



Create A River Clean Up Device

Engineering Design Brief

CHALLENGE: *Design a device which will collect the most trash from the polluted river.*

1. **Constraints:** You may only use the provided materials. You would not be able to put your hand in the river to pick up trash.
2. **Criteria:** Your device must pick up trash from the river.
3. **Materials:** Use only the materials provided in your supply bag. You may use scissors, if applicable.
4. **Before You Start:** Use the back of this sheet to draw your design.
 - Explain how your device would work to collect the most trash? What kind of trash will it remove?
5. **Follow Up Questions:** What was the most challenging part of your assignment? What do you think worked best?

To learn more about DRBA, visit www.danriver.org.



Create A River Clean Up Device

Engineering Design Brief

CHALLENGE: *Design a device which will collect the most trash from the polluted river.*

1. **Constraints:** You may only use the provided materials. You would not be able to put your hand in the river to pick up trash.
2. **Criteria:** Your device must pick up trash from the river.
3. **Materials:** Use only the materials provided in your supply bag. You may use scissors, if applicable.
4. **Before You Start:** Use the back of this sheet to draw your design.
 - Explain how your device would work to collect the most trash? What kind of trash will it remove?
5. **Follow Up Questions:** What was the most challenging part of your assignment? What do you think worked best?

To learn more about DRBA, visit www.danriver.org.



Polluted River Clean Up Device

Teacher Sheet

Objectives:

- Students will use the engineering process to design and build their own river cleaning device
- To make students aware that human activities can impact the health of a watershed system
- To make students understand that non-renewable resources can be managed
- VA SOL Science 4.8, 6.8 and 6.9

Time:

This activity lasts about 15-20 minutes, but works best to be combined with a 15-20 minute introductory presentation on watersheds, or previously cover watersheds in another lesson.

Background:

A watershed is an area of land that drains rain water or snow (precipitation) into one location such as a stream, lake or wetland. These water bodies supply our drinking water, water for agriculture and manufacturing, offer opportunities for recreation and provide habitat to numerous plants and animals. Unfortunately, various forms of pollution, including runoff and erosion, can interfere with the health of the watershed. Therefore, it is important to protect the quality of our watershed. Citizens often help to clean up rivers and streams to remove pollution such as litter.

Materials:

1. Create packets for each student using one-gallon Ziploc bags and include the materials below, if they need to take the activity home.
2. The activity can be done in the classroom by providing each student with the materials below.
 - DRBA Polluted River Clean Up Device Activity half sheet (includes follow up questions)
 - 3 pipe cleaners
 - 4 popsicle sticks
 - 3 rubber bands
 - 2 sticky labels
 - 2 coffee filters

Note: Other supplies can be substituted depending on what you have on hand, but the idea is to provide each student with enough supplies that they can build a unique river clean up device.