciences</p>	<p>Psychology B</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Units in Psychology</p> <p>Unit 1 – Introducing Psychology</p> <p>Unit 2 – Individual Differences, Social Psychology and Cognitive Psychology</p> <p>Unit 3 – Child Development and Applied Options</p> <p>Unit 4 – Approaches, Debates and Methods in Psychology</p> <p>A project for the BT Young Scientist & Technology Exhibition could be an additional opportunity used to enable understanding of How Science Works and promote pupils' skills in solving scientific problems by developing an understanding of:</p> <ul style="list-style-type: none"> • the concepts, principles and theories that form the subject content • the procedures associated with the valid testing of ideas and, in particular, the collection, interpretation and validation of evidence • the role of the scientific community in validating evidence and also in resolving conflicting evidence
<p>Social and Behavioural Sciences</p>	<p>Sociology</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Units in Psychology</p> <p>Unit 1 – Culture and Identity; Families and Households; Wealth, Poverty and Welfare</p> <p>Unit 2 – Education; Health; Sociological Methods</p> <p>Unit 3 – Beliefs in Society; Global Development; Mass Media; Power and Politics</p> <p>Unit 4 – Crime and Deviance; Stratification and Differentiation; Theory and Method</p> <p>Participating in the BT Young Scientist & Technology Exhibition would contribute to an assessment of Assessment objectives AO1 and AO2</p>

<p>Chemical, Physical and Mathematical Sciences</p>	<p>Mathematics</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the AS and A2 Modules in Mathematics:</p> <ul style="list-style-type: none"> • Pure Core Modules • Further Pure Modules • Statistics • Mechanics • Decision <p>and encourage pupils to:</p> <ul style="list-style-type: none"> • develop their understanding of mathematics and mathematical processes in a way that promotes confidence and fosters enjoyment • develop abilities to reason logically and to recognise incorrect reasoning, to generalise and to construct mathematical proofs • extend their range of mathematical skills and techniques and use them in more difficult unstructured problems • develop an understanding of coherence and progression in mathematics and of how different areas of mathematics can be connected • recognise how a situation may be represented mathematically and understand the relationship between 'real world' problems and standard and other mathematical models and how these can be refined and improved • use mathematics as an effective means of communication • read and comprehend mathematical arguments and articles concerning applications of mathematics • acquire the skills needed to use technology such as calculators and computers effectively, to recognise when such use may be inappropriate and to be aware of limitations • develop an awareness of the relevance of mathematics to other fields of study, to the world of work and to society in general • take increasing responsibility for their own learning and the evaluation of their own mathematical development
<p>Biological and Ecological Sciences</p> <p>Social and Behavioural Sciences</p> <p>Chemical, Physical and Mathematical Sciences</p>	<p>Geography</p>	<p>Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to Units 1-4 in Geography:</p> <p>Unit 1 – Physical and Human Geography</p> <p>Unit 2 – Geographical Skills</p> <p>Unit 3 – Contemporary Geographical Issues</p> <p>Unit 4A – Geography Fieldwork Investigation</p> <p>Participating in the BT Young Scientist & Technology Exhibition would contribute to an assessment of Assessment objectives AO1, AO2 and AO3</p> <p>AO1 Demonstrate knowledge and understanding of the content, concepts and processes. AO2 Analyse, interpret and evaluate geographical information, issues and viewpoints and apply understanding in unfamiliar contexts. AO3 Select and use a variety of methods, skills and techniques (including the use of new technologies) to investigate questions and issues, reach conclusions and communicate findings</p>



Technology	Design and Technology: Food Technology Design and Technology: Product Design (3-D Design) Design and Technology: Product Design (Textiles) Design and Technology: Systems and Control Technology	Participating in the BT Young Scientist & Technology Exhibition could develop pupil's Knowledge, Understanding and Skills relating to the Units in: Design and Technology: Food Technology Design and Technology: Product Design (3-D Design) Design and Technology: Product Design (Textiles) Design and Technology: Systems and Control Technology Participating in the BT Young Scientist & Technology Exhibition would contribute to an assessment of Assessment objectives in these specifications
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