

Overview

Consider the impact landfills have on society and what alternatives might be. Globally, the world's cities are struggling with what to do with their daily trash. In 2014, it was reported that 3 billion of the world's 7 billion population live in cities, producing more than 1.3 billion metric tons of solid waste per year (Retrieved January 2016, <https://weather.com/science/environment/news/worst-cities-trash-garbage-problems-20130926#/1>). As you look through the pictures on the website Trash Cities: The World's Worst Garbage Problems, try to identify the types of trash and how it might have found its way into those settings. The trash illustrated in the pictures does not just make the environment look unattractive, it is potentially dangerous to us all!

Design Rationale

We love to think about Canada as being clean—drinkable water, clear air, and environmentally responsible. At the same time, Canadians produce more garbage per person than any other country on earth (Retrieved January 2016, <http://www.cbc.ca/news/business/canadians-piling-up-more-garbage-than-ever-before-as-disposables-rule-1.3248949>). In 2015, Canada sent one of the largest delegations to the Global Environmental Summit (Retrieved January 2016, <http://www.carbonbrief.org/analysis-which-countries-have-sent-the-most-delegates-to-cop21>). On a global scale Canada should take steps towards leading the field on environmental awareness and has a responsibility to model good practice and assist others address their trash issues. Trash is a problem both of use (over packaging, disposable rather than reusable items, etc.), reuse, recycling, and disposal.

Problem Scenario

Your team has been selected to develop a more effective way to deal with trash. Sites like <https://www.conserve-energy-future.com/15-easy-ways-to-reduce-landfill-waste.php> suggest ways to reduce landfill waste. However, your task is to develop a prototype of a product that:

- Fosters recycling or re-using of previously wasted materials,
- Provides a needed purpose or service,
- Reduces trash going into landfills, and
- Satisfies the following factors:
 - Does not currently exist
 - Does not negatively impact the environment
 - Has a legitimate purpose
 - Has long term benefits
 - Is small scale and inexpensive

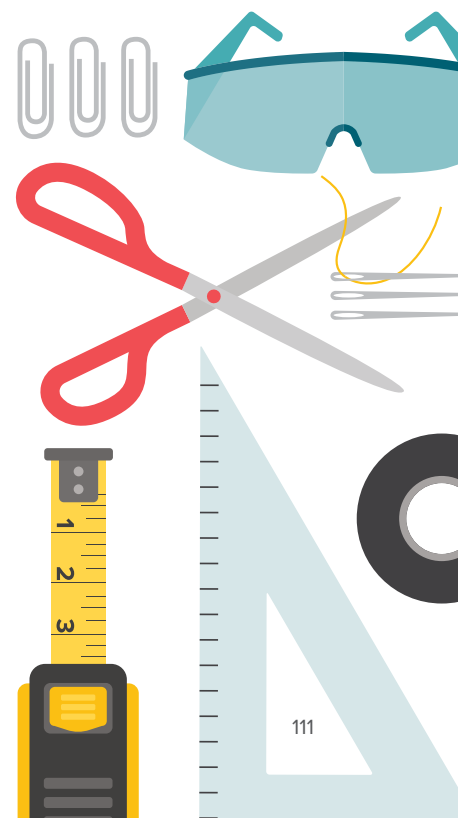


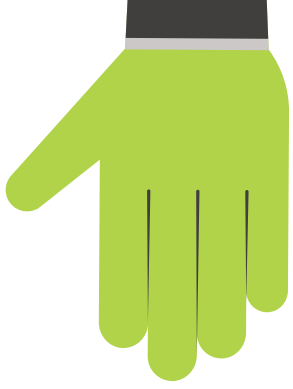
Suggested Grade Level

Elementary through to secondary school

Suggested Subject Area

- Citizenship—wherever school culture and community is discussed
- ADST
- Mathematics
- Science
- Social Studies





Success Determinants

Success will be determined by:

- Alignment to design motto: “Make it smaller, stronger, do more, be easier to use, be cheaper, be clean, be greener.”
- Degree to which your prototype addresses the problem posed in the design challenge
- Degree to which your prototype aligns with your group’s design sketch
- Ease of long term maintenance suggested with your prototype
- Functionality illustrated within your prototype
- Uniqueness



Parameters

- You may use the tools provided to you in the classroom/pantry.
- You must complete a display panel, which includes your design thinking sketch, your prototype, your design notes, and your reflections on the activity.
- You must consider how to make your prototype colourful, intriguing and ergonomic.
- You must use some of all the consumable items in the participant group kit.

