BRITISH SCIENCE ASSOCIATION

CREST Awards

DO YOUR STUDENTS EVER WONDER?

...THEN TAKE THEM ON THE CREST AWARDS JOURNEY

Creativity in Science and Technology Awards

Teacher's Guide

www.britishscienceassociation.org/crest

WHAT IS CREST?

CREST IS BRITAIN'S LARGEST NATIONAL AWARD SCHEME FOR PROJECT WORK IN THE STEM SUBJECTS (SCIENCE, TECHNOLOGY, ENGINEERING AND MATHS). IT GIVES 11-19 YR OLDS OPPORTUNITIES TO EXPLORE REAL WORLD PROJECTS IN A DYNAMIC WAY.

Since CREST was established 25 years ago over 300,000 young people have gone on the CREST journey – 25,000 11-19 yr olds achieved a CREST Award in the last year alone.

The CREST process has four key steps:

1. Project selection
2. Project activity
3. Assessment/ Certification
4. Celebration

CREATIVITY BEYOND THE CLASSROOM

CREST Awards are extremely flexible. Linking closely to the curriculum, projects fall into three categories:

- Research
- Investigation/ Design and make
- Science Communication

As you'll see, CREST Awards can be achieved through a variety of linked schemes and in numerous contexts. Support is in place to help get you started – or you can create your own projects. It's up to you.

CREST also encourages projects with strong industry or academia links. CREST Mentors – often practicing experts in their field – provide a vital role in the progress of tomorrow's talent.

CREST and UCAS

CREST Awards are high-quality and give students a tangible achievement for their efforts. UCAS note CREST Awards as an indicator of relevant skills and achievements, which students might mention in university applications – a CREST Award may also prove attractive to potential employers.

Take a look at where CREST Awards can take your students...

CREST ★ INVESTIGATORS

The British Science Association also runs CREST ★ Investigators – a STEM enrichment scheme for primary-aged children. Secondary schools are increasingly using the scheme in their feeder primaries. Together, CREST and CREST Star create a seamless award process for 5-19 yr olds.

www.britishscienceassociation.org/creststar

IMPACTS & BENEFITS

For students

"CREST HAS MADE ME REALISE HOW MANY CAREERS INCLUDE STEM."

CREST Bronze student

CREST empowers students to develop ownership of their understanding. It has a strong positive impact on participating students. A comprehensive independent evaluation* of the scheme has shown that, through CREST, students:

- Gain opportunities for scientific discovery
- Develop and understand scientific skills and processes
- Improve their presentation and literacy skills
- Discover how STEM fits in with their lives
- Develop Personal Learning and Thinking Skills
- Are encouraged to continue to study STEM subjects.

*CREST evaluation conducted by Dr. Laura Grant, University of Liverpool in 2006. Find the full report at: **www.britishscienceassociation.org/crest**

For teachers, schools and colleges

OFSTED describe how schools and teachers who provide outstanding experiences in Science, "show significant levels of originality, imagination or creativity in their understanding and skills within the subject." CREST Awards are designed with such needs in mind.

For teachers, engagement with CREST:

- Provides opportunities to display expertise
- Develops skill-sets
- Builds confidence in problem-solving based learning
- Provides a framework for STEM based Work Related Learning activities.

For schools and colleges, CREST:

- Provides valuable supportive evidence for Self Evaluation Forms
- Demonstrates imagination and helps form external partnerships
- Contributes to the extra-curricular offer to pupils and parents
- Gives focus to grant applications
- Provides a framework for Specialist Schools and Academies to support science and technology in their primary feeder schools.

(Download a PDF on how CREST links to the Scottish Curriculum at: **www.britishscienceassociation.org/crest**)

1 (CHOOSING A PROJECT)

THE PROJECT CATEGORIES

There are three categories of CREST project:

1. Research
Usually involves answering a question/ hypothesis by collecting data from different sources. The data is then evaluated and used to provide evidence.

2. Investigation/ Design and make
Usually involves planning and carrying out a practical investigation or solving a problem through design.

3. Science Communication
Students research a scientific topic and specific audience, present their information to the audience and then measure the outcomes of their discussion (such as changes in audience attitudes).

PICK THE PROJECT

A wide variety of projects can fit CREST Awards. Projects could be:

- One of CREST's 150+ free project ideas
- Chosen by you
- Created by a student
- From an accredited link scheme
- Provided by a local company or university

CREST's free project ideas include project plans for each Award level, health and safety information, and curriculum links. Find them at:
www.britishscienceassociation.org/crestprojects

"I LIKED THAT WE WERE WORKING TOWARDS A SPECIFIC GOAL AND FELT I HAD ACHIEVED SOMETHING."
CREST Bronze student

THE AWARD LEVELS

There are three CREST Award levels – Bronze, Silver and Gold. The levels are progressively more complex and challenging, but can be awarded separately at any stage:

1. Bronze
- Typically completed by 11-14 yr olds – around 10 hours of project work is expected
- Students experience the project process – improving their enquiry, problem solving and communication skills
- Achievable through CREST link schemes including: Science Museum club boxes, STEM Challenges, and The Smallpeice Trust's Engineering Experience courses
- Also eligible through:
  – 'CREST in a Day' events
  – After-school club activities
  – Whole-class investigation/technology modules
  – Enrichment day/weeks in schools (e.g. National Science & Engineering Week).

2. Silver
- Typically completed by 14-16 yr olds – around 30 hours of project work is expected
- Achievable through CREST link schemes including: 4X4 in Schools, *FIRST* LEGO League, and Go4SET
- The participation of external Mentors is encouraged
- Also eligible through:
  – Suitable coursework (e.g. GCSE Design and Technology)
  – Project work for Work Related Learning, Enterprise and Diplomas.

3. Gold
- Typically completed by 16-19 yr olds – these longer-term projects require around 70 hours work
- Achievable through CREST link schemes including: Nuffield Science Bursaries, and the Engineering Education Scheme
- Eligible through suitable coursework or project work for Diplomas
- All CREST Gold Award projects involve external Mentors.

2 (GETTING STARTED)

LOCAL COORDINATORS

CREST Awards are organised and administered through our network of Local Coordinators. They'll provide expert guidance throughout the scheme and help you through a simple registration process. Find your Local Coordinator at: **www.britishscienceassociation.org/crestcontacts**

"ENTERING FOR THE CREST AWARDS WAS STRAIGHT FORWARD: WE JUST HAD TO ENSURE THAT THE ACTIVITY FITTED THE CRITERIA REQUIRED."

Emma Owen, Science Teacher – Downlands Community College, West Sussex

PROFILE FORMS

CREST Profile Forms help students record their progress in a sequential manner – so monitoring the process is itself a learning tool. Your Local Coordinator will provide you with Profile Forms once your students are registered.

CREST MENTORS

CREST Mentors play a vital role in developing tomorrow's talent. They often come from schemes such as STEM Ambassadors or Researchers in Residence (RinR) – though anyone with a specific expertise which relates to a student's CREST project could be a Mentor.

No two CREST projects are ever the same, but a CREST Mentor could:

- Be a point of access for specialist knowledge or techniques
- Help your student develop their ideas or guide them as they examine their results
- Arrange relevant work experience or an industrial visit.

Your CREST Local Coordinator will help you find the best Mentor for your students at Silver and Gold levels.

"CREST IS A STRONG, WELL ESTABLISHED BRAND THAT PROFESSIONAL TEACHERS AND PROJECT PROVIDERS CAN RELY ON FROM YEAR TO YEAR."

Dr. Chris Arridge, Mullard Space Science Laboratory *(funded by the Science and Technology Facilities Council)*

3 (ASSESSMENT)

THE ASSESSMENT PROCESS

Straight-forward and positive, project assessment varies depending on the Award level:

- Bronze Awards can be assessed internally, by another teacher or by a leader from the participating school or organisation
- Silver and Gold Award projects are evaluated externally – your Local Coordinator will arrange this for you.

How are the projects assessed?
A CREST assessor will typically:

- Read through your student's Profile Form (or project report/portfolio, if one exists)
- Speak with your student – who'll have an opportunity to present their project work at every CREST level.

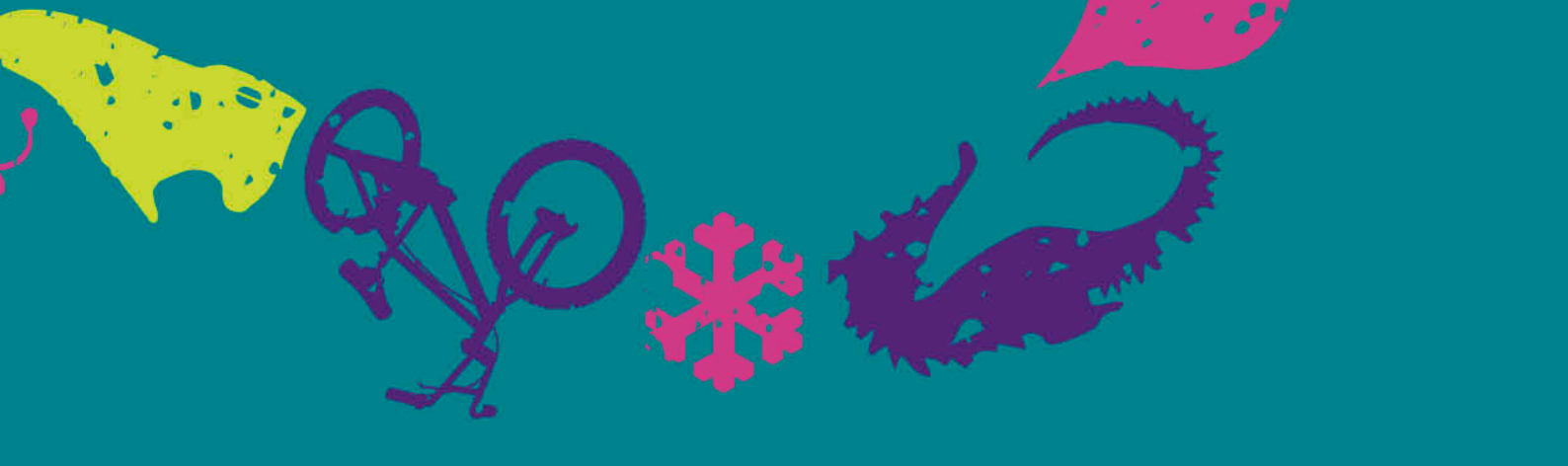
Refer to the CREST assessment grid – find this at:
www.britishscienceassociation.org/crestassessment

Second time around
If the assessor feels more work is needed on a project, they'll advise your student on how to reach the required standard.

CREST CERTIFICATES

Successful students receive a high-quality and personalised CREST certificate – a tangible and impressive way to remember their hard work.

Certificates are also available for schools participating in CREST – just contact your Local Coordinator to receive one.



4 (CREST & BEYOND)

LOCALLY, REGIONALLY AND BEYOND... THE CREST JOURNEY DOESN'T HAVE TO END WITH A CERTIFICATE

In your school and local links

CREST Award celebrations let students feel proud of their achievements.

Awards are regularly presented publicly at:

- School assemblies
- Science fairs – where schools and local businesses come together

Celebrations are a great way to raise your departmental profile, enhance the standing of your school or college, and even attract press coverage.

"CREST RAISED OUR SCHOOL'S PROFILE WITHIN THE LOCAL AREA"
Science Teacher

Regional Big Bang Fairs

CREST students can also celebrate their achievements at their Regional Big Bang Fair. CREST students exhibit their projects, presenting their work to local experts in science and engineering – they'll also meet other students from the region.

Where's your Regional Big Bang? Find out at:
www.britishscienceassociation.org/regionalfairs

As well as celebrating achievement, a team of judges will select projects at each CREST Award level to be showcased at the annual Big Bang: UK Young Scientists' and Engineers' Fair.

Going National – CREST @ The Big Bang

This enormous annual celebration sees students from all over the UK meeting and exchanging ideas with eminent scientists and engineers – as well as with their peers. The Fair also hosts the National Science & Engineering Competition. CREST is a lead scheme through which students can enter the Competition, with finalists automatically eligible for special CREST prizes.

A panel of expert judges will also award a range of prizes specifically for CREST students: there are substantial cash prizes and once-in-a-lifetime experiences to be won.

International jet set

CREST has a reputation for taking students to international competitions. Recent examples include the work of CREST Gold student, James Popper. After presenting his work at The Big Bang 2010, James found success at the Intel International Science and Engineering Fair in San Jose, California. His project, 'Cooker Smart', won multiple prizes, including:

- An invitation to the prestigious 'Stockholm International Youth Science Seminar' – an event where 25 of the world's best young scientists and engineers meet during the Nobel Prize Ceremonies
- First place in the US Government Patent and Trademark Office Society award – worth $2000.

More exciting opportunities will be available for CREST Awards students this year.

Find more on CREST Celebrations at:
www.britishscienceassociation.org/crest

national science+ engineering competition

The Big Bang
UK Young Scientists & Engineers' Fair

CREST AT A GLANCE

A quick trip through the CREST process...

1. Decide where you want to use CREST:

- During class-time
- In any type of club
- During an enrichment/activity day or week
- Through work experience.

2. Contact you CREST Local Coordinator, who will:

- Help get your students registered
- Suggest project ideas and provide support
- Help link your students with suitable CREST Mentors in industry or higher education.

Once you're registered, your Local Coordinator will send out your students' CREST Profile Forms.

3. Do the project
Remember: you can contact your CREST Local Coordinator at any point.

4. Assess the project/Get the certificates
Once your students complete their work, contact your CREST Local Coordinator to arrange or discuss project assessment. Successful students will receive a high-quality, personalised certificate.

5. Celebrate
Whether in school or at a local event – students take real pride in showing their achievements. CREST's involvement in regional, national and international fairs also provides a great route to excitement through STEM.

If you have any questions that can't be answered by your Local Coordinator, then please call us on **020 7019 4943** or email **crest@britishscienceassociation.org**

CREST Awards are organised and administered through our network of Local Coordinators.

Your CREST Local Coordinator is:

Contact details for your Local Coordinator and registration fees are online at:
www.britishscienceassociation.org/crest

CREST Awards are supported by:

RESEARCH COUNCILS UK

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Saudi Aramco

we would also like to thank
Network Rail

About the British Science Association
The British Science Association aims to promote openness about science in society and to engage and inspire people directly with science and technology and their implications. It has over 25 years of experience at running STEM enrichment programmes for young people.

The British Science Association is a partner in the following projects: National Science and Engineering Competition, The Big Bang: UK Young Scientists' and Engineers' Fair, STEM Clubs, and STEM Directories.

British Science Association
www.britishscienceassociation.org
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