

TRAIN STATION DESIGN CHALLENGE: TEACHERS' NOTES

Train Station Design is a 'design-and-present' activity where students will work in teams to design a train station. Students will have to use their creativity, teamwork and speaking essential skills to create and present their idea.

| Suitability Guide | | |
|---|---|--|
| Mild learning difficulty | ✓ | Yes |
| Moderate learning difficulty | ✓ | May require further differentiation and support for some students, see below |
| Severe learning difficulty | ✗ | May not be suitable |
| Profound and multiple learning difficulties | ✗ | May not be suitable |
| Further differentiation and support needed for students with: <ul style="list-style-type: none"> Hearing impairment Visual impairment Fine motor skills delay Speech and language communication needs. | | |

Learning Objectives:

Students will learn to:

- Work together as a team;
- Turn ideas into a drawing or model to show others;
- Speak about and explain their ideas.

Activity Overview

In this activity students will design a train station for their local area, using the included station map and cut-out station features as a starting point. At the end of completing their design they will present it at their table, as a carousel to students from other teams or to adult staff members, whichever is most practical based on the group and setting.

Skills Builder Essential Skills

In this activity, students will have the opportunity to demonstrate creativity steps 0-5, and speaking steps 0-8. See the Skills Builder extended framework (<https://www.skillsbuilder.org/sen-old>) for more explanation.

Example Activity Plan

The plan below is just one example of how you could deliver this activity. It is based on a 90-minute session with 15 students with mild and moderate learning difficulties working in five groups of three, with a teacher and two support assistants. You should augment this plan according to the needs of the group that you will be working with. Some examples of how you could do this can be found in the section Differentiation Ideas. If you are a facilitator or STEM Ambassador delivering this as a workshop, speak to your host about the best approach for you to take.

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Inventory

You will need:

- 5 x Train Station Design Sheets
- 5 x Train Station Map Sheets
- 10 x scissors
- 10 x glue sticks
- Coloured pencils (Class set)
- Plain paper
- Example completed station design




Note that the above includes enough equipment for five groups.

Preparation

You will require the room to be set up for tables of three, plus a demonstration table at the front of the room. Make an example version of a station design for the students to look at.

Sequence

Use the following sequence to plan this activity. You may wish to adjust the timings according to your style of delivery, group and workshop length.

| Time (min) | Sequence | Instructions | Slides |
|------------|---|--|--------|
| 5 | <p>Welcome and introduction</p>    | <p>Introduce yourself and the HS2 project. Ask students to guess what the image is on Slide 1, and use the questions to start a discussion. Reveal the title and the learning objectives for the lesson.</p> | 1-3 |

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| | | | |
|----|--|---|-------|
| 5 | Station design introduction     | <p>Start students thinking about station design with the examples shown on slides 4-7.</p> <p>Introduce Challenge 1: Station Design using slide 7. Students will have one hour to design their train station. They will work in teams of three and will use the cut-out station features and station map as a starting point.</p> <p>Show students an example and demonstrate cutting out and sticking down the station features. Explain to students that they can add their own ideas to the map, and that their designs should be coloured in and labelled or annotated. They should think up a name for their station.</p> <p>Explain that they will present their ideas at the end of the session.</p> | 4-7 |
| 60 | Station design activity  | <p>Hand out the worksheets, maps, scissors, glue sticks and plain paper. Students may start.</p> | 8 |
| 20 | Challenge 2: Presentations  | <p>Students must stop their design work and get ready to present. Two students will stay to present whilst another will move around each group being presented to, changing groups every 1.5 minutes. Rotate the groups and presenters so that each student gets a chance to be present. Alternatively, if there are enough staff, students can present to them on rotation.</p> | 9 |
| 5 | Plenary   | <p>Use the plenary questions to recap the students learning. These questions refer to the learning objectives and essential skills from the beginning of the lesson.</p> <p>You may wish to show the Careers Video for Students with SEND.</p> | 10-11 |

Questions

Use the following questions to stimulate the students' thoughts during the session:

- How do you want your station to look?
- What do you want your station to sound like?
- How should the station smell?
- What food would you serve in the café?
- What are the characteristics of a well-designed train station?
- What tips do you have for working well together as a team?

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Tips and Tricks

- This 90-minute version of the activity includes 60 minutes for the students to design their station
- Students should name their station and label or annotate the features of their station.
- The cut-out features and station map are just starting points. Students can add their own features and design elements to their station.
- You should encourage the students to think about the needs of all customers who will use their station (see the Universal Design section Module 1 (www.hs2.org.uk/education)).
- You should also encourage the students to think about how they can celebrate their local area with their station design. Perhaps the café could sell local speciality food, or there could be a statue in the station of a local hero.
- Count in and out all equipment to make sure that all equipment is returned. This is especially important for sharp items such as scissors and tablet computers.
- You could also inspire the students with this video of a station designed by a group of students from Northampton.
- Bring spares of each sheet in case you have more groups than you planned for, or if tables require extra sheets.
- Supply scrap paper and encourage students to use it to add sketches to their station designs.
- Make an example station design using the worksheets and station map to help the students visualise what they are aiming to create.

Differentiation Ideas

- To increase the challenge for more able groups of students, do not supply the cut-out pieces or station map.
- Encourage able students to add more features to their stations. Ask them to consider the needs of all customers, such as those who are visually impaired, hearing impaired or mobility impaired. Also, challenge them to make their station more environmentally friendly.
- For less able students, supply the cut-out features pre-cut.
- Mobility impaired students may find it difficult to move between tables during the presentation, therefore students can present to staff members instead.
- You could introduce a competitive element to this activity by rating each group based on their demonstration of the essential skills. You could give a reward for the most creative design, and the group who is best at speaking for the presentation part of the activity. Check with the host before stating anything to the students.
- For some students building a model could be more engaging. Use junk modelling materials or plastic construction blocks.
- Some students may not have the attention span for all three station examples. You could skip the examples on slides 4-7.
- The learning comes from the opportunity to ideate a station, actualise it as an image or model and then talk about it. Any differentiated version of this activity should aim to keep these three elements in some form.
- For more able students, you could use a differentiated version of Stations of the Future from the EPIC Engineers Scheme of Work. This activity is more conceptual, and requires students to think about building a station thirty years into the future.

Answers

| Challenge | Answer |
|-----------|--|
| 1 | Mark students designs based on their creativity, quality of written communication and whether they have considered the needs of their customers. |
| 2 | Mark student performance based on the clarity, detail and organisation of their presentation. |