

Student Brief

This CREST-accredited project can be put towards achieving a CREST Bronze Award



Brief

Imagine that you are in the year 2050. A new railway station has opened in your local area which has become a futuristic city. You are standing in front of the station. What does it look like? You enter the huge station hall. How does it sound? What can you see?

Without knowing it, you have already begun this project where you will design and build a futuristic railway station to be opened in the year 2050. The station will be built in your local area, on a site of your choosing with its design guided by the HS2 Design Vision.

Your station must meet the needs of all people, enhance the local area, celebrate its identity and stand the test of time. To do this you should research the needs of the people who will use your station, and the future technologies that will be part of your station.

You will present your ideas as a presentation drawing of the floor plan of your station, and a model to show how your station will look when it is built. In addition you will create a presentation to explain your research and design ideas, which will be presented to the local community.

You should use the HS2 Design Vision to guide your design thinking. We have created Handout Sheet 1 to help you to apply the HS2 Design Vision station design.

Getting Started

To get started read the project handouts and choose a site in your local area to build your railway station. Decide in your team what information you need to collect before you start to design.

Your research should include information about your customers' needs, the site and future technologies that might influence your design. To collect information about your customers' needs you could ask friends, family or local school staff who live locally about their experiences of travelling by rail and using train stations. To research the site and the area around it you could conduct a site visit, or use internet map tools and internet research. You should be looking to find out about the historic and natural environment of the site to inform your design choices. We have detailed some technologies that you may wish to research and include in the Things to Think About section of this document and in the project handouts.

Once you have completed these initial steps, start designing. How you bring your ideas together as a final design is up to you, but it must represent one single unified vision. Your presentation drawing should show the floor plan of the building, include annotations and refer to your research. You may choose to complete your practical model using modelling materials, or a digital model using computer-aided design (CAD).

The final stage of the activity is to present your design to local people. You could present to your peers or at a parents evening or other school event. You should aim to explain how the design meets the needs of the local area and all customers, and include your research and thinking in your presentation slide deck. At least one slide should be dedicated to evaluating your work and reflect on your learning. Include:

- Why you chose this design over your other design ideas.
- What you learned from completing this project.

STATIONS OF THE FUTURE (DESIGN & MAKE PROJECT)

Things to Think About

- Your station must be an inclusive, accessible and a welcoming space, meeting the needs of all customers. You should consider how your station will meet the needs of the young and old, people of all ethnic, racial and cultural backgrounds, people of all faiths and religions, people of all genders and people with disabilities.
- If you already have a train station in your local area you could reuse the site for your new station. Think about what made the old station either successful or unsuccessful and what you can learn from its design.
- When designing the architecture of your station, you should think about the historic environment of where it is built. Look at the materials and form of other local buildings. How can you minimise the impact on your local area's historical environment?
- Your station must be futuristic and incorporate new technologies. Think about how robotics, Artificial Intelligence (AI), Internet of Things (IoT) technology and Virtual Reality (VR) could change the ways that your station works.
- You should design your station to be sustainable and energy-efficient. Think about how you could build renewable energy supplies into the station building, and how you could save energy when heating and lighting the building.
- Your choice of site will also affect how sustainable the station is. Try to choose a site that avoids building on natural habitats and minimise disruption to wildlife and the natural environment. If you are building on a site with wildlife habitats, work out how you can replace or increase them.
- What other activities will people want to do at your station? You could include restaurants, cafes, shops and maybe even a gym.
- How will your station connect to other modes of transport? Will they be different from what we have today?
- To find out more about how stations are designed to meet all customer's needs, read Handout 2: Customer Experience Design, which includes an interview with a HS2 Customer Experience Designer.
- Handout 3: Customer Survey is an example questionnaire for you to use to collect information about customer needs. You can use it as it is or adapt it.
- When reflecting on your learning, think about how you improved on your essential skills.

Essential Skills

- To complete the challenge you will use the essential skills of creativity, teamwork and speaking. Speak with your teacher about how you can improve in these areas.

STATIONS OF THE FUTURE (DESIGN & MAKE PROJECT)

Useful Resources

- Use the HS2 Design Vision (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/607020/HS2_Design_Vision_Booklet.pdf) to guide your design thinking.
- Get some design inspiration from these HS2 Station concept designs. <https://www.hs2.org.uk/where/the-stations/>
- Find out how the HS2 Design Vision can be applied to railway station design with Handout 1: HS2 Design Vision.
- Handout 3: Customer Survey is an example survey for you to use or adapt.
- Read an interview with a HS2 Customer Experience Designer in Handout 2: Customer Experience Design.
- Take a look at this amazing station model created by a group of students in Northampton (https://www.youtube.com/watch?v=jdyLE-yznqU&feature=emb_logo&ab_channel=HS2Ltd).

Health and safety

To avoid any accidents, make sure you stick to the following health and safety guidelines before getting started:

- Find out if any of the materials, equipment or methods are hazardous using <http://science.cleapss.org.uk/Resources/Student-Safety-Sheets/> to assess the risks (think about what could go wrong and how serious it might be).
- Decide what you need to do to reduce any risks (such as wearing personal protective equipment, knowing how to deal with emergencies and so on).
- Make sure there is plenty of space to work.
- Clear up slip or trip hazards promptly.
- Make sure your teacher agrees with your plan and risk assessment.
- If you are working outside the grounds of your school, make sure that you inform your teacher and are accompanied by a member of staff.