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CREST Silver Award Scheme

Submission date 26/10/2017	**Recruitment status** No longer recruiting	[ ] Prospectively registered [ ] Protocol
Registration date 02/11/2017	**Overall study status** Completed	[ ] Statistical analysis plan [ ] Results
Last Edited 06/09/2019	**Condition category** Other	[ ] Individual participant data [ ] Record updated in last year

Plain English summary of protocol

Background and study aims:
CREST is a nationwide extra-curricular award scheme. It aims to help students develop their Science, Technology, Engineering and Maths (STEM) skills through student-led project work. It is coordinated by the British Science Association (BSA). CREST has four levels – Discovery, Bronze, Silver and Gold. The aim of this study is to assess the difference that the CREST Silver Award makes to students' performance in STEM subjects, as well as the difference it makes to their confidence, attitudes to school and future aspirations.

Who can participate?
Year 9 pupils (aged 13-14) at participating schools

What does the study involve?
Participating schools are randomly allocated to one of two groups. Group 1 schools support the Year 9 students who have expressed an interest in taking part to carry out a student-led STEM project over the course of two academic terms. This involves at least 30 hours of student-led project work. Schools receive guidance from BSA on delivering the CREST Silver Award and have the flexibility to deliver CREST Silver during class, during a lunchtime/after school club, or a placement outside of school. Group 2 schools teach STEM subjects as they would do normally in Year 9.

What are the possible benefits and risks of participating?
The intervention is designed to improve confidence and attitudes to science, leading to higher aspirations and rates of attainment. There is relatively strong evidence that project work that requires students to solve a problem independently (rather than being presented with information by a teacher) has benefits for students. There are no risks for participating students.

Where is the study run from?
The project is being run in about 200 schools, recruited to take part by the British Science Association (BSA)

When is the study starting and how long is it expected to run for?
November 2016 to March 2021

Who is funding the study?
Education Endowment Foundation (EEF) (UK)

Who is the main contact?
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Contact information

Type(s)
Public

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Additional identifiers

Protocol serial number
NatCen REF P12153

Study information

Scientific Title
CREST Silver Award Scheme: a randomised controlled trial

Study objectives
The CREST Award programme is an extra-curricular award scheme to help students build their Science Technology, Engineering and Maths (STEM) skills and demonstrate personal achievement through independent project work. The main hypothesis is that Year 9 pupils who participate in the CREST Silver Award scheme will have better attainment in science than equivalent pupils receiving a business-as-usual approach to the teaching of STEM. The secondary hypothesis is that pupils who participate in the CREST Silver Award scheme will have improved confidence, attitudes to school, self-efficacy in science and future aspirations in science, compared with the control.

Ethics approval required
Old ethics approval format

Ethics approval(s)
NatCen Social Research Ethics Committee, 21/04/2017

Primary study design
Interventional

Study design
Randomised controlled trial

Study type(s)
Other

Health condition(s) or problem(s) studied
STEM knowledge

Interventions
Schools agreeing to take part in the trial will invite eligible students, whose parents have not opted them out, to express an interest in taking part. It is a two-arm cluster (school-level) randomised controlled effectiveness trial, so as soon as all baseline data has been collected, schools will be assigned to one of two groups. Randomisation will be stratified by the proportion of pupils who have everFSM status and prior attainment. On each dimension, recruited schools will be split into two equally-sized groups of high and low measures of the dimension's scale. Assignment will take place within the combined groups.

The project involves schools being randomly allocated (50:50 chance) to one of two groups:
1. Group 1: Schools that deliver the CREST Silver Award to eligible Year 9 students who have expressed an interest in taking part
2. Group 2: Schools that teach STEM subjects as they would normally in Year 9

Those delivering the CREST Silver Award (Group 1) will support the Year 9 students taking part to carry out a student-led STEM project over the course of two academic terms. This involves at least 30 hours of student-led project work. Completed projects are submitted to the British Science Association for independent assessment against a set of 15 criteria. If few of these criteria are met, this is taken as an indication that insufficient time has been spent on the project. Pupils are supported in undertaking the CREST Award by an educator (e.g. a teacher, technician, club leader) and can undertake their project work in different settings (during class, during a lunchtime/after school club, or a placement outside of school). Implementation varies widely due to the flexibility of the CREST Award. This flexibility is necessary to facilitating inquiry-led learning, whereby students learn by solving a problem or answering a question. The aim is that inquiry-led learning will have a positive impact on students' attainment in science.

Intervention Type
Other

Primary outcome(s)
Science knowledge, measured using GL's Progress Test in Science. It is an adaptive assessment covering physics, chemistry, biology and curriculum knowledge as well as knowledge of concepts that relate to working scientifically. This will be administered in May – June 2018 to all pupils that signed up.

Key secondary outcome(s)
1. GCSE science results, obtained from NPD after the end of Year 11 (January - March 2021)
2. Other secondary outcome measures will assess soft outcomes; this data will be collected through standardised measures in a pupil survey administered before and after the intervention.

The soft outcomes of interest include:
2.1. Confidence
2.2. Attitudes to school
2.3. Young people's self-efficacy in science
2.4. Young people's future aspirations in science

Completion date
31/03/2021

Eligibility

Key inclusion criteria
A school is eligible to take part in the trial if:
1. Its proportion of pupils eligible for everFSM is at least as high as the England average
2. It has not participated in CREST Bronze, Silver or Gold in the academic year prior to the intervention (i.e. in 2016/17)
3. It is not in special measures
4. It agrees not to take part in CREST or Go4Set (a 10 week STEM project that incorporates CREST) with the same pupils if they are assigned to the control condition, if possible until the end of the GCSEs
5. It can recruit between six and 35 pupils, of whom 25% should be eligible for free school meals (under the everFSM category)

Participant type(s)
Other

Healthy volunteers allowed
No

Age group
Child

Sex
All

Key exclusion criteria
All schools signed up to the trial will formalise their participation by signing a Memorandum of Understanding (MoU). As part of this they are agreeing that they can meet the eligibility criteria set out above. Before schools invite eligible pupils to express an interest in taking part (via the online pupil survey) they must conduct a parental/carer opt out exercise. Any opted out pupils will be excluded, but there are no characteristics as such that would otherwise exclude eligible pupils from taking part.

Date of first enrolment
06/03/2017

Date of final enrolment
16/06/2017

Locations

Countries of recruitment
United Kingdom

England

Albania

Study participating centre
British Science Association
United Kingdom
SW7 5HD

Sponsor information

Organisation
Education Endowment Foundation (EEF)

ROR
https://ror.org/03bhd6288

Funder(s)

Funder type
Charity

Funder Name
Education Endowment Foundation (EEF)

Results and Publications

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be stored in the Education Endowment Foundation's archive (which is managed by the Fischer Family Trust). Type of data stored: Anonymised pupil level participant data (pupil month of birth; gender; FSM status; allocation to treatment or control group; post-intervention; pupil baseline data (i.e. Key Stage 2 outcomes in Science); GL Progress Test in Science test data, date and outcome), school level baseline data (i.e. Key Stage 2 outcomes in Science averaged at school level), and school level demographic info (on percentage of pupils with SEN, FSM status, school type (including

whether single sex or co-ed), a deprivation indicator (Index of Multiple Deprivation 2015)). Timing for availability: Requests to the Education Endowment Foundation from Summer 2021 onwards. Parental consent was obtained. Dataset is anonymised.

IPD sharing plan summary

Stored in repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Study website	Study website	11/11/2025	11/11/2025	No	Yes