

## AFNR Natural Resources

### Water Clean Up

You are in charge of cleaning up a contaminated water source. What materials might you use to help you clean the water? What do you need to know about the water before you start?

Take a few minutes to write down some ideas and questions.

Talk to others around you about what they have written down and compare your notes.

Propose a method to use to clean the water.

Consider the following:

How long might it take?

Who will need to be involved?

How might you test to see if your method works before trying it on the water source?

What other factors might you need to consider?

Use the following page to help you test your design.

\*This document may be reproduced for educational purposes, but it may not be reposted or distributed without crediting GrowNextGen and The Ohio Soybean Council and soybean checkoff.



## AFNR Natural Resources

### Materials

Contaminated Water

1 or 2 liter plastic bottles with bottoms removed

Materials to filter water- Mesh of different sizes, leaves, cheesecloth, newspaper, paper towels, stones, sand, etc.

Procedure:

Test your materials to see what substances can be removed from the water, before designing your filter. Samples of different contaminants in water have been given to you.

Engineering challenge:

1. The bottles should be taped securely to a desk or table leg upside down.
2. Use an engineering design process to design your filter...imagine, plan, create and test, refine
3. You may use whatever combination of materials available to develop your filter.
  - a. It must have three layers.
4. Test your design.

What improvements would you make if time allowed? What other designs might you try if you had more materials or technology available?

What substances might be left in the water that is the “cleanest”?

### Extensions

- Watch these video clips describing water quality problems:

Grand Lake St Mary's: [https://www.youtube.com/watch?v=0G\\_l8zusSSM](https://www.youtube.com/watch?v=0G_l8zusSSM)

Toledo and Lake Erie algae bloom (2014): <http://abcnews.go.com/WNT/video/toledo-water-toxins-test-tap-water-deemed-safe-24822055>

<http://abcnews.go.com/GMA/video/toledo-water-emergency-citys-water-contaminated-toxins-24824189>

- Students are not given the supplies but assigned to come up with their own materials to bring in.
- Have two trials instead of one for students to correct any issues or improve their design.
- Show students video clips of how a wastewater treatment facility works or how a wetlands/riparian areas work.