



Phase 2b Western Leg Information Paper

H3: Education programme

This paper outlines HS2 Ltd's Education Programme.

It will be of particular interest to those who are interested in the skills and employment opportunities the HS2 project will create.

This paper was prepared in relation to the promotion of the High Speed Rail (Crewe - Manchester) Bill. Content will be maintained and updated as considered appropriate during the passage of the Bill.

If you have any queries about this paper or about how it might apply to you, please contact the HS2 Helpdesk in the first instance.

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1 Introduction

- 1.1 High Speed Two (HS2) is the Government's scheme for a new, high speed north-south railway, which is being taken forward in a number of phases. Phase One will connect London with Birmingham and the West Midlands. Phase 2a will extend the route from the West Midlands to Crewe. The Phase 2b Western Leg will connect Crewe to Manchester. As set out in the Integrated Rail Plan, published in November 2021, HS2 East is proposed to deliver a new high speed line from the West Midlands to East Midlands Parkway.
- 1.2 HS2 Ltd is the non-departmental public body responsible for developing and promoting these proposals. The company works under the terms of a Development Agreement entered into with the Secretary of State for Transport.
- 1.3 The construction and operation of Phase One of HS2 is authorised by the High Speed Rail (London – West Midlands) Act 2017 and Phase 2a by the High Speed Rail (West Midlands – Crewe) Act 2021.
- 1.4 In January 2022, the Government introduced a hybrid Bill to Parliament (hereafter referred to as 'the Bill'), to seek powers for the construction and operation of the Phase 2b Western Leg (the Proposed Scheme), which is called the High Speed Rail (Crewe – Manchester) Bill. The Proposed Scheme comprises the Phase 2b Western Leg from Crewe to Manchester and several off-route works. It also facilitates the delivery of Northern Powerhouse Rail by providing the Crewe Northern Connection and junctions and other infrastructure to be used in future schemes.
- 1.5 The work to produce the Bill includes an Equalities Impact Assessment and an Environmental Impact Assessment (EIA), the results of which are reported in an Environmental Statement (ES) submitted alongside the Bill. The Secretary of State has also published draft Environmental Minimum Requirements (EMRs), which set out the environmental and sustainability commitments that will be observed in the construction of the Proposed

Scheme. For more information on the EMRs please see Information Paper E1: Control of environmental impacts.

1.6 The Secretary of State for Transport is the Promoter of the Bill through Parliament. The Promoter will also appoint a body responsible for delivering the Proposed Scheme under the powers granted by the Bill. This body is known as the 'nominated undertaker'. There may be more than one nominated undertaker. However, any and all nominated undertakers will be bound by the obligations contained in the Bill, the policies established in the EMRs and any commitments provided in the information papers.

1.7 These information papers have been produced to explain the commitments made in the Bill and the EMRs and how they will be applied to the design and construction of the Proposed Scheme. They also provide information about the Proposed Scheme itself, the powers contained in the Bill and how particular decisions about the Proposed Scheme have been reached.

2 Overview

2.1 This information paper outlines the approach and work of the Education Programme during the construction of HS2.

2.2 This programme is already operational across Phases One, 2a and 2b. From Phase One Royal Assent until the end of the 2022/23 financial year, HS2 Ltd had delivered more than 380 STEM workshops that have benefitted more than 22,000 students. HS2 Ltd has also supported more than 200 school careers activities and hosted more than 230 students on work experience placements. This includes 93 STEM workshops delivered in the Phase 2b area, benefiting more than 5700 students.

3 Education Programme: objectives and delivery approach

3.1 The design, planning, construction, operation and maintenance of HS2 will create a significant number of employment opportunities. At the peak

of construction it is forecast that HS2 Ltd and its supply chain will need more than 34,000 men and women to design and build the railway, with at least 2,000 apprentices taking their first career steps or re-training on the project. The sector faces a number of employment challenges: an ageing workforce; a need to upskill the current workforce; and a shortfall in the number of people entering the highly skilled jobs needed to deliver the planned infrastructure projects.

- 3.2 To support the forecast employment growth and the challenges outlined above, HS2 Ltd is working to attract the individuals it needs to fill the new jobs and roles which will be created. HS2 Ltd and its supply chain will seek out new ways to bring new people into the sector.
- 3.3 The Education Programme is an integral element of HS2 Ltd's broader Skills and Employment Programme. It aims to raise interest in the sector among young people, their teachers and their parents through access to learning materials and direct engagement opportunities with HS2 Ltd and its supply chain. These activities showcase the types of skills required to create a high speed railway, the range of jobs and professions that will work on it and the STEM (Science, Technology, Engineering and Maths) subjects that are needed to get into these careers.
- 3.4 The Education Programme is a national programme which nevertheless has due consideration of specific local issues and needs along the route. It prioritises schools in regions that will benefit most from the skills opportunities HS2 will create with a focus on schools that are in more deprived areas and score below average for educational attainment.
- 3.5 The Programme uses 'Education Ambassadors': HS2 Ltd representatives who are passionate about their profession and have volunteered to help attract the next generation into their industries. They support a range of events with schools to help tell the story about the diversity of jobs and skills that will be required to plan, build and operate HS2. HS2's Education Ambassadors are registered as part of the national STEM Ambassador programme.

4 STEM workshops

- 4.1 HS2 Ltd currently visits secondary schools to deliver STEM workshops that use hands-on activities to inspire young people to take an interest in STEM subjects and careers.
- 4.2 From 2014 – 2017, workshops were delivered in secondary schools by the Smallpiece Trust on behalf of HS2 Ltd and supported by Education Ambassadors. During this period, 176 STEM Inspiration Days were delivered to secondary schools along the Phase One and Phase Two routes. These were all-day events delivered to groups of approximately 60 children, aged 11-14. Students explored railway engineering through ‘design and build’ activities. These gave participants an insight into the range of exciting and rewarding career options that high speed rail can offer.
- 4.3 From 2018 – 2020, workshops were delivered in secondary schools by Zinc Communicate on behalf of HS2 Ltd and supported by Education Ambassadors. During this period, 80 ‘EPIC’ (Extraordinary People Initiating Change) workshops were delivered to secondary schools along the Phase One and Phase Two routes. These were all-day events delivered to groups of approximately 60 children, aged 11-14. Through collaborative STEM-linked activities students developed the transferrable skills needed in transport and infrastructure careers. Students also used augmented reality apps, highlighting the forward facing, hi-tech nature of the transport infrastructure sector.
- 4.4 From 2018 – 2021 workshops were delivered in primary schools by Hopscotch Consulting on behalf of HS2 Ltd and supported by Education Ambassadors. By the end of the 2020-21 academic year 73 ‘Zoom Rail’ workshops had been delivered to primary schools along the Phase One and Phase Two routes. ‘Zoom Rail’ is a half day workshop that gives students the challenge of planning, designing and building a fictitious railway. The programme aims to promote an awareness of the value of STEM subjects in connection with future careers such as engineering, architecture and ecology.

- 4.5 In November 2021, Learn By Design, a specialist education outreach company, were awarded the contract to deliver our STEM workshops in the Phase 2b region. We have made the decision to focus on delivery of our 'EPIC' workshop to secondary schools. For primary schools that are keen to engage, we may be able to offer shorter STEM activities led by our volunteer Education Ambassadors.

5 Careers education

- 5.1 HS2 Education Ambassadors can also support the delivery of careers education activities in schools. Working with a range schools and education providers, our employee volunteers have been present at careers fairs, enterprise days, mock interview workshops and networking events.
- 5.2 Support for careers education is offered as part of the follow up to schools that have received an HS2 STEM Workshop, through liaison with our community engagement teams and to independent enquirers. HS2 Ltd works with regional stakeholders, such as the Careers and Enterprise Company, to identify schools in most need of employer engagement. Careers support is targeted mainly at students aged 11-18.
- 5.3 During the 2020/21 academic year, HS2 Ltd became a Cornerstone Employer for the Careers and Enterprise Company in Birmingham. HS2 Ltd is also working with the Careers and Enterprise Company to promote the Enterprise Advisor role to staff within HS2 Ltd and our supply chain. Four members of the Skills, Employment and Education team, and six other HS2 colleagues have become Enterprise Advisors for local schools. This role involves supporting a school with the strategic planning of their careers programme and helping to connect them to employer networks.

6 Work experience

- 6.1 HS2 Ltd supports the Social Mobility Foundation's Aspiring Professionals Programme by providing their talented A-level students with valuable work experience opportunities. Students on this programme are typically from low-income backgrounds and would not usually be able to secure

vital work experience, because of barriers such as being the first generation in their family to go to university.

7 Information online

7.1 HS2 Ltd has a range of information available online which is showcased on a page for teachers, which is available at <http://www.hs2.org.uk/education>.

7.2 The page focuses in particular on the range of curriculum resources which can support the teaching of a wide range of subjects, but also signposts careers information aimed at students which is presented through case studies and articles.

7.3 As a member of the Routes into Rail board, HS2 Ltd is supporting the rail industry's collaborate efforts to promote jobs in the sector, and are contributing to a Routes into Rail website, which launched in 2020 and is available at <https://routesintorail.org/>.

8 Curriculum resources

8.1 A range of curriculum resources are available on our website at <http://www.hs2.org.uk/in-your-area/education>, which teachers can use to deliver their own lessons using HS2 a context to explore curriculum areas.

STEM Lessons

8.2 These are plans for STEM lessons which teachers can use to introduce a careers context to a regular curriculum lesson. The activities are expected to take 1-2 hours to complete and are aimed at 11-14 year olds. Each activity includes a PowerPoint presentation, worksheet and teacher notes. Activities include:

- Motorway bridge challenge
- Great crested newts
- Making history
- Connected economy

- Design for everyone
- Public spaces and urban design

SEND STEM Lessons

- 8.3 These resources are aimed at teachers and ambassadors who would like to lead one of our EPIC Engineers STEM workshop activities for a group of students with Special Education Needs or Disabilities (“SEND”).
- 8.4 The pack includes suggestions and resources for adapting the existing EPIC Engineers activities and alternative activities that may be more suitable for some groups. The activities are likely to be suitable for students with mild or moderate learning disabilities.
- 8.5 Each activity includes a PowerPoint presentation, worksheet and teacher notes. Activities include:
- Train station design challenge
 - Tunnel structures challenge
 - Insect hotel
 - Travelling by train

CREST Award accredited STEM Projects

- 8.6 These are longer projects that encourage students to carry out independent research or investigation. The target age and duration of the projects vary. The projects are accredited by the British Science Association so that students who complete these projects could be awarded a CREST award.
- 8.7 Each project includes a student brief, student handout/s and teacher notes. Projects include:
- Innovating the Future (CREST: Discovery Award)
 - Station of the Future (CREST: Bronze Award)
 - School Environment Improvement Plan (CREST: Bronze Award)

Virtual STEM workshop

- 8.8 Aimed at 11-14 year olds. A collection of printable PDFs and PowerPoint presentations together with detailed teacher notes and video guides that enable teachers to deliver the activities developed for our 'EPIC' STEM workshop (see section 4.3)

Collaborate, Create, Communicate

- 8.9 Aimed at 14-16 year olds. HS2 Ltd and Transport for London have worked in partnership to develop a cross-curricular teaching resource based on the challenge of creating a river crossing. The project gives students the chance to take part in an engaging and challenging opportunity that will support subjects such as maths and science and develop key employability skills, such as communication.

Route Options

- 8.10 Aimed at 16-18 year olds. Students evaluate four possible routes for a new railway. With no perfect answer, they must weigh up pros and cons, balancing community, economic and environmental factors, and make a case for their choice. The project aims to develop students' analytical, reasoning and communication skills, set in the context of a realistic business scenario.

9 More information

- 9.1 More detail on the Bill and related documents can be found at www.gov.uk/hs2-phase2b-crewe-manchester.