

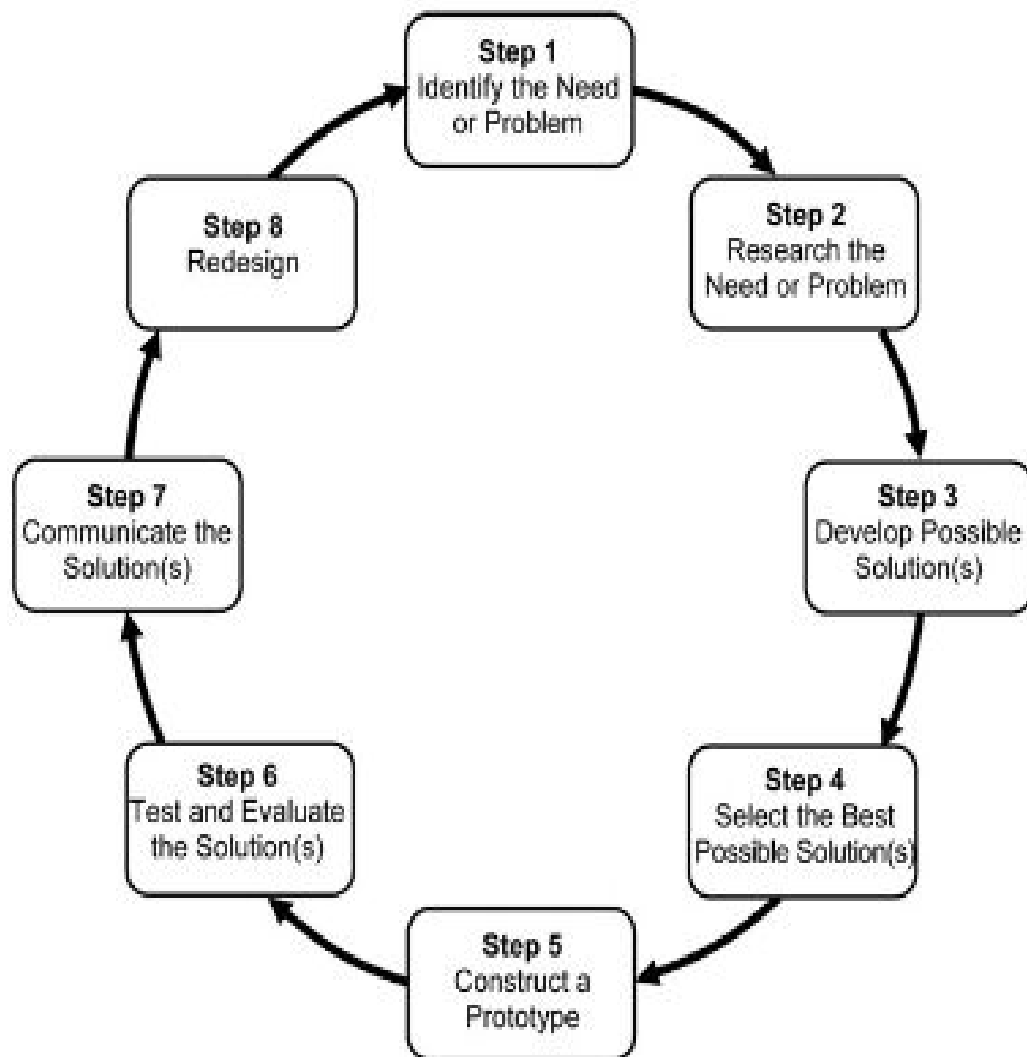
Go Green!

Reduce, Reuse, Recycle, and
Redesign a Grocery Bag!



Name _____

Engineer By Design Loop



<https://www.linkengineering.org/Explore/EngineeringDesign/5824.aspx>

Identify a Need or Problem

_____ are negatively impacting our _____.

Research the Problem

- Currently, we are living in the “_____.”
- The U.S. uses 100 billion plastic bags each year.
- The average American family takes home almost 1,500 plastic shopping bags a _____.
- Only ____% of plastic bags are returned for recycling. On average families recycle _____ bags a year.

- Plastic comes from_____.
- Almost 12 million barrels of oil are used in one year to create enough plastic bags in the U.S.
- It is not_____ meaning it will always exist).
- 100,000 marine animals have die every _____ from eating plastic bags.
- Endangered animals like leatherback sea turtles eat plastic bags thinking that it is a jellyfish.
- _____leatherback sea turtles have plastic in their stomachs.
- _____ states have banned the use of plastic bags.
- We need a better way for people to tote their groceries.

Sketch Some Possible Solutions


STEM Challenge

You need to design a grocery bag that does not contain plastic. It needs to have handles. It needs to be able to hold 2 pounds for one min. without breaking. It needs to be less than one foot high by a half foot wide.

You can use the following supplies: old newspaper, old t-shirts, seeds, water

You can use the following tools: blender, scissors, baking sheet, ruler, scale

Sketch Your Prototype

A large, empty rectangular box with a thin black border, intended for students to draw their prototype of a grocery bag.

What Went Well From the Test?

**What Do You Need to Change
From the Test?**

Sketch Some Possible Solutions

What Went Well From the Re-Test?

**What Do You Need to Change
From the Re-Test?**