

# Engage

## Teacher Conference

### **Breaking barriers, not budgets: high-impact, no-cost secondary resources**

Leaders from the STEM sector are coming together to showcase their top free secondary resources. Find inspiration for your lessons.

Catherine Fitzsimons, National Centre for Earth Observation

Dan Powell, Engineering UK

Hannah Higson, I'm a Scientist

Maisie Keogh, Association of British Science Writers

Ruth Mackay, The British Science Association

Dr Samantha Dobbie, University of Birmingham

Dr Heather Doran, Leverhulme Research Centre for Forensic Science, University of Dundee

Robert Kennedy, UK Electronics Skills Foundation

Sarah Roberts, RaspberryPi

## Welcome, please be aware:

- Talks are recorded
- You can ask questions in the chat throughout
- There will be time for questions at the end



**Engage**

# National Centre for Earth Observation

**Catherine Fitzsimons**  
NCEO Outreach officer

[www.nceo.ac.uk](http://www.nceo.ac.uk)



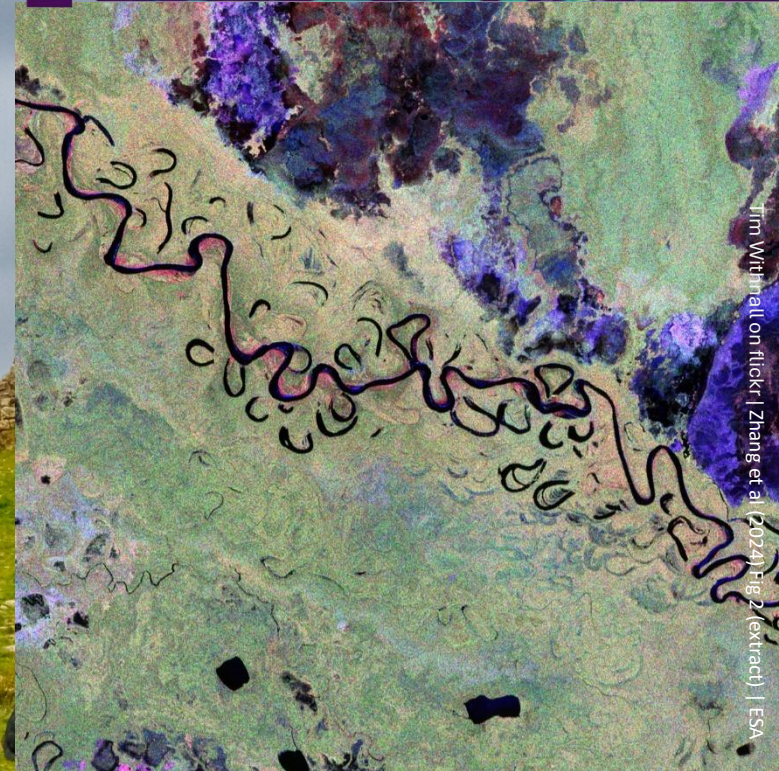
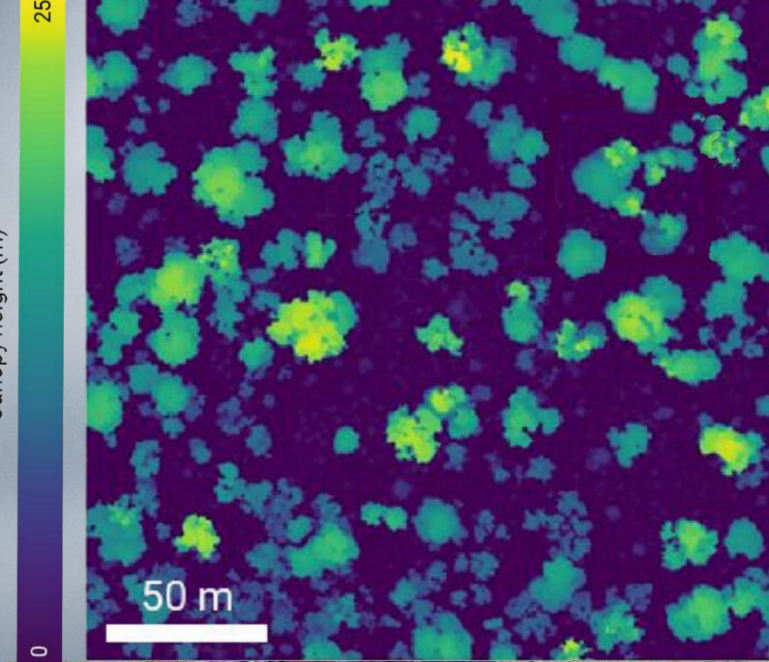
**National Centre for  
Earth Observation**

NATURAL ENVIRONMENT RESEARCH COUNCIL

# EO Detective



Canopy height (m)



# ESA Climate



Background  
info and  
other ideas



SatSchool  
ESA Eduspace EO  
Copernicus browser  
Copernicus climate data store  
NASA Giovanni



Catherine.Fitzsimons  
@nceo.ac.uk

**Engage**

# EngineeringUK

**Dan Powell**  
Head of Neon

[www.engineeringuk.com](http://www.engineeringuk.com)





**Climate**  
SCHOOLS  
PROGRAMME



**Energy**  
QUEST

## Enhance your climate education

- Curriculum aligned, developed with educators
- Students explore **solutions** to climate change
- Free
- 96% of teachers rated CSP 'good' or 'excellent'
- [Climate Schools Programme](#)
- [Energy Quest](#)



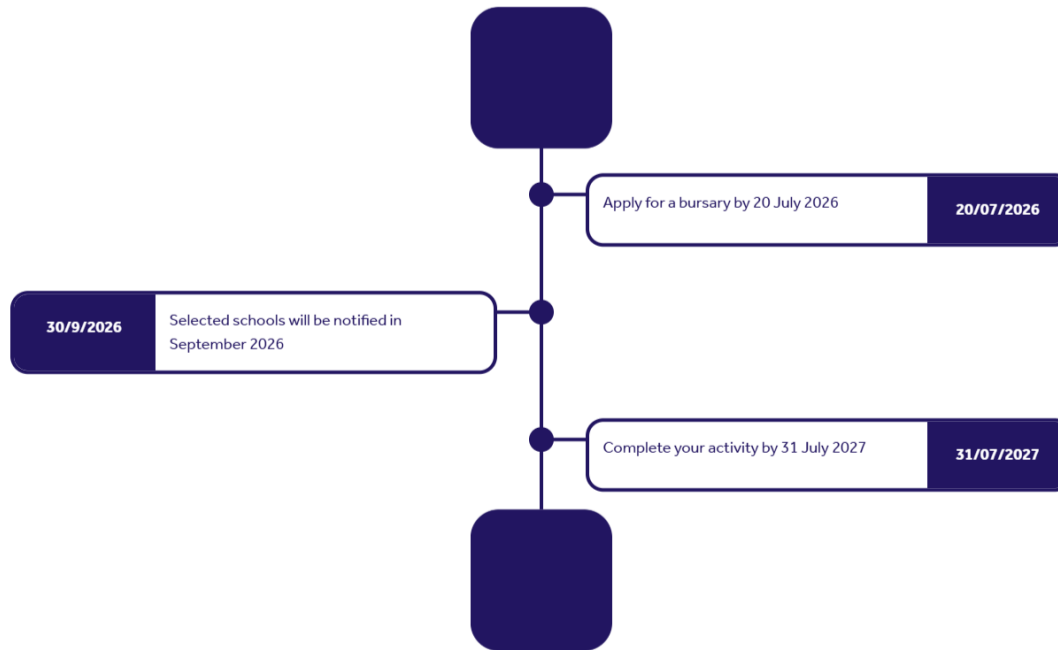
## Bring STEM careers to life

- Find the UK's best workshops, shows and more at the click of a button
- Themed collections to spark new ideas and help create a plan of STEM activities
- Filter by location, age, duration and cost
- [Start using Neon](#)

# STEM Funding for schools

- £700 bursary for EngineeringUK Priority schools
- For Neon or Big Bang at School
- Use to fund activities, kit, staff and travel
- Apply by 20 July 2026
- [Discover funding opportunities](#)

## Application timeline





## Find it all here

- EUK Education brings together everything that EngineeringUK does for schools, teachers and young people
- High quality careers resources, curriculum-linked lesson plans, Neon, inspiring role models, funded drop-down days and STEM careers fairs.
- [Visit EUK Education](#)



**Engage**

# I'm a Scientist

**Hannah Higson**  
Education and  
Safeguarding Lead

[www.imascientist.org.uk](http://www.imascientist.org.uk)

**I'm a  
Scientist  
Get me OUT of here**

# Support your students to see STEM as something 'for them'

**I'm a Scientist**  
Get me OUT of here



**Profiles**  
Explore



**Chat**  
Engage



**Ask**  
Discover



**Vote**  
Decide

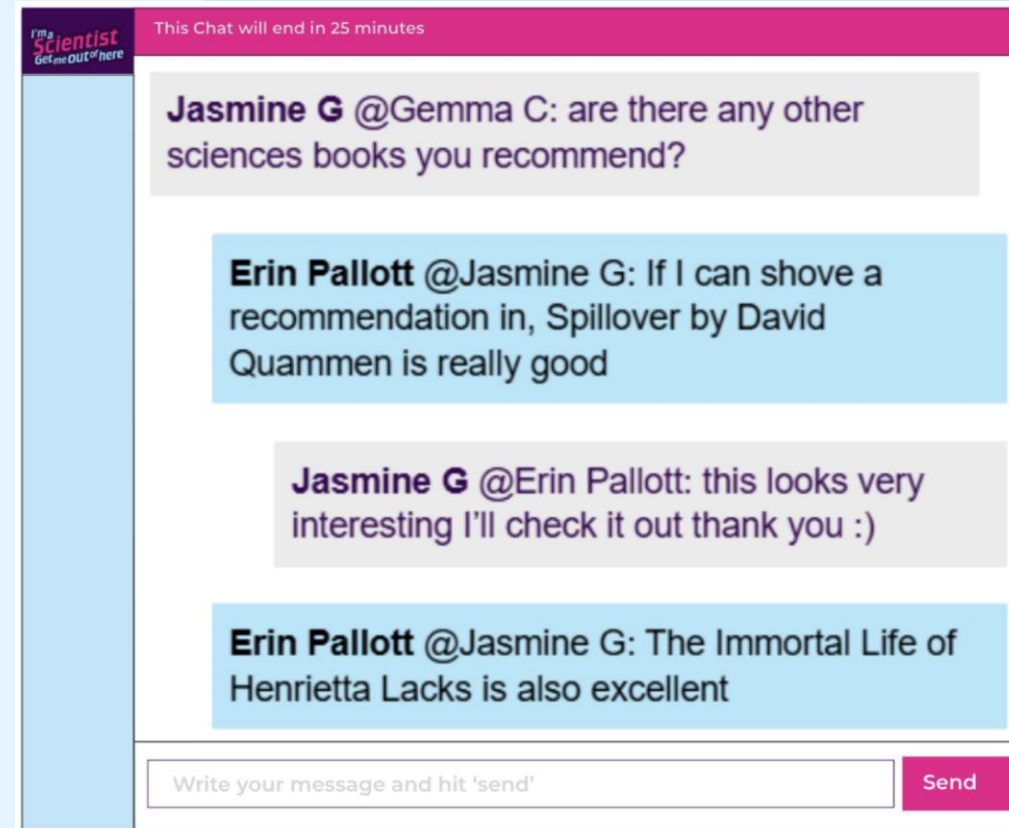


**Reflect**  
Discuss

**fully funded**  
for UK state schools

## Connect students with STEM Ambassadors

## through online, text-based Chats



Find out more: [imascientist.org.uk/signup/t/](https://imascientist.org.uk/signup/t/)

**Support students science capital** - students find meaning and personal relevance in science

**Inclusive enrichment** - all students can ask the questions that interest them

**Give context to teaching** - students explore real-life applications of their classroom topics

**Explore the world of work** - with authentic, personal insights into STEM roles

**I'm a Scientist**  
Get me **OUT** of here

*My pupils absolutely **LOVED** the Chat. They were engaged, it is such a unique thing to do and it added a different dynamic to their science lesson.*

– Teacher 2025

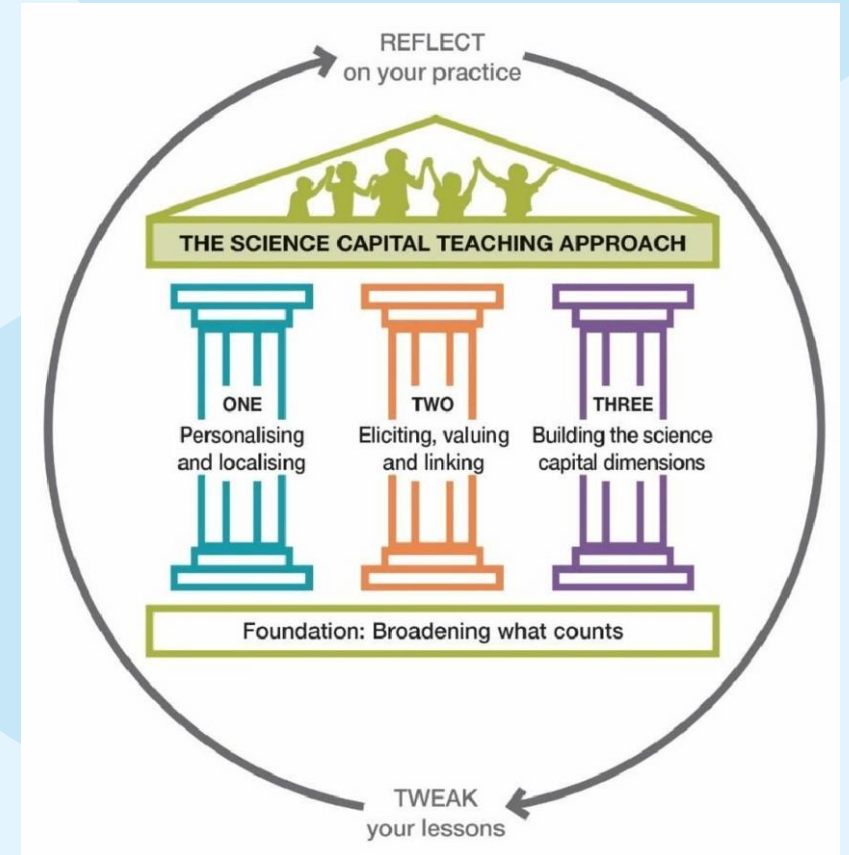


**Find out more:** [imascientist.org.uk/signup/t/](https://imascientist.org.uk/signup/t/)

# Science Capital Teaching Approach

The activity supports students to find meaning and personal relevance to their studies.

1. Personalising and localising
2. Eliciting, valuing and linking
3. Building the science capital dimensions



Find out more: [imascientist.org.uk/signup/t/](https://imascientist.org.uk/signup/t/)

1. Runs throughout the year
2. Chats last 30 minutes
3. Take part with classes, whole year groups, clubs
4. Over 750 different professionals
5. Safe and secure - DBS-checked moderators

*fully  
funded*  
for UK state  
schools



**Find out more: [imascientist.org.uk/signup/t/](https://imascientist.org.uk/signup/t/)**

**Engage**

# Association of British Science Writers

**Maisie Keogh**

Programme Director,  
Young Science Writer Award

[www.absw.org.uk/pages/YSWA](http://www.absw.org.uk/pages/YSWA)

**absw**

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ASSOCIATION OF BRITISH  
SCIENCE WRITERS

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# THE PROBLEM WE'RE UP AGAINST

2%

of young people can reliably judge whether a science story is **real** or **fake**.



**76%** of 14–24-year-olds see science misinformation at least every week.

## The Young Science Writer Award.

Free to enter. Built to fight this.

Sources: UNICEF-cited research (Ofcom/UK); ABSW & Royal Institution.



# A Free Competition - with a National Stage

Young Science Writer Award . Ages 14-16 . UK State-Funded, Non-Selective Schools



## The Task

**An 800-word essay on a STEM topic that matters.**

Pupils pick a real scientific question and argue it with evidence — science that connects to health, ethics, sport, climate and society.



## Who Is It for?

**Any 14–16 pupil at a state-funded, non-selective school — plus home-schooled pupils where disability makes that the right route.**

Free to enter. Free resources.



## The Recognition

**13 pupils recognised every year: winner £1,000, two runners-up £250, ten highly commended £100.**

Essays edited by professional journalists and published. Ceremony at the Science Museum, London.

Supported by



Head of ideas.

*The award was founded and is generously supported by the O'Brien Family*

# Real science, real questions

Five themes each year — then the freedom to investigate what genuinely matters to them.



## Planetary Futures

Climate, energy and life on a changing planet

## Life Reimagined

Genetics, medicine and the future of biology

## Invisible Worlds

The microbiome, quantum and the unseen

## The Digital Brain

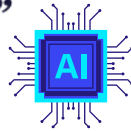
AI, neuroscience and how minds think

## Cosmic Perspectives

Space, astrophysics and our place in it

## WHAT WINNING PUPILS ACTUALLY WRITE

***“The Digital Mapmaker: AI and the biases of the past”***



Adrian Dredge · Great Western Academy, Swindon · 2026 winner

**AI, algorithmic bias & critical thinking**

***“Super shoes: is technology ‘doping’ elite sport?”***



Hasset Kifle · Stoke-on-Trent · 2025 winner

**Biomechanics, sport science & ethics**

***“Are insulin pumps the future of Type 1 diabetes care?”***



Jasmin Notarangelo · Musselburgh Grammar · East Lothian · 2024 winner

**Medical technology & health equity**

**Also explored:** cocoa supply chains · rainforest fungi & climate · light pollution · tyre microplastics — entries from 50+ UK towns across all four nations.

# Learn more today - be ready for the Young Science Writer Award 2027

1

Use the free educator hub now

Useful Guides for Competition Entrants

**Inside: source-checking · investigative skills · tackling misinformation · AI-integrity guidance**

2

Start planning for the next round

Entries open around January each year

**Details: 10 weeks to submit entry · cash prizes · national media exposure · awards ceremony in London**



maisie.keogh@absw.org.uk



[www.absw.org.uk/pages/yswa](http://www.absw.org.uk/pages/yswa)



**Scan for the free educator hub**

**Engage**

# **CREST Awards**

**Ruth Mackay**  
Education Officer

[www.crestawards.org](http://www.crestawards.org)





# CREST Awards

CREST brings science, technology, engineering, and maths (STEM) to life for young people aged 3-19 of all abilities through hands-on activities and exciting projects.

All CREST resources are available free through our [Resource Library](#).



**“ I think it brings a new sense of curiosity and discovery to students who have not been afforded the chance to really engage in science. ”**

Secondary school teacher, 'Machines of the future' pilot project participant

**“ (This project) has given me more confidence, as it is physical proof that you can achieve something. ”**

George, student from Lighthouse School in Leeds



▾ [Resource Library](#)    ^ [Help Centre](#)    Search

- Primary and early years resources →
- Discovery resources →
- Secondary and further education resources →
- SEND resources →

- Discovery →
- Bronze →
- Silver →
- Gold →

Our new website [www.crestawards.org](http://www.crestawards.org) is easy to navigate to the section you require.

- Resources include:
- Activities or projects ideas
  - Supporting documents e.g. passports, workbooks or Student Profile Forms
  - PowerPoint slides
  - Guidance documents

[www.crestawards.org/resource-library/](http://www.crestawards.org/resource-library/)



# CREST Awards

Home / Resource Library / **Secondary and further education**

Ages ▾ | Award level **4** ▾ | Topic ▾ | Resource type ▾ | Advanced options **1** ^

[Show more filters](#)

Discovery X | Bronze X | Silver X | Gold X | Low resource X | [Clear all filters](#)

- All
- Inclusive
- Home learning
- Low resource
- Welsh language
- Early years

Sort by **newest** ▾

Showing **9 of 27** resources

Team project | Computing, robotics & AI

DISCOVERY AWARD CREST AWARDS

MACHINES OF THE FUTURE

Teacher pack

Team project | Computing, robotics & AI

DISCOVERY AWARD CREST AWARDS

MACHINES OF THE FUTURE

Student pack

robotics & AI

DISCOVERY AWARD CREST AWARDS

MACHINES OF THE FUTURE

[View 9 Resources](#) →

Use the filters to select 'Low resource'



# Award levels

## DISCOVERY

10-14 years typical age  
5 hours (or 1 day)



## BRONZE

11+ years typical age  
10+ hours of work



## SILVER

14+ years typical age  
30+ hours



## GOLD

16+ years typical age  
70+ hours



Please remember CREST is flexible – so you can adapt any activities to suit your setting, learners and resources available!

**Engage**

# **Birmingham Institute of Forest Research**

**Dr Samantha Dobbie**  
BIFoR Learning and  
Engagement Lead

[www.birmingham.ac.uk/research/centres-institutes/birmingham-institute-of-forest-research](http://www.birmingham.ac.uk/research/centres-institutes/birmingham-institute-of-forest-research)



UNIVERSITY OF  
BIRMINGHAM

**BIFoR**

Birmingham Institute  
of Forest Research



# BIFoR Education and Outreach



1. Providing enriching opportunities to learn outside of the classroom

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2. Overcoming access barriers, widening participation and providing [immersive learning experiences](#) that reflect the breadth and depth of research at the institute

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3. Encouraging [meaningful collaboration](#) between researchers and school pupils

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4. Enhancing science capital and [raising career aspirations](#)

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5. Supporting subject knowledge enhancement (SKE) of teachers and embedding research outputs into the curriculum



UNIVERSITY OF  
BIRMINGHAM



[Schools can take part in BIFoR in a Box](#)

# BIFoR Education and Outreach



## 1. Learning outside of the classroom

>20 annual school visits,  
>1500 pupils and  
>170 teachers

## 2. Widening participation

>18000 virtual tours of BIFoR FACE, >25 resourced activities, 33 student internships

## 3. Meaningful collaboration

> 130 schools collecting data, 26 training sessions, 37 Ambassadors

## 4. Raising Career Aspirations

>15 career profiles, recorded mini lectures and school assemblies 21 outreach events reaching >1000 wider community

## 5. Subject Knowledge enhancement

Partnership with PTI, Sessions with UoB PGCE students, reached 88 teachers and 20 technicians



Scan the QR code to head to the site!

Contact:  
s.l.dobbie@bham.ac.uk

# BIFoR in a Box

- A free **STEM** kit for schools!
- BFIAB contains curriculum linked lesson resources and all the materials needed for pupils to create and install a **DIY Dendrometer**, collect data and discover more about the BIFoR FACE experiment.



UNIVERSITY OF BIRMINGHAM



## DIY Dendrometer!

Learners join a growing citizen science project by creating and installing a DIY Dendrometer. Emphasis is placed on planning an investigation, assessing risks and making predictions.

Key stage:



# Engage

## Leverhulme Research Centre for Forensic Science

**Dr Heather Doran**

Public Engagement Manager

**Clara Morriss**

Public Engagement Coordinator

[www.dundee.ac.uk/leverhulme](http://www.dundee.ac.uk/leverhulme)



Leverhulme Research Centre  
for Forensic Science  
University of Dundee



# LRCFS... a multidisciplinary team



# Making forensic science accessible to all

Leverhulme Research Centre  
for Forensic Science  
University of Dundee



## INSIDE FORENSIC SCIENCE



## UNDERSTANDING FORENSIC GAIT ANALYSIS



Leverhulme Research Centre  
for Forensic Science  
University of Dundee

LEVERHULME  
TRUST 1

## UNDERSTANDING FORENSIC DNA ANALYSIS



Leverhulme Research Centre  
for Forensic Science  
University of Dundee

LEVERHULME  
TRUST 2

THE CURSE OF THE BURIAL DAGGER (A SUSIE SATO MYSTERY)

### “UNMISSABLE

IF YOU'RE A FAN OF MURDER  
MYSTERIES, AND

SOMETHING A LITTLE  
OUTSIDE OF THE BOX

IF YOU'RE MORE  
OF A TRADITIONAL  
ESCAPE ROOM  
AUDIENCE.”

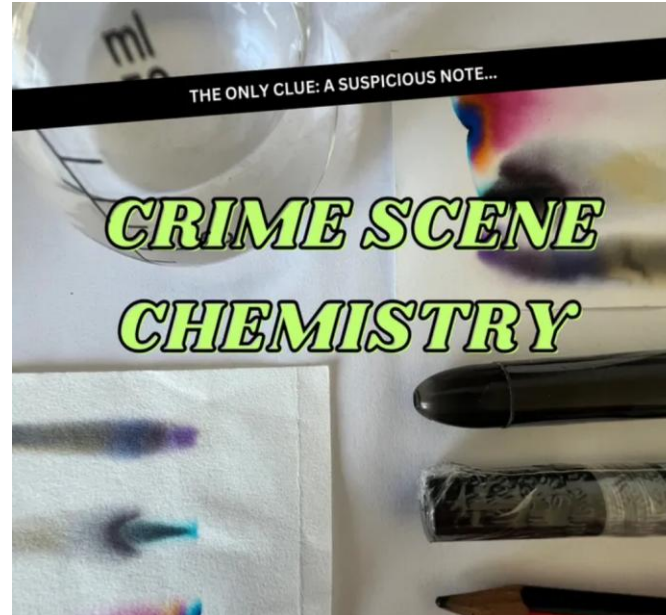
“ONCE AGAIN  
FAST FAMILIAR HAVE  
NAILED IT AND THEIR  
NEW GAME IS  
PERFECT FOR ALL  
AUDIENCES.”

the  
escape  
roomer



THE ONLY CLUE: A SUSPICIOUS NOTE...

## CRIME SCENE CHEMISTRY



OPERATION:  
RAPTOR RESCUE



# Forensic Science Resources for Teachers

A collection of activities designed by LRCFS for Primary-Secondary age students

Designed for a range of ages

Forensic science experiments using accessible materials



Leverhulme Research Centre for Forensic Science University of Dundee

## Teacher Activity Pack

Funded by the LEVERHULME TRUST

A range of activities for the classroom or home designed for children aged 7+.

Designed in collaboration with forensic science researchers

## Footwear Marks

**Curriculum of Excellence Links:**  
The following activities complement the below experiences and outcomes in the Scottish Curriculum for Excellence.

**HWB 3-19a:** I am developing the skills and attributes which I will need for learning, life and work. I am gaining understanding of the relevance of my current learning to future opportunities. This is helping me to make informed choices about my life and learning.

**MNU 3-03a:** I have collaborated with others to find and present information on how scientists from Scotland and beyond have contributed to innovative research and development. SCN 3-20a I can use a variety of methods to solve number problems in familiar contexts, clearly communicating my processes and solutions.

**MTH 2-21a / MTH 3-21a:** I can display data in a clear way using a suitable scale, by choosing appropriately from an extended range of tables, charts, diagrams and graphs, making effective use of technology.

**RME 3-05b:** I can demonstrate my developing understanding of moral values through participating in events and projects which make a positive difference to others.

**Footwear Marks Activities:**  
1. Recording Footwear Marks  
2. Footwear Marks in Motion

**Acknowledgements:**  
These activities were adapted from a citizen science project called "Sole Searching", developed by Professor Niamh Nic Daidid and Dr Heather Doran.

Leverhulme Research Centre for Forensic Science University of Dundee

Links to the Curriculum of Excellence

## Activity 1 - Recording Footwear Marks

Leverhulme Research Centre for Forensic Science University of Dundee

**Learning Outcomes:**

- Describe the difference between a footwear mark and a footprint
- Recognise what features would allow a forensic scientist to match a footwear mark to a particular pair of shoes.
- Describe why footwear marks are important types of forensic science evidence.

**Equipment:**

- Olive / Vegetable Oil
- Paint brush
- Hot Chocolate powder
- Blank A4 paper

**Health and Safety:**  
Avoid risk of slips or trips by ensuring shoes are immediately cleaned after a footwear mark is recorded.

**Set up:**

- This activity requires clear, empty floorspace
- You will need 1 sheet of A4 paper per footwear mark
- Keep cleaning supplies to hand to avoid a mess. We recommend using paper towel or setting up a basin with a thin layer of soapy water for shoes to be cleaned in before being dried with a cloth.

**Instructions:**  
Note: This activity is more easily done in pairs.

- Using a small amount of oil, lightly paint the bottom of one of your shoes, making sure to cover all the grooves and features. Have a classmate help apply the oil so you don't need to take off your shoe.
- In one smooth motion stand on your blank piece of A4 paper with your shoe. Try to make sure you get your whole shoe on the paper.
- Once you have made your footwear mark, shake a small amount of hot chocolate powder onto the mark to make it clearer to see then tap and blow away any excess powder into a bin. You should end up with a footwear mark that look similar to the image on the left.
- On the piece of paper write down the shoe model and shoe size.
- Repeat steps 1-4 to make a duplicate print. (You can repeat these steps up to 6 times to get a set of footwear marks made with the same shoe to compare. Double check with your teacher how many they want you to make).
- Compare your duplicates. Are there any differences in the marks?

**Discussion Questions:**

- How would you be able to figure out which shoe left a footwear mark if they were both the same model and brand?
- How might a forensic scientist match a footwear mark to a shoe? What features might they measure or look at?
- Do you think you can accurately determine shoe size from a footwear mark?

Promotes discussion of science and the judicial system

# Thank you!

Find more of our activities  
and projects on our website:



<https://www.dundee.ac.uk/leverhulme/public-engagement/projects>

<https://www.linkedin.com/company/lrcfs/>



Leverhulme Research Centre  
for Forensic Science  
University of Dundee

**Engage**

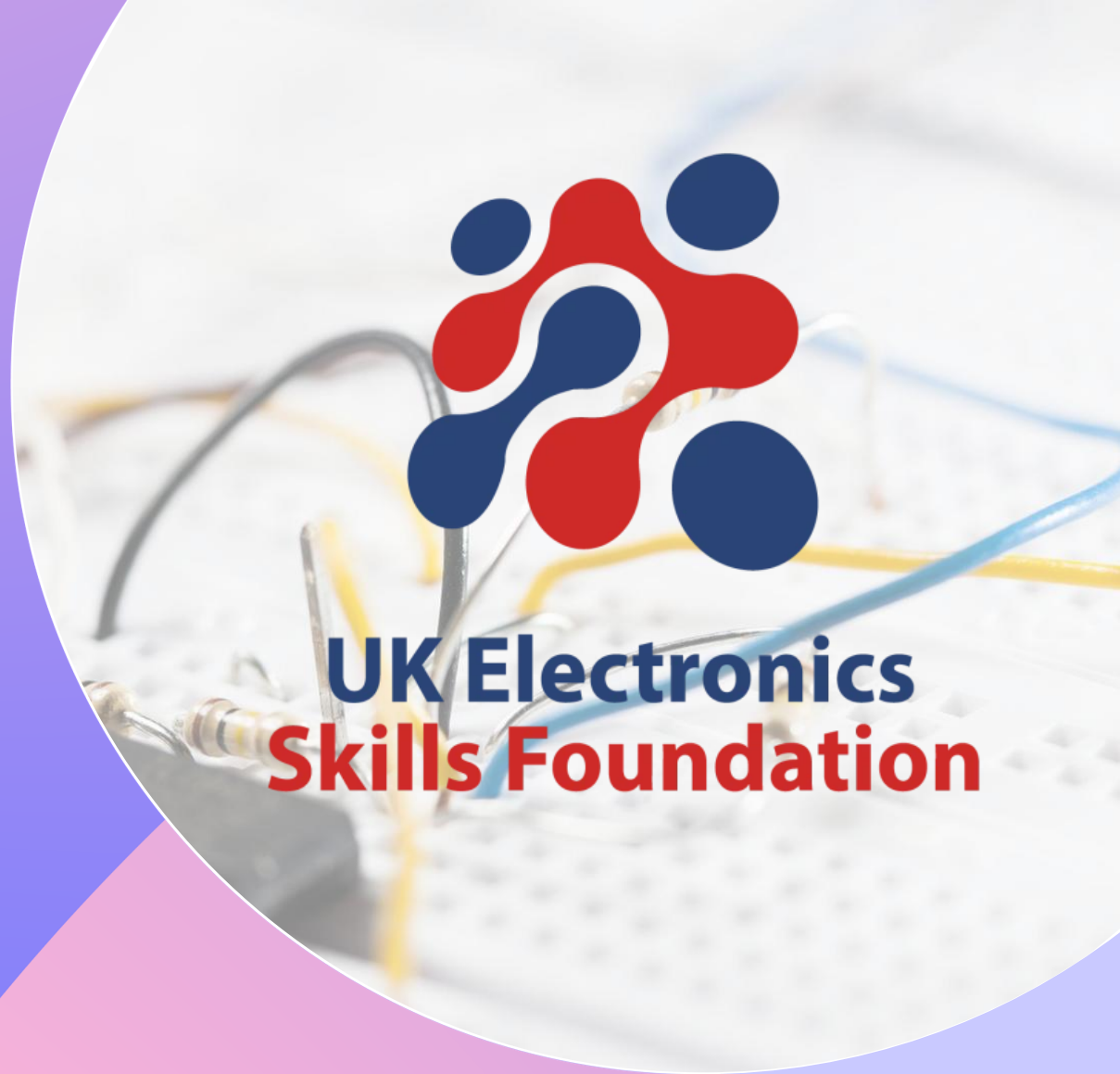
# UK Electronic Skills Foundation

**Robert Kennedy**  
Project Engineer

[www.ukesf.org/](http://www.ukesf.org/)



**UK Electronics Skills Foundation**



# About Us

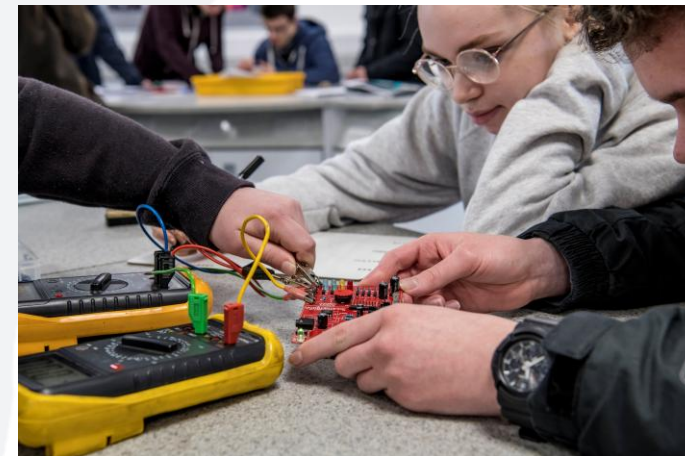
The UK Electronics Skills Foundation (UKESF) is an organisation committed to encouraging more young people to study Electronics.

We offer:

- Free interactive resources for primary and secondary schools
- Scholarships and work placements for university students
- Industry visits to connect young people with employers
- And much more!



**UK Electronics**  
**Skills Foundation**



# Electronics Everywhere

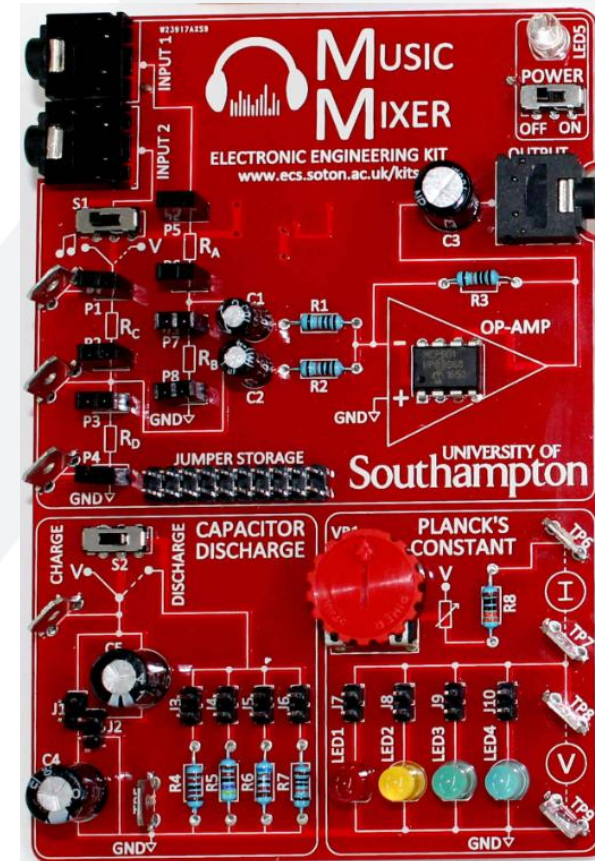


UK Electronics  
Skills Foundation

One of our programmes aimed at secondary schools using hands-on activities to teach core Electronics concepts for A-Level Physics and Computer Science students.

What's included:

- 10 Music Mixer boards
- 10 Logic Boards
- 5 Grove Kits
- Online teacher sessions
- Digital supporting resources



# Board Breakdown



UK Electronics  
Skills Foundation

Music Mixer	Logic Board	Grove Kit
Add together two audio signals and adjust the volume using resistors	Explore the properties of different logic gates	Program an Arduino microcontroller
Measure and modify the discharge rate of capacitors	Chain logic gates together to create simple circuits	Experiment with various electronic sensors
Use LEDs to work out Planck's constant (Part of the A-Level Physics curriculum)	Perform Binary arithmetic calculations using an adder/subtractor (Part of the A-Level Computer Science curriculum)	Incredibly versatile and a broad range of applications (Has been used in DT coursework, Electronics clubs and after-school programmes)

# Next Steps

Explore the programmes on our website:

<https://www.ukesf.org/>

Sign up for our Electronics Everywhere Resources and join an online teacher session:

<https://www.ukesf.org/what-we-do/electronics-everywhere/>

Ask us anything:

[education@ukesf.org](mailto:education@ukesf.org)

**Engage**

# Code Club

**Sarah Roberts**

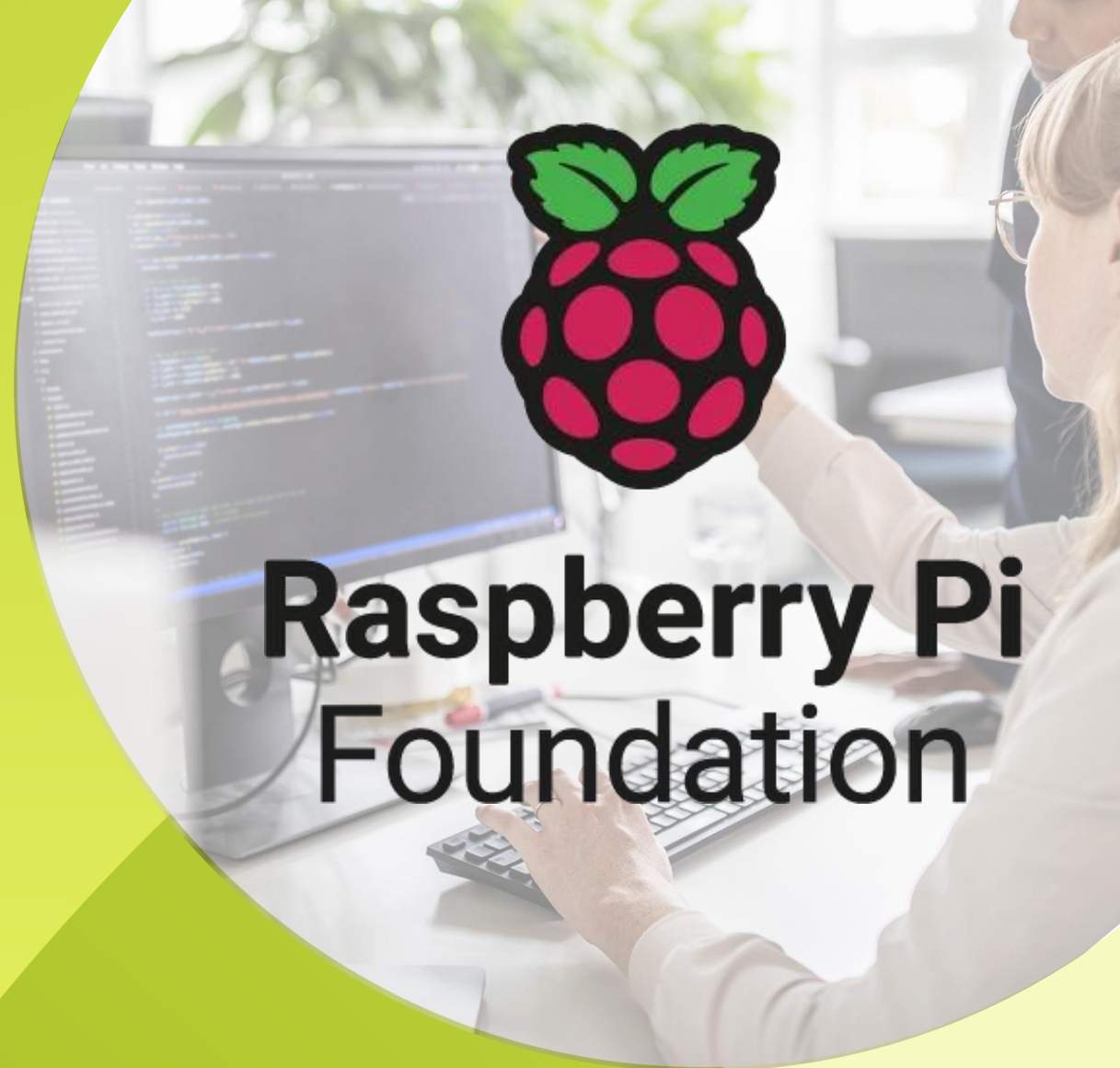
Code Club

Community Manager

[www.rpf.io/projects](http://www.rpf.io/projects)



**Raspberry Pi  
Foundation**



# What is Code Club?



## We are Code Club

A global network of free volunteer and educator-led coding clubs **open to all young people** age 7+.

Support millions of young people to develop the **skills, knowledge, and mindsets** to thrive in a digital world.

Fun in a **safe, inclusive** space.



# Free coding projects

[rpf.io/projects](https://rpf.io/projects)

- 200+ step-by-step instructions,
- Create games, animations, websites
- Challenge-based learning, hints & tips
- Stand-alone projects and structured learning paths
- Accessible: visual guides, video first, check boxes

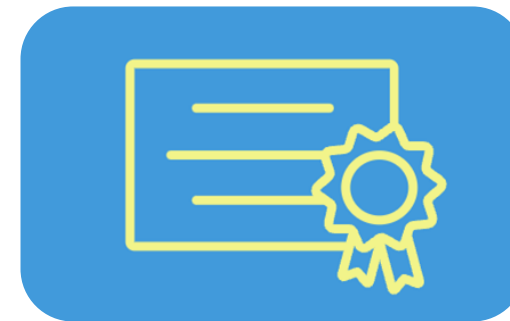
New projects always being released!



# Code Club resources

[rpf.io/support](https://rpf.io/support)

- Club leader guides
- Certificates
- Progress charts
- Annual planners
- Assembly presentations
- Code Editor



# Additional opportunities



Sign up to stay in touch!



*“I'm already seeing real improvements in their **confidence** and their **resilience** when tackling the coding projects and it's already seeping through to their resilience in other areas!*

– Code Club Leader

# Any questions?

Engage

## Or get in touch with today's speakers:

**National Centre for Earth Observation**  
[Catherine.Fitzsimons@NCEO.ac.uk](mailto:Catherine.Fitzsimons@NCEO.ac.uk)

**Engineering UK**  
[dpowell@engineeringuk.com](mailto:dpowell@engineeringuk.com)

**I'm a Scientist**  
[support@imascientist.org.uk](mailto:support@imascientist.org.uk)  
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**Association of British Science Writers**  
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**Leverhulme Research Centre for Forensic Science**  
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**UK Electronics Skills Foundation**  
[education@ukesf.org](mailto:education@ukesf.org)

**Code Club**  
[hello@codeclub.org](mailto:hello@codeclub.org)

# Engage Teacher Conference

## Thank you

Complete the **5-minute feedback form** for the chance to win one of ten **£10 Amazon vouchers!**  
<https://www.tfaforms.com/5181926>



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 [crest@britishscienceassociation.org](mailto:crest@britishscienceassociation.org)



BRITISH  
SCIENCE  
ASSOCIATION

