

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 **and how it contributes to ocean pollution and climate change.**

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 1d:

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

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 **and their role in a circular economy**
- 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

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 and carbon emissions. 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

- Understand the importance of the ocean
- 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