TOMORROW'S ENGINEERS | CODE

explores...
engaging schools

Series takeaway pack

EngineeringUK

What is The Code explores…?

A fresh approach to delivering content for the Code community, with topics explored more deeply through a series of different events over several weeks.

Each series features:

- A blend of live and pre-recorded content.
- Supporting comms with event summaries and links to recordings, slides, and relevant resources… plus, a dedicated webpage to revisit content whenever you choose.
- Opportunities to discuss topics in the Code LinkedIn group.

The Code explores… is designed to be:

- **In-depth:** each series focuses on specific topics important to the Code community.
- **Flexible:** a range of content formats so you can engage in a way that suits you.
- **Community driven:** giving you the chance to connect with people from across the Code community, sharing ideas and gaining new perspectives.

Launched on Wednesday 7 May, our pilot series explores ways you can connect with schools to expand your STEM outreach with young people.

All episodes

- **Rapid insight: How do teachers engage with STEM outreach?** Lightning talk from Joe McGettigan, Research Officer at EngineeringUK on EngineeringUK's latest report.
  👉 [See summary](#)

- **Connect with schools: How Neon can help you reach more young people** Your guide to getting the most from Neon. 👉 [See summary](#)

- **Empowering futures: Build strong school partnerships through local Careers Hubs** with The Careers & Enterprise Company and Stoke & Staffordshire Careers Hub.
  👉 [See summary](#)

- **Ask a teacher! The Q&A sessions** We asked teachers your schools engagement questions in a selection of recorded videos. 👉 [See summary](#)

- **The Code explores… engaging schools: Wrap and reflect** was an unrecorded session for us to reflect on the some of the key themes from the series. We've curated a selection of points for you to reflect on when engaging schools in your activities.
  👉 [Head to this section](#)

- **Helpful resources** We've gathered all relevant resources from each episode of the series plus additional signposting. 👉 [Head to this section](#)

Rapid insight: How do teachers engage with STEM outreach?

👉 [Watch the recording here](#) (25 mins)
👉 [Read the full report here](#)

Key points

- **Participation:** 800 secondary school STEM teachers across UK were surveyed. Encouragingly, **79% said their school had taken part in STEM outreach in the last academic year**
- **Finding activities:** Teachers reported using multiple channels to source information. **65% said they find STEM outreach activities online** while **41% find information directly from relevant organisations.** Word of mouth and recommendation are also important for teachers with **51% finding activities through other teachers in their school** and **34% through their professional networks,** with smaller proportions using careers leaders and social media.
- **Barriers: 52% said lack of funding** and **49% said lack of time** to find activities **are the biggest barriers.** Geographical disparities and 'cold spots' mean that **over a third of teachers struggle to find suitable local activities for their needs.**
- **Student selection:** When places are limited, **42% of teachers prioritise students most interested in STEM**, while **only 3% choose those least interested. Diversity and inclusion data** is used by 26% to prioritise students who take part.

More from The School report series

For the **School report series**, EngineeringUK conducted research with 800 STEM teachers across the UK to understand how they engage students in STEM education.

- Find out more about teachers' awareness of the different routes into engineering and technology careers.
  👉 [Read the report here](#)
- Understand the barriers teachers face in delivering hands-on practical science lessons.
  👉 [Read the report here](#)
- Explore the impact of teacher recruitment and retention issues.
  👉 [Read the report here](#)

What other research does EngineeringUK do?

👉 [Find out here](#)

Connect with schools: How Neon can help you reach more young people

👉 [Watch the recording here](#) (25 mins)

👉 [See the slides here](#)

What is Neon?

- **A free platform** for educators to find engineering and technology outreach activities for their students.
- Neon is a trusted hub for educators and **all experiences on site are quality assured** with the [Neon quality standards](#).
- Find Neon here 👉 https://neonfutures.org.uk/

What is a Neon experience?

- **Outreach activities on Neon are called Neon experiences.** [Neon experiences](#) are practical, interactive encounters that complement the curriculum and give students a taster for what careers in engineering and technology look like.
- Your experience needs to be one of the following:
  - **Competition**
  - **Project**
  - **Trip**
  - **Event**
  - **Speaker**
  - **Workshop**

  Please contact the Neon team if you're unsure on which category your experience best aligns with.

Why list your activities on Neon?

- It's **free** to list your activities on Neon!
- **Engage an audience of over 6,000 registered educators,** plus many more who use the site outside of this.
- **Over 2,500 educators** have been referred to activity providers in the last 12 months.
- **Target the right schools for your activities** with filters for location, student age, activity type, cost, and more.
- And reach **young people from groups underrepresented in engineering and tech** with Neon's Priority Schools tool.

Connect with schools: How Neon can help you reach more young people

What support do you get?

- **Tailored advice** if your application doesn't quite meet the Neon quality standards.
- Guidance to help your **experience listings stand out** and meet educators' needs.
- **Promotion of your activities** through Neon's educator e-shot and social channels.
- **In-the-moment support** with promotion and amendments to your experience listings.

How do you submit your activity to Neon?
- Our online form makes it easy for you to submit your activity and review it against the quality standards.
- If you have any questions about the application or if you'd like a Word copy of the form to plan your responses, contact the Neon team at hello@neonfutures.org.uk

👉 **Apply here to feature your engineering experience on Neon**

Want to know more? Check out these resources!

- **Supplement your activities** with free EUK Education careers resources.
- **Find case studies of** real people working in STEM to help you easily showcase engineering and technology careers in your outreach activities.
- **Could your activity feature in a Neon collection?** Collections on Neon are designed to support educators to deliver STEM learning journeys for their students across the academic year.
  👉 Check them out on Neon or head over to a blog from Dan Powell, the Head of Neon, to learn more about the background and development.
- **The EngineeringUK Priority Schools Approach** is the set of criteria behind Neon's tool that lets you target your experiences to underrepresented groups 👉 Find out more about the criteria here
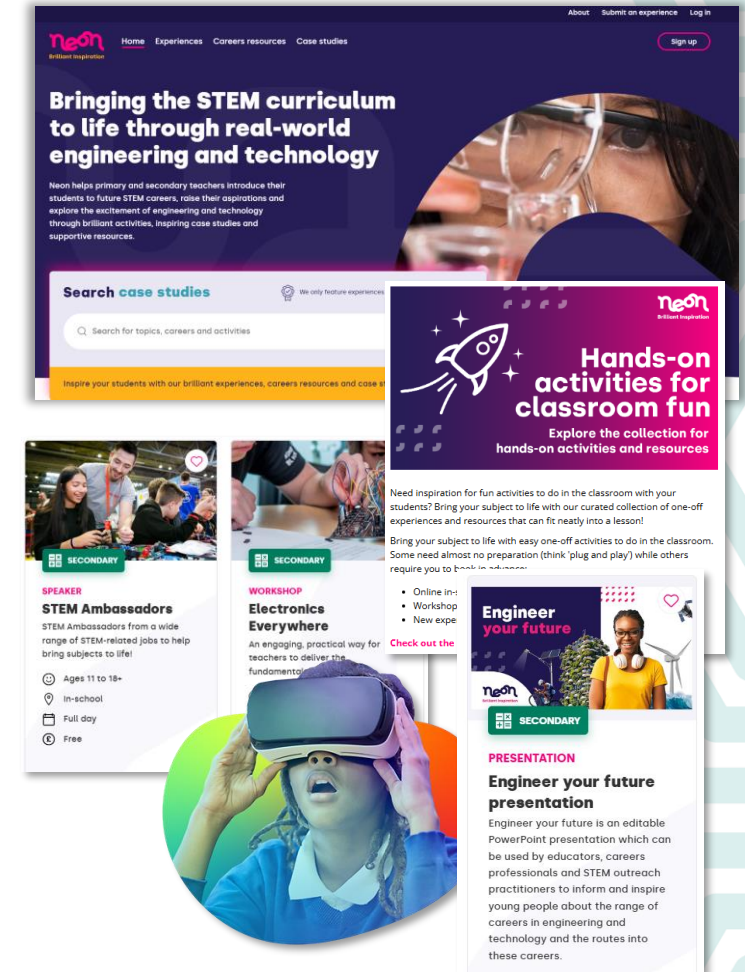
Empowering futures: Build strong school partnerships through local Careers Hubs

👉 Watch the recording here (45 mins)
👉 See the slides here

The Careers & Enterprise Company at a national level

The national body for careers education in England supports schools, colleges, and employers to help young people to take their best next step with...

- **A training programme for careers leaders in schools** and a digital infrastructure that helps schools and colleges to engage with the CEC.
- The Employer Standards **help employers and organisations understand how to deliver effective careers education** in schools and colleges.
- **Data provision on young people's career thinking** with the Future Skills Questionnaire.

Careers Hubs: The CEC at a local level

The Careers & Enterprise Company supports 44 Careers Hubs across England to deliver careers education locally. Careers Hubs...

- **Connect school and college careers leaders and teachers with local businesses**, helping young people to explore career opportunities in their area.
- **Drive national careers education priorities locally** by tailoring and delivering these in a regional context.

How Careers Hubs drive national careers education priorities

- **Improve the careers education system by engaging school senior leadership teams** so that careers education is prioritised in schools. This drives improvement against the Gatsby Benchmarks by encouraging ongoing investment in core careers infrastructure, careers education planning at a strategic level, and continuity of delivery throughout staff changes.
- **Support the implementation of the national work experience guarantee** by connecting schools with local businesses so that young people can benefit from 10 days of multiple and varied high quality workplace encounters throughout secondary school.

Find out more about the priorities:

👉 Jump to these slides   👉 Jump to this part of the recording

⏮ Back to all episodes

Empowering futures: Build strong school partnerships through local Careers Hubs

How the Stoke and Staffordshire Careers Hub supports schools

The hub supports schools through systemic projects that focus on long-term continuous improvement over one-off or ad-hoc interventions.

- **The Careers Education Consultation Map** provides schools with a framework to embed the careers curriculum, tailored strategies to engage businesses and parents, and teacher upskilling and CPD opportunities.
- **The Knowledge Insight Grid** outlines the careers education elements that students need to know by the time they leave school, including how their studies link to careers learning, labour market information, educational and vocational pathways, and key local workplace skills.

**Find out more about school engagement:** 👉 Jump to these slides 👉 Jump to this part of the recording

How the Stoke and Staffordshire Careers Hub supports businesses

The hub supports businesses to engage effectively with schools by balancing the needs of the business with the needs of schools and the curriculum.

- **The Employer Roadmap** provides businesses with a stage-by-stage model that includes self-assessment against the Employer Standards, information on the local education landscape, and training on the Employee Competency Framework for skills.
- **Teacher Encounters** (a national initiative) brings local businesses and teachers together in engaging, hands-on sessions that help establish long-term relationships with schools and supports teachers' professional development and understanding of local industry priorities.
- **Careers Observatory** is an initiative that gives students encounters with local businesses through workplace visits, skills talks, and hands-on activities.

Find out more about business engagement: 👉 Jump to these slides 👉 Jump to this part of the recording
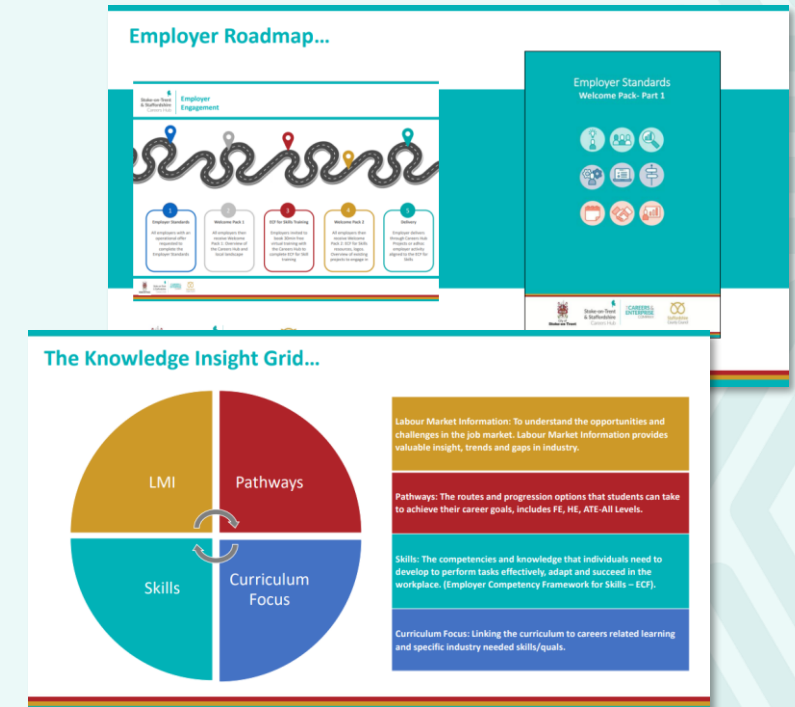
Relevant resources

- Find your nearest Careers Hub
- Find out more about the Employer Standards
- Find out more about Modern Work Experience here
- Find out about the updated Gatsby Benchmarks
- Access the Future Skills Questionnaire resources.
- Understand the careers education landscape with updated slides from our March 2024 webinar.

⏮ Back to all episodes

Ask a teacher! The Q&A sessions

We took your questions on all things engagement to three brilliant teachers. Their insights are captured in on-demand video interviews, linked below, along with key takeaways.

Professor Becky Parker
Physics teacher at Simon Langton Girls' School and Director of Project Earth

👉 [Watch the interview here](#) (30 mins)

- **Real-life challenges:** Young people flourish when given the opportunity to engage with real-life engineering and technology challenges and projects.
- **Overcoming barriers:** Time and money are the biggest barriers for teachers getting their students involved in STEM outreach, but emphasising the careers element of your activities can help them to get buy-in from senior leadership.
- **CPD opportunities:** Teachers and school technicians value opportunities to develop professionally. Make sure CPD opportunities are tailored and inspiring, giving educators the chance to see real-world engineering and technology innovation in action and the chance to network with other educators.
- **Adapting resources for different age groups:** Consult with teachers when you want to adapt activities for different age groups as they can help tailor the content so it aligns with each stage of the curriculum. Providing students with opportunities to reflect on your activity can be a great way to adapt it for different age groups whilst also helping to develop students' communication and reasoning skills.
- **Climate change:** There is limited coverage of climate change in the curriculum so there's an opportunity to inspire students more around the innovative engineering and technology solutions and related careers.

Amanda Moffat
Design & Technology teacher and STEM Coordinator at Alderman Peel High School

👉 [Watch the interview here](#) (20 mins)

- **Engage educators where they are:** Local STEM hubs, STEM Learning, Facebook groups, subject leader forums, Tes, and Neon are all places where teachers go to look for STEM activities.
- **Challenges in rural locations:** Travel costs can be a significant barrier to rural schools engaging with STEM outreach and online options are less impactful.
- **Skills for the workplace:** Collaboration, resilience, and design thinking are difficult to teach in isolation. Authentic problem-solving challenges, mentoring schemes, and project-based learning can help students see what these skills mean in practice.
- **Real-world connections matter:** Practical projects and providing access to equipment, materials, and workplace visits are crucial for inspiring students.

Ask a teacher! The Q&A sessions

Chris Hillidge
Director of STEM at The Challenge Academy Trust and Director of Warrington Fab Lab

👉 [Watch the interview here](#) (25 mins)

- **Working with multi-academy trusts:** Effective communication and finding the right point of contact are crucial for working with multi-academy trusts. It is important to maintain these relationships and clearly communicate the goals of your STEM outreach programme.
- **Sustained engagement in STEM activities:** Industry and employers should look to develop long-term relationships with schools, rather than one-off interactions. Students can benefit from a blend of structured STEM activities and more informal discussion opportunities with industry professionals, where they may feel more comfortable asking questions than in group settings.
- **Key influencers:** Alongside teachers, parents are the biggest influencers of students' career choices, so STEM professionals and schools should aim to engage them as much as possible in their children's education.
- **Industry support with travel costs:** The increasing costs of transport are a significant barrier to planning STEM outreach activities. Industry should invest more in making it feasible for schools to visit their sites and engage with their projects.
- **Delivery of STEM Activities:** Good quality resources that link to the curriculum and careers that educators can use alongside STEM outreach activities is an effective combination. It's also important that STEM professionals delivering outreach activities are able to connect with and inspire young people.
- **Teacher professional development:** Time constraints make CPD challenging, but opportunities that provide teachers with local labour market information can be the most impactful, helping them to make contextual links for students and the curriculum.

Some resources that may help you with some of the issues highlighted by the teachers:

- How to inspire students through environmental sustainability and the technological solutions to climate change:
  👉 [Check out the resource on Tomorrow's Engineers](#)
- Ready-made resource to teach students about the role of engineering and technology careers in tackling climate change:
  👉 [Check out Tackling Climate Change on STEM Learning](#)
- The latest Net Zero workforce report:
  👉 [Check out the EngineeringUK report here](#)
- Talking about engineering and technology with young people:
  👉 [Watch the webinar here](#)
- Neon parent and carer booklet:
  👉 [Download the resource from Neon](#)

👋 **Do you have any resources that could help The Code community with the points made by Becky, Amanda, or Chris?**

If yes, why not share them in the [The Code LinkedIn group](#) 😀 Or you can drop The Code team a line at thecode@tomorrowsengineers.org.uk to chat further.

The Code explores... engaging schools: Wrap and reflect

The Wrap and reflect session was an opportunity for us to reflect on the some of the key themes from the series. Highlights from this unrecorded episode can be found in The Code LinkedIn group 👉 **[find it here](#)**

On the following pages, we've collated takeaways from the series into key themes to create some suggested points for you to reflect on when developing your outreach activities and engaging schools.

Engaging teachers and building relationships with schools

Key takeaways:

- EngineeringUK research indicates that teachers mainly find STEM outreach activities online (65%) or through relevant organisations (41%), with peer recommendations also key – 51% hear from colleagues and 34% via professional networks.
- In her teacher interview, Amanda Moffatt said it's important to engage educators through the platforms they use, including local STEM hubs, STEM Learning, Facebook groups, subject leader forums, Tes, and Neon.
- In his teacher interview, Chris Hillidge highlighted the importance of building long-term relationships over one-off engagements. Identifying the right school contacts and maintaining communication are essential for impactful partnerships with schools.

Reflections:

💡 **Think about the channels you use to promote your outreach activities to educators.** Are there any gaps or quick wins? If you're already using the STEM Learning directory, for example, could you also feature the same activities on Neon to reach a wider audience?

💡 **Leverage existing relationships with educators and schools.** Could they recommend channels or introduce you to networks they use to find STEM outreach activities? When they book and complete your activities, could you ask them to promote it to their networks, leave a review – on Neon, for example – or provide a testimonial that you can use in your marketing? Could you encourage repeat bookings or partner with a school to create a package of activities across multiple years?

💡 **Establish relationships with organisations who can help you reach new schools.** Can you engage with Careers Hubs or STEM hubs in your target areas? They can connect you into local school ecosystems and provide you with opportunities to reach not just teachers but also their school senior leadership teams.

💡 **Share your successes and connect with others!** Your insights and recommendations could help inspire others across the community and open up opportunities to collaborate. What top tips do you have for reaching and engaging schools? Why not share them in [The Code LinkedIn group!](#)

The Code explores... engaging schools: Wrap and reflect

Overcoming barriers to engagement

Key takeaways:

- In EngineeringUK research with teachers, 52% said lack of funding and 49% said lack of time to find activities are the biggest barriers.
- Geographical disparities and 'cold spots' mean that over a third of teachers struggle to find suitable local activities for their needs.
- These points were echoed in our teacher Q&As, with Amanda Moffat and Chris Hillidge highlighting increasing travel costs as a significant barrier.
- In her teacher interview, Becky Parker noted that highlighting the careers element of your activities in comms can encourage buy-in from school SLTs.

Reflections:

💡 **Addressing cost barriers.** How can you reduce or subsidise the cost of participation for schools with limited resources? Are there opportunities to collaborate with other Code members, funders, or sponsors to support travel or resource costs for schools? How could you work with other organisations and Careers Hubs to reach possible geographical 'cold spots', such as rural schools?

💡 **Addressing time constraints.** Can you adapt your activities to a range of flexible formats? Can you include additional off-the-shelf content, such as follow-on activities or lesson plans, that teachers can fit into their curriculum teaching? Think about the best times to contact schools and when you can deliver activities to align with the school year.

💡 **Communicate the value of your activities.** Think about how you tell educators about your outreach programmes. Is the information clear and easy to find? What content do you provide that can support educators? To encourage buy-in from educators and senior leadership teams, communicate how your content links to the curriculum or how it highlights different career paths, for example. Educators find peer-to-peer recommendations helpful, so perhaps also think about how you use testimonials in your communications.

Reaching young people from groups underrepresented in engineering and technology

Key takeaways:

- EngineeringUK research shows that 42% of teachers prioritise students most interested in STEM, while only 3% choose those least interested. Diversity and inclusion data is used by 26% to prioritise students who take part.

Reflections:

💡 **How can you encourage educators to prioritise students with low STEM capital and those from groups underrepresented in engineering?** Are your activities inclusive for all young people? Are they designed to appeal to students with low interest in STEM? Do they highlight engineers and technicians from underrepresented groups?

💡 **Targeting your outreach.** Do you use EngineeringUK's Priority Schools Approach to help you target your outreach to underrepresented groups? Could you collaborate with other organisations, such as Careers Hubs, or use Neon to target priority schools?

The Code explores... engaging schools: Wrap and reflect

Real world context engages students and showcases engineering and technology careers

Key takeaways:

- In her interview, Becky Parker highlighted that young people flourish when given the opportunity to engage with real-life engineering and technology challenges and projects.
- In her interview, Amanda Moffat emphasised the importance of teaching skills for the workplace, such as collaboration, resilience, design thinking, and problem solving.
- Amanda also noted that practical projects and providing access to equipment, materials, and workplace visits are crucial for inspiring students.
- Finally, Students can benefit from a blend of structured STEM activities and more informal discussion opportunities with industry professionals.

Reflections:

💡 **Think about how you can incorporate real world context in your programmes.** Could you create challenges or activities that mirror real life engineering scenarios? What practical hands-on tasks could you include that encourage students to think like an engineer? Can you show how engineering and technology has benefitted society and made the world a better place?

💡 **Highlight real engineers and technicians.** Role models can help inspire young people to explore careers in engineering and technology. Can you involve role models in the delivery of your activities or feature them as case studies? To help students recognise themselves in the role models – are they diverse and relatable (from underrepresented groups or early on in their career, for example). Could you make use of Neon's case studies as an easy way to feature role models in your content?

💡 **Consider how your activities can highlight workplace skills.** Can your activities demonstrate these skills, or can they help students to identify and understand the skills they already have?

💡 **Consider content beyond the main activity.** Could you provide a follow-on activity for teachers to do with their students where they can reflect on what they've learned or explore careers further? What supporting resources could you provide for educators, or students and their parents or carers? Could you build in informal discussion opportunities for students into your outreach, or could you provide teachers with an opportunity to upskill?

Working together as a community

💡 **How can we work together to engage schools and support educators?** What strategies or creative solutions can we use to overcome school funding and time constraints? Are there any collective approaches we can take to encourage teachers to prioritise participation from young people from underrepresented groups and those with low STEM capital? Is there anything that we can collectively do to address skills gaps and ensure students gain skills that they can take into the next stage of their lives?

💡 **If you have any ideas, or examples of collective practice**, why not share them in The Code LinkedIn group or reach out to The Code team at thecode@tomorrowsengineers.org.uk to discuss further!

Helpful resources

EngineeringUK school report series:
- [How do teachers engage with STEM outreach?](#)
- [What teachers know and think about routes into engineering](#)
- [What are the barriers teachers face in delivering hands-on practical science lessons?](#)
- [The challenge of STEM teacher and recruitment and retention here](#)

Other EngineeringUK research:
- [The latest Net Zero workforce report](#)
- [EngineeringUK research and insights homepage](#)

Neon
- [Neon website](#)
- [Submit your Neon experience](#) – find out more about Neon experiences, the Neon quality standards, and submit your application.
- [Find out about the new Neon quality standard](#)
- [Collections on Neon](#) are designed to support educators to deliver STEM learning journeys for their students across the academic year. Head over to this blog from Dan Powell, the Head of Neon, to learn more about the [development](#)

Other EngineeringUK websites
- [The Code](#)
- [Tomorrow's Engineers](#) – resources to support improved STEM outreach practice.
- [EUK Education](#) – resources to support STEM education professionals.
- [EngineeringUK main website](#)
- [The Big Bang Programme](#)

Supporting your outreach approach
- Learn about the criteria EngineeringUK uses to target students from underrepresented groups with [The EngineeringUK Priority Schools Approach](#)
- [Understand the careers education landscape](#) with updated slides from our March 2024 webinar.
- [Find your nearest Careers Hub](#)
- Find out more about the [Employer Standards](#)

- Find out more about [Modern Work Experience here](#)
- Find out about the [updated Gatsby Benchmarks](#)
- Access the [Future Skills Questionnaire](#) resources.
- [STEM Learning website](#)

Supporting the delivery of your activities
- [Engineer your future PowerPoint](#) – editable presentation for educators and STEM professionals to inform young people about careers in engineering and technology, and the pathways into them.
- [Case studies of real people working in STEM](#) to help you easily showcase engineering and technology careers in your outreach activities.
- [Meet real engineers](#) – ready-made presentation that can be used to introduce primary school pupils to engineering and technology careers.
- [Talking about engineering and technology with young people](#) webinar.
- [Top tips for delivering engineering activities](#)
- [100 jobs in STEM poster](#) – suitable for primary and secondary students.
- [10 great reasons to become an engineer](#) – suitable for primary and secondary students.
- Discover STEM inspiration outside the classroom with [My World, My Future](#) – suitable for primary and secondary students.
- [Meet the future you](#) quiz helps students discover how their skills and passions could lead to exciting future engineering and technology careers.
- [Parent and carer guide to engineering](#)

Green engineering and technology careers
- [How to inspire students through environmental sustainability and the technological solutions to climate change](#) webinar.
- [Tackling Climate Change](#) – ready-made resource to teach students about the role of engineering and technology careers in tackling climate change.
- [Green careers posters](#) – for primary age students.
- [Green careers postcards](#) – for secondary age students.

Join the conversation!

Excited to discuss engaging schools with fellow Code members?

The Code Community LinkedIn group is the perfect place to chat about **The Code explores... engaging schools.** After each live session and throughout this series, we post discussion points for you to continue the conversation. The LinkedIn group is open to all employees at your organisation, so why not send them the link today 😃

👉 [Join the LinkedIn group here](#)

Invite your colleagues!

The Code explores... is open to all employees from Code member organisations. Do you know a colleague who'd be interested in accessing the **engaging schools** content, plus updates and news of future explorations? Just send them the link to the mailing list registration form to receive our monthly newsletter and invites to our events.

👉 [Join The Code mailing list](#)

Revisit this series... on demand!

Once **The Code explores... engaging schools** ends, you'll be able to find all the content from the series on our dedicated webpage so you can access whenever you choose.

👉 [Visit The Code explores... webpage](#)

EngineeringUK