



# WORKSHOP OUTLINE 3 OF 6 – DESIGN DEVELOPMENT

## INTRODUCTION

Design Ventura workshop outlines have been created to support teachers in delivering the project to their students. They are intended to support the major milestones within the project. We use the term ‘workshop’ instead of ‘lesson’ to encourage a creative and enterprising learning environment. We encourage teachers to edit the outlines according to the time available and the learning needs of the class. Suitably broad learning objectives and student success criteria have been outlined for this purpose. Assessment opportunities have been highlighted in the right-hand column.

All activities are suitable for use with Key Stage 3 and Key Stage 4 students, with further suggestions included for more in depth learning at Key Stage 4. All content has been developed in line with national curriculum and 2017 GCSE subject content guidelines.

## WORKSHOP FOCUS:

**The focus of this session is to support students as they refine their idea and develop their final design, through drawing, experimentation and modelling.**

## TIME REQUIREMENTS:

This workshop is planned for one double lesson (90-120 minutes), but can be easily adapted to suit individual needs by omitting activities.

## SESSION OUTLINE:

<b>Session Aims</b>	<ul style="list-style-type: none"> <li>• Provide students with a range of techniques to develop their designs</li> <li>• Provide insights into professional design development practices</li> <li>• Provide insight into design methods including user centred design and collaborative practice</li> </ul>
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>• Know how to use a range of techniques to develop the design</li> <li>• Work as a team and individually to ensure the design meets the user’s needs</li> <li>• Know how to ensure that a design meets the business context</li> <li>• Know how to use research to inform design development</li> </ul>
<b>Student success criteria</b>	<ul style="list-style-type: none"> <li>• Students work collaboratively and individually to develop the design into a usable product</li> <li>• Students can explain how their research has informed their designing</li> <li>• Students can explain how the product meets the user’s needs</li> </ul>



	<ul style="list-style-type: none"> <li>Students can explain how the product is suitable for sale in the Design Museum Shop – the business context</li> </ul>
<b>Employability Skills</b>	Collaborative working Problem solving Considering real world issues
<b>Design Ventura resources</b>	In the Design Studio with Pearson Lloyd <a href="https://vimeo.com/album/2853680/video/50823631">https://vimeo.com/album/2853680/video/50823631</a> Idea Summary Sheet <a href="https://ventura.designmuseum.org/resources/idea-summary-worksheet/">https://ventura.designmuseum.org/resources/idea-summary-worksheet/</a> Sustainability film <a href="https://vimeo.com/170177851">https://vimeo.com/170177851</a> Prototyping film <a href="https://vimeo.com/170147725">https://vimeo.com/170147725</a>

### ASSESSMENT OPPORTUNITIES + CROSS

#### CURRICULUM LINKS:

<b>1. Inside the design studio</b>	
Watch In the Design Studio with Pearson Lloyd <a href="https://vimeo.com/album/2853680/video/50823631">https://vimeo.com/album/2853680/video/50823631</a> . Discuss with students the key stages of designing and design development.	

<b>2. Design development</b>	
<p>The following activities are methods that can be used for collaborative designing. Remind students that they are all working on the same design and that it's good to share and discuss ideas! Once the overall product idea has been refined, students can work as a group, in pairs or individually on the overall design or one aspect of it.</p> <p><b>Sketch modelling</b>            Give each team a small selection of basic materials, such as paper, masking tape and paper clips, or play dough. Students can work individually or in pairs.</p> <p>Give students 15-20 minutes to develop one sketch model of the product idea. The sketch model doesn't need to be detailed, but it should experiment with scale and form, and aspects of how the product could work.</p> <p>Ask students to discuss which aspects of the models work or do not work, giving reasons. Team should make decisions about how they will develop the final idea.</p> <p><b>4x4 designing</b>            The purpose of this activity is to encourage students to discuss and share ideas and to help them to focus on what is essential and what is desirable for their product.</p> <p>Give each student a piece of paper and ask them to divide it into four sections. Each sketch should be given 5 minutes.</p>	Student work Teacher/student questioning

Each team member begins by quickly sketching their idea for the product in box 1, annotating their idea so that it is self-explanatory. Rotate the sketches around the group, with each team member given 5 minutes to sketch a development in the next box, adding something or taking something away to refine the idea. Each development should be annotated, and specifically relating to the original design or the previous team member's development of it.

Once each sketch has been round all team members, ask students to review their original design to see what has been added or removed.

**Selecting the final design**

Ask each team to discuss which ideas work and which do not in order to come up with their final design. They can compare their drawings and sketches to explore different perspectives, scales and interpretations of the idea.

**Pass/Fail or Idea Scoring** – students can quickly assess designs or aspects of their ideas against the design criteria to assess their success or suitability for the user.

At this stage each team should have a final idea that they plan to refine into a 3D prototype. Ask teams to remind themselves of their design criteria – does their final idea meet these criteria? Does the design solve a problem for their target audience? Can it be sustainable, or does it encourage sustainability? Is it possible to manufacture the product within budget? Is it suitable to be sold in the Design Museum Shop?

Students could use the Idea Summary Sheet <https://ventura.designmuseum.org/resources/idea-summary-worksheet/> to focus their thinking.

**3. Sustainability**


Watch the sustainability film on the Design Ventura website <https://vimeo.com/170177851>



Ask teams to consider what they could change about their design to improve its sustainability credentials.

They could consider some of the following factors:

- Materials
- The product's life cycle
- Manufacturing
- Packaging
- Transportation



<p><b>Key stage 4:</b></p> <p>Complete a detailed life cycle analysis of the product, taking into consideration the ethical, social and ecological footprint of the product. Students should consider these factors in relation to both the materials and components of the product and also the function of the product.</p>	
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<p><b>4. 3D prototyping</b></p>	
<p>Watch the Prototyping film on the Design Ventura Website – <a href="https://vimeo.com/170147725">https://vimeo.com/170147725</a></p> <p>Ask students to discuss when, how and why designers test and model their ideas. Provide students with a range of suitable materials, tools and manufacturing methods.</p> <p>Ask teams to refer to their research to inform their selection of suitable materials and manufacturing methods for the prototype.</p> <p>Ask teams to develop their drawings and sketch models into a 3D prototype. The prototype should be a working model that is produced to scale, and should be able to be used and tested.</p>	
<p><b>Key stage 4:</b></p> <p>Create a flow chart or work schedule to show the planning involved in making the prototype. Systems planning could record improvements and modifications made during the process, and could demonstrate appropriate mathematical calculations and methods involved in product manufacturing.</p> <p>Ask students to produce detailed parts drawings to plan a final prototype. They could calculate dimensions, surface areas, and show tolerances, for example. They could also demonstrate how waste can be minimised.</p>	

<p><b>5. User centred design - generating user feedback</b></p>	
<p>Once a prototype has been produced teams can go back to their user group and generate some feedback on the design. They could use the following methods:</p> <p><b>Focus group</b> Gather a small group of people who fit the user group and ask them to assess the product through discussion. Students could prepare a small number of questions beforehand to stimulate the discussion. Students should record any feedback.</p>	

<p><b>Role play</b> Students could put themselves into the situation of the user and discuss how they would use the product or any improvements that could be made from the point of view of that person.</p> <p><b>Interviews</b> Students could interview one or more people who fit the user profile to gather feedback on their design. They should record and comments and suggestions that are made for improvements to the product.</p> <p>Ask teams to record the feedback that was provided, and to consider what improvements could be made to the design of the product.</p> <p>The Design Ventura brief asks students to consider how their final design could be improved and refined further, so it is important to encourage students to continue to evaluate their designing, even if they think they have a final design that they are happy with.</p>	
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<p><b>6. Suitability for the business context</b></p> <p>Ask students to remind themselves of the business context for their product. Does their prototype suit the look and feel of the Design Museum shop? Are there any improvements and modifications that could be made to make the design more suitable for this context?</p> <p>See Design Museum Shop Information <a href="https://ventura.designmuseum.org/resources/design-museum-shop-information/">https://ventura.designmuseum.org/resources/design-museum-shop-information/</a> for more information about the business context.</p>	
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<p><b>Plenary and home learning activities:</b> Ask students to model the idea in several different materials sizes and shapes to work out which one works best.</p> <p>Interrogate the design against the idea summary sheet [<a href="https://ventura.designmuseum.org/resources/idea-summary-worksheet/">https://ventura.designmuseum.org/resources/idea-summary-worksheet/</a>] and identify aspects that could be improved.</p> <p>Discuss the ideas with a range of people who fit the target audience. What do they think works well? What do they think could be improved?</p>	
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