

Online curriculum resource summary



HS2 is addressing the current skills shortage in the UK by inspiring the next generation to get involved with transport infrastructure related careers.

The HS2 Education Programme supports students in developing their knowledge and skills in Science, Technology, Engineering and Maths

(STEM) through projects and activities featuring real world examples from the transport and infrastructure industries.

HS2 have developed a range of curriculum-linked resources which are tailored to different age groups. These resources aim to support teachers in delivering high quality and effective learning activities around the theme of careers in transport infrastructure. Resources are available to all schools and are free to download on the education page of our website: www.hs2.org.uk/education

Zoom Rail (coming soon)

Using the context of a fictional high speed railway, pupils will explore the diversity of careers within transport and infrastructure. Through a series of online activities, pupils will earn virtual badges as they develop the transferable skills that they will need in their future life and career. Careers films will introduce pupils to some of the job roles that are key to big infrastructure projects.

Target age: Key stage 2 (Years 3 to 6)

Structure: 12 short online activities (3+ hours)

Curriculum links: Science, technology, mathematics, geography, art, English and history

Activities: Pupils can earn skills badges in communication, creativity, evaluation, organisation, problem solving and team working.

There are 12 short activities divided into three themes:

- Plan – e.g. choosing the route and assessing safety on site
- Design – e.g. designing a train considering cost and environmental factors
- Build – e.g. using maths skills to make designs about how to build a station roof

EPIC Engineers



Students develop their STEM powers, exploring the transferable skills that are needed to be successful in a STEM career. Through a series of hands-on design and build team challenges, inspire your students to become EPIC engineers – Extraordinary People Initiating Change. Activities are underpinned by examples from the world of work, with students finding out about careers in transport infrastructure as they take on different roles in the challenges.

Target age: Key stage 3 (years 7 to 9)

Structure: Full day cross-curricular project, or a two-hour Science or Maths focused lesson

Curriculum links: Mathematics, science and design technology

Activities:

- Stations of the Future: A design challenge that encourages students to consider future trends and the needs of all customers.
- Tunnel building: A build challenge that applies knowledge of forces and efficiency of design as teams construct and test a tunnel frame.
- Rail Rush!: Through playing a specially designed board game, students gain insight into the different factors that a project manager has to weigh up on an infrastructure project as they create their own rail network.

Collaborate, Create, Communicate

Students are introduced to Smeaton, a fictional city chosen as the site for a new high-speed rail terminus. Students will form a project team to develop an in-depth proposal for a river crossing in Smeaton, which will connect the new station to the existing local transport network. Students are given access to realistic information which will allow them to weigh up the different options for the crossing and to consider the impact of their solution on local communities.

Target age: Key stage 4 (years 10 to 11)

Structure: 6 part cross-curricular project (7 to 11 hours) or one-off two-hour lesson

Curriculum links: Geography, history, English, mathematics, science design and technology, art and design

Activities:

- Researching and designing ideas for a crossing
- Role-playing local people's views
- Building a model of the crossing
- Presenting their design
- Simulated community consultation meeting

Route Options Project

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.

Target Age: Key stages 5 and 6 (years 10 to 13)

Structure: Cross-curricular project (up to 10 hours)

Curriculum Links: Geography, politics, environmental studies, mathematics and English.

Activities:

- Research into possible route options
- Assessing different options using agreed criteria and drawing up expert opinion
- Reaching a conclusion that can be defended with evidence
- Presentation of the preferred option