

## MODULE 2: DESIGN FOR EVERYBODY - TEACHERS' NOTES

In this activity students examine and apply universal design; meeting a range of customers with different needs and writing a design specification for a train station waiting room. Students then analyse an existing product and propose improvements according to universal design principles.

### Learning objectives

Students will learn to:

- Describe how Customer Experience Designers work to create an inclusive customer experience for all users;
- Explain what is meant by Universal Design;
- Understand how to write a detailed design specification.

### Curriculum links

These objectives apply to and link to the following areas of the KS3 Design & technology 2013 programme of study:

Students should be taught about:

- Developing specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations.
- Understanding developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists.
- Testing, evaluating and refining their ideas and products against a specification, considering the views of intended users and other interested groups.

### Skills Builder Essential Skills

In this activity students will use problem-solving and creativity steps 6-10.

See the Skills Builder framework ([www.skillsbuilder.org/universal-framework/listening](http://www.skillsbuilder.org/universal-framework/listening)) for more explanation.

### Inventory

For a class of 30 students you will need:

- 30 x Design for Everybody Worksheets
- 1 x Design for Everybody Teachers' Notes
- 1 x Design for Everybody Presentation
- 10-15 Meter sticks or tape measures
- Coloured pencils (Class set)
- Scrap paper


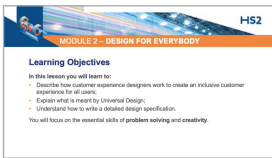



### Preparation

Review the Design for Everybody Presentation and presenter's notes. Decide how you will deliver the activities and adjust the timings below to suit your lesson length. This example lesson is based on a 60-minute session with a mixed ability Year 8 class.

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### 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	<b>Welcome</b>  	Introduce yourself, the HS2 project and the learning objectives for the lesson.	1-2
25	<b>Universal Design</b> 	Introduce the lesson theme of universal design and inclusivity using the presentation slide. Set the students to start Challenge 1: Waiting Room Specification. You could have students read the statements from customers as a class or individually. Ask the students to feedback answers five minutes before moving on to the next activity.	3
25	<b>Product Analysis</b> 	Introduce Challenge 2: Product Analysis. Allow your students five minutes to decide on an object that they will analyse. Students may then use the tape measures or meter sticks to take measurements and test the product. They could use the scrap paper to create a rough sketch before drawing neatly on their worksheet. Students should then think of two improvements to their selected product.	4
5	<b>Plenary</b> 	Use the plenary questions to recap the students learning. These questions refer to the learning objectives from the beginning of the lesson, and to the essential skills of problem solving and creativity.	5

### Questions

Use these questions to stimulate the students' learning during the activity:

- Two people needed opposing things in Challenge 1. How can we make sure that the chairs work for both?
- Why might it be important to make sure that all different people are involved in the design process?
- Which other parts of the customer experience might prove uncomfortable for Jim?
- How else could we make the journey easier for Trisha and her children?
- How could we make sure that the platform works well for Faisal?
- How could we make sure that there is always somewhere to sit for Karin and her husband?
- Many stations have information help points which provide you with a telephone helpline. Which of the customers might be excluded from using this service? How could it be improved?
- Karin and her husband do not drive. How can we help them get home from the station safely?

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### Tips and tricks

- To make the activity harder, challenge students to sketch an improved version of the product from Challenge 2.
- To make the activity easier, curate a selection of products for Challenge 2. A classroom desk or chair would provide easy opportunities for improvement, such as the addition of armrests, or adjustable height and back supports.
- You could supply your students with additional research materials for Challenge 1, such as anthropometric data or the Design Standards for Accessible Railway Stations (2015) document.
- Students have a habit of taking the 'average' dimension from anthropometric data sets, failing to consider the users below the 5th percentile or above 95th, or those with physical disabilities. For Challenge 2, encourage your students to improve the product so that everyone can use them. Alternatively, students could propose different versions of the same product to meet the needs of a variety of users.
- You may wish to spend more time on Challenge 1, review answers and then set Challenge 2 to be finished for homework.

### Video content

You may wish to show these videos to compliment the learning from this activity.

- HS2's vision for customer experience (1 min): <https://youtu.be/3u5bl2ceoxs>

As the HS2 project develops new videos are regularly added to our You Tube channel. There may be more detailed information about your local area, or new videos uploaded since this resource was made. Check out our You Tube channel for the latest updates:

<https://www.youtube.com/user/HS2ltd/videos>

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### Answers

Challenge	Answer
1	<p>Any twelve of the following, or any other reasonable answers:</p> <ul style="list-style-type: none"> <li>• The waiting room should be heated to keep all customers warm whilst they wait for their train.</li> <li>• The waiting room should include seats both with and without armrests, the former to help older customers to get up, and the latter for bigger customers to sit comfortably.</li> <li>• Seats should be padded and comfortable so that all customers who use the seats can sit comfortably.</li> <li>• There must be enough room for wheelchair users to travel between seating and turn so that wheelchair users can move around easily.</li> <li>• There should be designated spaces for wheelchair users to sit with a companion without blocking the spaces between the seats for other customers, such as other wheelchair users or customers with pushchairs.</li> <li>• There should be automatic doors so that all customers can move in and out of the waiting room easily.</li> <li>• The waiting room should have bright lighting so that people with visual impairment can see more easily.</li> <li>• Furniture and fittings should be painted in bright contrasting colours to help people with visual impairment to identify them.</li> <li>• Furniture and fittings should have no sharp edges to keep customers safe who might walk into them.</li> <li>• Glass panels should have markings to help people with visual impairments to identify them.</li> <li>• The waiting room must be fitted with announcement speakers with a hearing loop system. This will help people with hearing impairments who use hearing aids to hear the announcements more clearly.</li> <li>• The waiting room must be fitted with a digital display board so that people with hearing impairments can see the information that they need to travel.</li> <li>• There should be a range of seating at different heights and sizes so that people with different heights and body sizes can fit comfortably.</li> <li>• There must be designated areas for large pushchairs so that people travelling with small children can sit close to their children without blocking the spaces between the seats for other customers, such as wheelchair users.</li> </ul>
2	<p>a) Students should include:</p> <ul style="list-style-type: none"> <li>• A detailed sketch in pencil with colour;</li> <li>• Dimensions of the product;</li> <li>• Annotations to explain and evaluate the features of the product according to universal design principles.</li> </ul> <p>b) Students should suggest two improvements that make the product easier to use for all people. Examples might include:</p> <ul style="list-style-type: none"> <li>• Reconfiguration of the product to make it easier to use one-handed, for amputees;</li> <li>• A change in the colour of the product to make it more visible;</li> <li>• Added height adjustability, so that users of different heights can use it comfortably;</li> <li>• A reduction of weight, so that it can be moved or carried easier by older users.</li> </ul>