

# Applicable standards

## National Curriculum for England Key Stage 3

KS3 Design and technology		Lessons					
Element of the curriculum		1	2	3	4	5	6
<b>Aims</b>							
<ul style="list-style-type: none"> <li>Identify and solve their own design problems and understand how to reformulate problems given to them</li> </ul>		✓	✓	✓	✓	✓	✓
<ul style="list-style-type: none"> <li>Analyse the work of past and present professionals and others to develop and broaden their understanding</li> </ul>		✓					
<ul style="list-style-type: none"> <li>Investigate new and emerging technologies</li> </ul>		✓					
<ul style="list-style-type: none"> <li>Understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists</li> </ul>		✓					
<ul style="list-style-type: none"> <li>Use research and exploration, such as the study of different cultures, to identify and understand user needs</li> </ul>			✓	✓	✓	✓	
<ul style="list-style-type: none"> <li>Use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses</li> </ul>			✓	✓	✓	✓	
<ul style="list-style-type: none"> <li>Develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations</li> </ul>							✓

# Applicable standards

## National Curriculum for England Key Stage 2

### Lesson 1: What can we do to reduce ocean plastic pollution?

#### Overview

This first lesson in this design and technology Key Stage 3 (KS3) unit introduces students to ocean plastic pollution. Students learn how the waste hierarchy is used to encourage a reduction in plastic use. Using the various teacher resources students will link the waste hierarchy to the life cycle of plastic, thinking about how the methods used in recycling link to those used in the redesign processes and how those affect the lifetime of plastic products.

#### Learning outcomes

- List the uses of plastics
- Discuss the importance of plastic
- Define the 6 Rs
- Evaluate the effectiveness of recycling in the UK
- Describe the life cycle of plastic

#### Resources



##### Slideshow 1:

What can we do to reduce ocean plastic pollution?



##### Student Sheet 1a:

What are the 6 Rs?

##### Student Sheet 1b:

Is recycling rubbish?

##### Student Sheet 1c:

Life cycle of a plastic bottle

##### Student Sheet 5d:

Waste hierarchy research

### Lesson 2: Why should we recycle?

#### Overview

In this design and technology Key Stage 3 (KS3) lesson, students identify why they should recycle and how to encourage others to recycle more. Included are teacher resources for students to apply user centred design principles to redesign a recycling bin to encourage recycling.

#### Learning outcomes

- Identify what can and cannot be recycled
- Describe how you currently recycle
- Analyse trends in recycling behaviours
- Examine the different ways to recycle different materials
- Design a new method of recycling based on user centred design

#### Resources



##### Slideshow 2:

Why should we recycle?



##### Student Sheet 2a:

Recycling questionnaire

##### Student Sheet 2b:

What happens when we recycle?

##### Student Sheet 2c:

Design a user-centred bin

##### Student Sheet 2d:

Recycling diary



##### Gallery:

How is plastic recycled?



##### External Link:

The world's deepest bin

##### External Link:

Bottle bank arcade

## SCHEME OF WORK

### Lesson 3: How do we reduce, reuse and refuse plastic products?

#### Overview

In this design and technology Key Stage 3 (KS3) lesson, students will learn how real-world companies have approached reduce, reuse, refuse principles. This lesson is focussed on students understanding and applying principles of reduce, reuse, and refuse. Included are teacher resources for students to design their own sustainable fashion brand where they are empowered to apply their understanding of reduce, reuse or refuse practices.

#### Learning outcomes

- Describe world population trend from a graph
- Recognise resources as finite
- Describe examples of how to reduce, reuse and refuse
- Interpret data and identify trends
- Create a design for a new product

#### Resources



##### **Slideshow 3:**

How do we reduce, reuse and refuse plastic products?



##### **Student Sheet 3a:**

Buzz stations

##### **Student sheet 3b:**

Design your own fashion label

### Lesson 4: Should we repair?

#### Overview

In this design and technology Key Stage 3 (KS3) lesson, students learn how many products are designed to become obsolete and the impact this has on the environment. This lesson is focussed on students finding solutions to make it easier to repair products. Included are teacher resources that allow students to design a modular phone that can be updated and repaired easily.

#### Learning outcomes

- Describe what products can be easily repaired
- Create a modular design for easy repair
- Explain the environmental implications of products that can be easily repaired
- Define repair

#### Resources



##### **Slideshow 4:**

Should we repair?



##### **Student Sheet 4a:**

Modular phone information

##### **Student Sheet 4b:**

Design a modular phone

## SCHEME OF WORK

### Lesson 5: Can redesigning products help?

#### Overview

In this design and technology Key Stage 3 (KS3) lesson, students learn how sustainable redesign can reduce ocean plastic waste. This lesson is focussed on students conducting a product life cycle analysis on a household object before redesigning it. Included are teacher resources that allow students to critique examples of redesigns, conduct a product life cycle assessment, and redesign a product.

#### Learning outcomes

- Define redesign
- Critique product redesigns
- Analyse the product life cycle of a household object
- Redesign a product

#### Resources



**Slideshow 5:**  
Can redesigning products help?



**Student Sheet 5a:**  
Cryptogram

**Student Sheet 5b:**  
Redesign gallery

**Student Sheet 5c:**  
Product analysis



**External Link:**  
Edible six pack ring

### Lesson 6: Design task

#### Overview

In this the final design and technology Key Stage 3 (KS3) lesson, students will apply their understanding of the 6 Rs. The focus of this lesson is to design an ocean friendly product. Students will work in groups to research, design, and pitch. Included are teacher resources which structure students independent and group activities.

#### Learning outcomes

- Define sustainable design
- Design an ocean friendly product
- Draw your product design
- Reflect and evaluate your product design

#### Resources



**Slideshow 6:**  
Design task



**Student Sheet 6a:**  
Design template

**Student Sheet 6b:**  
Product pitch