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## DIY ACTIVITY

# MAKE YOUR OWN FILTRATION SYSTEM GRADES 3-5

### OBJECTIVES

- Make a filtration system.
- Test a system by using it to clean dirty water.

### PROCEDURE

[▶ WATCH THE GENERATION GENIUS WATER QUALITY AND DISTRIBUTION VIDEO AS A CLASS.](#)

1. Cut off the bottom of the plastic bottle with scissors.
2. Place the top of the bottle back inside the bottom of the bottle. Make sure the opening side is face down.
3. Place a cotton ball in the neck of the bottle.
4. Make sure there is a gap between the opening and the cotton ball.
5. Put the activated charcoal in a plastic bag and crush it with a mallet.
6. Pour the crushed activated charcoal into the bottle.
7. Next add the sand to the bottle.
8. Then add the gravel.
9. Prepare muddy water and give it a stir.
10. Pour the muddy water into the bottle filtration system.
11. Observe what happens as the muddy water is filtered.

### MATERIALS NEEDED

- Plastic bottle
- Cotton ball
- Sand
- Gravel
- Plastic bag with activated charcoal
- Scissors
- Mallet
- Muddy water
- House plants

**Activity Duration:** 60 minutes

### WHAT IS GOING ON HERE?

Muddy water interacts with three different stages of the filtration system to be cleaned. First, large debris and particles are separated from the water as it meets the cotton ball. Then, smaller particles are removed with help from the activated charcoal. Lastly, the water encounters gravel, where small particles are removed, as well as other substances like bacteria. By going through each of these steps, the muddy water can be filtered to become clean water.

## FURTHER EXPLORATION

There are many other materials that can be used to make a filtration system. For example, sand can be used to filter water instead of gravel. Think about how water is filtered so that people can safely drink it. An engineer has asked you to design a water filter to clean dirty water so that it can be drinkable. Using your current filtration system, how would you redesign this device to meet the request of the engineer? Sketch a drawing of what your filtration system would do differently from what you already have done. Include the types of filtering materials you would use and describe how this new filter would work.

