LESSON 2

Why should we recycle?

Age 11-14

60 minutes

Curriculum links

- Use survey data to analyse trends in recycling behaviour
- Apply market research to redesign a recycling method 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

Extension or home learning

Students keep a recycling diary for the week.

They should write down all the products they recycle, including how they have been recycled. Each day they should estimate how much they have recycled in grams.

Lesson 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.

Lesson steps	Learning outcomes
1. What things can I recycle? (10 mins) Students look at images of objects and group them into things that they believe can and cannot be recycled.	• Identify what can and cannot be recycled
2. How do you recycle? (10 mins) Students complete survey on what they do and do not recycle. They then tally a score to find out how good they are at recycling compared to their peers.	• Describe how you currently recycle • Analyse trends in recycling behaviours
3. What happens when we recycle? (10 mins) Recycling has lots of steps. Students investigate how to mechanically recycle a plastic bottle by ordering each step.	• Examine the different ways to recycle different materials
4. What would a user-centred recycling bin look like? (25 mins) Applying new knowledge of what can and cannot be recycled, alongside the survey data of recycling behaviours, students design a user centred recycling bin.	• Design a new method of recycling based on user centred design
5. What can be recycled? (5 mins) Students complete a quiz testing their knowledge of what can be recycled.	• Identify what can and cannot be recycled

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WHY SHOULD WE RECYCLE?

Step	Guidance	Resources
1 10 mins	In step 1, students recall prior knowledge to put plastic items into two categories, recyclable and non-recyclable. · Using slide 1, students will sort the eight items as either recyclable or non-recyclable. · Using slide 2, reveal the answers. Note that technologies for recycling are always being developed. This means that some items listed as non-recyclable may be recyclable in some locations. · Using slides 3 to 5, introduce the lesson and learning outcomes.	**Slideshow 2:** Slides 1-5
2 10 mins	In step 2, students will be asked to think critically about their own recycling habits by completing a questionnaire. This will provide market research, shaping their product design task later in the lesson. · Hand out Student Sheet 2a. · Ask students to complete the questionnaire independently. · Ask students to give themselves a rating for their recycling. This number will be between six and eighteen, based on what their responses were to questions one to six on the questionnaire. In the world of market research, young people are notorious for giving false or exaggerated responses. Remind students to answer honestly. Moreover, it is important that their responses are not biased. Ask students to complete the survey independently to ensure that they do not copy their peers. Go further by enrolling one or two students to tally up the class total for each question then divide by the number of responses to give an average. This can be presented to the class before they design their user centred bin later in the lesson.	**Slideshow 2:** Slide 6 **Student Sheet 2a:** Recycling questionnaire
3 10 mins	In step 3, students work in groups to reorder the steps involved in the mechanical recycling of a plastic bottle. · Using slide 7, link to the Gallery: How do we recycle plastics to show students the steps involved in making plastics. You may want to choose a student to be project leader, whereby they control the computer and select individuals to read the steps aloud. · Hand out Student Sheet 2b. · Students reorder the steps involved in recycling plastics. · Using slide 8, reveal the correct order to students.	**Slideshow 2:** Slides 7-8 **Student Sheet 2b:** What happens when we recycle? **Gallery:** How do we recycle plastics?

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WHY SHOULD WE RECYCLE?

Step	Guidance	Resources
4 20 mins	In step 4, students use the market research obtained from their survey to apply user centred design principles to create a bin which promotes recycling. · Use slide 9 to present the question: "Plastic bottles are made of PET plastic. It is 100% recyclable. Yet only 7% is recycled in the UK. Why don't people recycle?" · Through a whole class discussion encourage students to identify barriers to recycling. Examples may include difficulty washing plastics before recycling, ignorance of what is and is not recyclable, and recycling bins taking up too much space. · Using slide 10, introduce students to a user centred approach. Explain that products are designed with people in mind. Continue by explaining that the user centred approach asks for user feedback at each step of the development process. Link this back to the survey conducted earlier in the lesson. · Use slides 11 to 13 to introduce the following design task. · Hand out Student Sheet 2c. · Circulate assisting students to develop their design ideas further. The two videos are hosted on YouTube and you may need to unblock this service, liaising with your IT department. The link for video example one is: The world's deepest bin https://youtu.be/cbEKAwCoCKw The link for video example two is: Bottle bank arcade https://youtu.be/zSiHjMU-MUo	**Slideshow 2:** Slides 9-13 **Student Sheet 2c:** Design a user centred bin **External Link:** The world's deepest bin **External Link:** Bottle bank arcade
6 5 mins	In step 6, students answer a series of true and false questions. The questions centre around real world examples of companies promoting recycling.	**Slideshow 2:** Slides 14-20
+ 20 mins	Students keep a recycling diary for the week. They should write down all the products they recycle, including how they have been recycled. Each day they should estimate how much they have recycled in grams.	**Student Sheet 2d:** Recycling diary