

Clean Water Challenge

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The Challenge: Clean “dirty” water

Many times there are pollutants in water that we cannot smell or see. Water should be tested regularly to make sure it is clean. Your community water system does this for you so that the water provided to you in your homes is safe to drink. Well water should also be tested at least once a year to ensure it is safe to drink.

Key Topic: Water quality, Scientific method, Contamination/pollution prevention

Grade Level: 2 - 5 (For older students (6-12) see the *Option for Older Students* section)

Duration: 30 - 50 minutes

Objectives:

Use the materials provided to attempt to “clean” the sample water. Share ideas and discuss with each other what might work. Experiment. Remember scientists test many ideas before finding one that will work. Compare and contrast the outcomes. Discuss how it is easier to keep water clean than to clean it.

(Through trial and error students will figure out they need to build a filter rather than add items to the water to “clean” the water. Younger students may need to see examples before attempting to create their own filter.)

Items Needed:

- A water sample – collect your “dirty” water from a local pond or create your water sample by adding debris (soil, leaves, grass, etc) to a bucket of water
- Plastic cups
- Paper towels
- Cotton balls/discs
- Coffee filter
- Sponges
- Pieces of nylon (tights) or various fabrics
- Sand and/or gravel (optional)
- Rubber bands

Option for Older Students: Use the Scientific Method

- Make observations and ask a questions
- Form a hypothesis
- Design an experiment
- Analyze your data
- Draw a conclusion
- Share your results



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Activity Steps:

1. This activity works best when students are working in teams of 2-4.
2. Layout supplies on a table for all students to access or provide supplies to each group.
3. Provide each group with a sample of the “dirty” water.
4. Suggest that each group discuss ideas and decide on a plan before they begin using the supplies.
5. Encourage the students to try different ideas, and remind them that there is no wrong or right answers.
6. After students have had time to try different ideas encourage each group to share what they did. What they found worked well and what didn’t work so well.
7. Ask the students:
 - What did you find that worked the best?
 - Were there any materials that made the water worse?
 - Did you use any sort of process in the challenge?
 - If you found something that worked, did you try it again?
 - If you found something that didn’t work, did you try it again?
 - Hearing from others, what might you do differently next time?
 - Is it easy or hard to clean water?
 - What if you had to clean all the water you used?
 - What are pollutants that make water unsafe? How can we prevent pollution?

For More Fun:

Add materials that might help or hinder the “cleaning” process.

- Salt
- Sand
- Gravel
- 2-liter pop bottle, empty
- Milk jugs, empty
- Screen
- Cheese cloth, felt, or other fabrics
- String, wire, twist-ties, etc.
- Scissors
- Activated charcoal
- Denture cleaning tablet
- Clay or plumbers putty
- Dish soap/detergent
- Baking soda
- Corn meal
- Sugar
- Magnifying glass
- Plastic cling wrap, aluminum foil, etc.
- Electrical tape, duct tape, etc.

