



KS4 DESIGN & TECHNOLOGY TEACHER'S NOTES

SUSTAINABLE DESIGN CHALLENGE

LESSON OVERVIEW

This is a KS4 Design & Technology lesson where students are set the challenge of designing and modelling a sustainable gift carton for The Body Shop's Coconut Body Butter. This is a mini design and make activity, which could be spread over two lessons, depending on the lesson length and required outcome.

WHAT YOU WILL NEED:

Lesson 1

- Sustainable Design Challenge presentation.
- Sustainable Design Challenge worksheets.
- Laptops or computers with internet access.
- A3 paper.

Lesson 2

- Sustainable Design Challenge presentation.
- Sustainable Design Challenge worksheets.
- Sketching materials, including coloured pencils.
- A selection of sustainable modelling materials.

LEARNING OBJECTIVES

In this activity, students will learn:

- How to define sustainable design.
- How to understand how to write a specification.
- How to present design ideas.
- How to create a high quality prototype using paper and boards, or other appropriate materials.

CURRICULUM LINKS

This resource was developed to meet curriculum requirements in the following areas of subject content:

KS4 Design & Technology:

Technical principles:

- The impact of new and emerging technologies on industry, enterprise, sustainability, people, culture, society and the environment, production techniques and systems.
- The sources, origins, physical and working properties of papers and boards, and their ecological and social footprint.
- The way in which the selection of materials or components is influenced by a range of factors, such as functional, aesthetic, environmental, availability, cost, social, cultural and ethical.
- The impact of forces and stresses on materials and objects and the ways in which materials can be reinforced and stiffened.



Design principles:

- Understand that all design and technological practice takes place within contexts which inform outcomes.
- Identify and understand client and user needs through the collection of primary and secondary data.
- Demonstrate an ability to write a design brief and specifications from their own and others' considerations of human needs, wants and interests.
- Investigate factors, such as environmental, social and economic challenges, in order to identify opportunities and constraints that influence the processes of designing and making.
- Using appropriate and accurate marking out methods including: measuring and use of reference points, lines and surfaces; use templates, jigs and/or patterns; work within tolerances; understand efficient cutting and how to minimise waste.
- Using specialist tools and equipment, appropriate to the materials or components used (including hand tools, machinery, digital design and manufacture), to create a specific outcome.
- Using specialist techniques and processes to shape, fabricate, construct and assemble a high-quality prototype, including techniques such as wastage, addition, deforming and reforming, as appropriate to the materials and/or components being used.

BEFORE YOU START

Review the presentation, presenter's notes and worksheets. Whilst this lesson is based on two, one-hour periods, you may wish to spread the content across two lessons to suit your own lesson length and requirements.

Plan groups to work together on [Activity 2 - Design Considerations](#), for effective outcomes for all.

LESSON PLAN 1

Time (60 mins)	Activity	Presentation Slides
5 mins	Starter: Introduce the starter question from the worksheet. Students read the design brief and create a specification.	1
5 mins	Introduce the topic and learning objectives, using the presentation.	1
5 mins	Review answers from the starter activity. Explain the importance of why graphic designers create specifications.	2
25 mins	Introduce gift cartons and sustainable design (including recycled materials or upcycling examples) using the presentation, as well as the importance of research. Students complete Activity 1 - Research: Mood Board , creating a mood board. They should use internet research to find images, patterns and information about the client, target audience and cultural trends.	3, 4, 5
10 mins	Students complete Activity 2 - Design Considerations , updating their specification and answering questions on the target market.	5, 6
5 mins	Set Activity 3 - Initial Ideas for homework, where students complete their initial ideas.	6
5 mins	Plenary: How can you make a product more sustainable?	6



LESSON PLAN 2

Time (60 mins)	Activity	Presentation Slides
5 mins	Starter: Introduce Activity 4 - Evaluating Initial Ideas from the worksheet. Students evaluate their initial ideas choosing one design to be modelled.	7
40 mins	Modelling. Demonstrate modelling processes and materials to the class. Students have 40 minutes to create their model.	8
10 mins	Introduce the evaluation. Students evaluate their model.	8
5 mins	Plenary. How do you create a high quality model? Introduce the extension from the worksheet.	9

DIFFERENTIATION

Easier	Harder
<ul style="list-style-type: none"> • Provide students with a 'job bag' of inspiring materials instead of researching their own mood board. • Provide students with templates for box developments to cut out and decorate. 	<ul style="list-style-type: none"> • Students create a matching label for Coconut Body Butter. • Students supply a CAD drawing of their model.

EXTENSION - RETAILER'S STORY

Students access an online interactive '[Buy for Good - Enriching the Future](#)', where they take the role of a high street cosmetics retailer. Confronted with decisions about ethical business and sustainability, students must make decisions that benefit people, the world, and the quality of the product.