# **More about Engineering**

Scientific ideas from investigations and other research are used to understand problems and design solutions.

People's needs and wants change over time.

New solutions might:

- Cause fewer problems than older solutions.
- Meet needs and wants better than older solutions.







HOW CAN WE PROTECT AND CLEAN EARTH'S WATER? Local Solution Smithsonian Science for the Classroom™ © Smithsonian Institution CREDIT: Smithsonian Science Education Center

# **Ocean Macroplastic Pollution Problem**

#### Problem

Plastic pollution from your location is impacting the ocean's ecosystems.

### **Solution Criteria**

- The solution should stop trash from entering moving water, such as a drainage ditch, stream, or river.
- The solution should make it easy to collect trash and remove the collected trash.

### **Constraints on the Solution**

- The solution must be used in your location.
- The cost of solution materials must be within budget.



## **Fast- and Slow-Moving Water**



#### **Fast-moving water**

Take 5 seconds to pour about 50 mL of water from the graduated cylinder into the tray.

#### **Slow-moving water**

Take 10 seconds to pour about 50 mL of water from the graduated cylinder into the tray.



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