

## LESSON 3

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



Age 11-14



60 minutes

### Curriculum links

- Using real-world examples define terms reduce, reuse, refuse
- Create a sustainable fashion brand which applies the 6 Rs

### 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

### Extension or home learning

Research a fashion brand and find out what it does, or has done, in terms of reduce, reuse and refuse. Prepare one side A4.

### Lesson 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.

### Lesson steps

#### 1. What is happening to the world's population? (10 mins)

Students interpret a graph forecasting the world population growth. Students link rising population with an increase in consumerism and identify finite (non-renewable) resources.

#### 2. How can we reduce reuse and refuse? (15 mins)

Students move between five buzz (talking) stations in groups. Each station is based on an example where real-world companies have applied reduce, reuse, refuse principles to a product or initiative. Students discuss each example.

#### 3. Defining terms (5 mins)

Students generate their own definitions of reduce, reuse and refuse.

#### 4. Design your own fashion brand (20 mins)

Students create their own fashion brand by selecting styles and materials based on their understanding of the 6 Rs.

#### 5. Pitch (10 mins)

Students pitch their designs.

### Learning outcomes

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

# TEACHER GUIDANCE 3 (page 1 of 3)

## HOW DO WE REDUCE, REUSE AND REFUSE PLASTIC PRODUCTS?

### Step Guidance

### Resources

1  
10  
mins



Students are invited to consider the bigger issues which make the 6 Rs so important.

- Using slide 1, students can visualise the changing world population.
- In pairs, students discuss the questions displayed on the board.
- The questions are reviewed by the teacher, as a mini plenary.
- Using slide 2, students are introduced to the term “finite” in terms of resources. Explain that the resources on Earth are fixed but with a growing population, there are more people they must be shared with.
- Using slides 3-5 introduce the lesson and learning outcomes.

**Slideshow 3:**  
Slides 1-5



A common misconception is that the Earth can not sustain a growing population. However, the main issue is that we have a growing number of consumers. For example, as countries develop their lower class becomes middle class and begin to eat meat, buy cars, travel more and purchase more consumables.

Some researchers believe that the Earth could sustain 9 billion people sustainably if everyone lived more modestly.



You can demonstrate the change in wealth/consumption in the classroom. Place 7 post it notes on the board. Tell students they represent the 7 billion people on Earth.

Explain that 1 billion people save up for holidays each year, 1 billion save up to afford a car, 3 billion invest their money in maintaining a moped or bicycle, and the last 1 billion save their money to afford shoes.

This can be presented on the board by placing the post-it notes (from top to bottom) as 1,1,3,2. However this is changing. Begin to move all the post it notes to the top two rows. Explain that as people become wealthier, they consume more.

2  
15  
mins



In step 2, students explore how the 6 Rs have been applied to real-world examples.

- Place Student Sheet 3a around the classroom.
- Introduce the buzz (talking) stations.
- Explain that students will move in groups to each station and discuss the four questions presented on slide 6.
- Put students in working groups and let them know both an estimate of how long they will spend at each station and the station order.
- Circulate while students discuss the station content.

**Slideshow 3:**  
Slide 6

**Student Sheet 3a:**  
Buzz stations

# TEACHER GUIDANCE 3 (page 2 of 3)

## HOW DO WE REDUCE, REUSE AND REFUSE PLASTIC PRODUCTS?

### Step Guidance

### Resources



Depending on your institute's policy, consider allowing students to use their phones to search each company's websites and online adverts, linked at the bottom of each station sheet. If this is not possible you could place a laptop or tablet computer at each station.

**3**  
**5**  
mins



In step 3, students apply what they have gained from their discussions to define the lesson's key words.

- Using slide 7, ask students to independently define reduce, reuse, refuse.
- To allow students to have time to formulate their ideas, insist 30 seconds silence before collecting in answers.
- Take in the students' responses.

**Slideshow 3:**  
Slide 7

**4**  
**20**  
mins



In step 4, students create their own sustainable clothing brand. They are empowered to make real business decisions, to improve the sustainability of their product at the cost of reducing their margins.

- Hand out Student Sheet 3b and sheets of scrap or blank paper - this is for students to draw out their designs.
- Put students in pairs or groups.
- Explain to students what they are expected to do on Student Sheet 3b.
- Circulate the classroom as students complete the task.
- Students first select the materials and dyes they want to choose, given the information provided. Students will quickly recognise that the materials which are more environmentally sustainable are more expensive.
- Students then populate the table where they fill in their material options, calculate their manufacture cost, decide on a retail price, then calculate their margin using the equation provided.
- Finally, students answer the summary which encourages them to consider the trade off between sustainability and margins in the clothing industry.

**Slideshow 3:**  
Slide 8

**Student Sheet 3b:**  
Create your own fashion brand

**Scrap or blank paper**



Margins are used in the fashion industry on all products. Most designer stores in the UK operate on a margin between 75-85%.

## TEACHER GUIDANCE 3 (page 3 of 3)

### HOW DO WE REDUCE, REUSE AND REFUSE PLASTIC PRODUCTS?

#### Step Guidance

#### Resources

5  
10  
mins



Students now prepare to share their designs with their peers.

- Invite students to the front to present their work.
- Model the presentation routine.
- Once a group has presented it may be worth asking the students in the class to respond with feedback. Ask students to feedback one thing they liked and one thing to be improved upon.

**Slideshow 3:**  
Slide 8

**Student Sheet 3b:**  
Create your own fashion brand

+  
20  
mins



Ask students to research a fashion brand of their choice. They need to find out what it does, or has done, in terms of reduce, reuse, recycle.

Students can choose their favourite brands or unknown international brands. Applications of the 6 Rs can be in the form of products but also initiatives.

Students must prepare one side A4 detailing what they have found out.

**Subject Update:**  
How to: Improve students' online research skills