

Design Challenge: Repurposing Used Plastic Bottles

The Problem: Plastic Waste



Statistics

- The world consumes **1.3 billion plastic bottles per year**, or, **1 million plastic bottles per minute**. (*UN Environment Program*)
- By **2050 there will be more plastic in the ocean than fish** (in weight). (*WWF Ellen MacArthur Foundation 2016*)
- The average time for plastic bottles (PET) to **breakdown in landfill is 450 years**. (*The Lifecycle of Plastics, WWF Australia*)
- Producing new plastic products from recycled materials **uses 2/3 less energy** than is required to make new products from raw materials. (*Deskera*)

Test your knowledge about plastic pollution

How much do you know about the threats that our planet faces from plastic pollution? Try this online quiz to test your knowledge: <https://www.unep.org/news-and-stories/story/quiz-how-much-do-you-know-about-plastic-pollution-crisis>

More information about the plastic waste problem

<https://www.nationalgeographic.com/environment/article/plastic-pollution>

<https://www.unep.org/news-and-stories/story/everything-you-need-know-about-plastic-pollution>

THE DESIGN CHALLENGE

Make something useful with old plastic bottles!

You must use plastic bottles that are already garbage.

Guidelines

Part 1: Design – reuse/repurpose plastic bottles

1. You have the option to tackle this design challenge independently or as part of a group.
2. The following are the minimum quantities of plastic bottles required:
 - a. For one person: minimum of 5 plastic bottles
 - b. For groups of 2 to 4 members: minimum of 10 plastic bottles
 - c. For group of 4 to 8 members: minimum of 30 plastic bottles
3. Engage in a brainstorming session to think of ideas for your project. Take inspiration from the images provided below. We want you to think of new ideas.
4. Gather the necessary materials. Ensure that you get your plastic bottles the local environment, such as the beach or from waste. You must repurpose bottles that are already waste. For example, repurpose discarded plastic bags to create 'string' for securing your plastic bottle components together.
5. Commence the construction of your plastic bottle design.
6. Evaluate your creation. Does it perform as you initially intended? If not, what modifications can you make to enhance its functionality?

Inspiration: These images are provided to **SPARK YOUR IMAGINATION**. Nevertheless, we encourage you to think innovatively and design something practical that can benefit your school, home or island.



Trash bin at Maaduvvari, Raas



Rocking chair made with 36 upcycled plastic bottles



Part 2: Showcase Your Project

1. Go to the following Facebook Page to share your design:
2. Upload a photo or video of your project along with a description that explains what you've crafted, the process you followed to create it, and why it serves a purpose.
3. Every entry will receive a *Certificate of Merit*.



More information about solving the plastic problem:

UN Environment Programme: <https://www.unep.org/interactives/beat-plastic-pollution/>

What happens to plastic that is thrown away: <https://www.youtube.com/watch?v=6xINyWPpB8>

