

PureHands Lab Instruction Manual



PureHands
Lab



Clean Water Science Kit For Young Scientists Ages 8–12

OUR MISSION

MILLIONS OF PEOPLE AROUND THE WORLD DON'T HAVE CLEAN WATER.
BUT YOU CAN HELP US TEST WAYS TO MAKE IT!
PUREHANDS LAB LETS YOU BECOME A CLEAN WATER SCIENTIST

WE WANT TO DISCOVER

- ✓ What works best ?
- ✓ What needs fixing?
- ✓ How to build better ideas

FORMAT:

This activity can be completed individually, in pairs, or in small groups.

EACH KIT INCLUDES

- Large canister
- 4 interlocking canisters
- Coarse gravel
- Fine gravel
- Sand
- Activated charcoal
- Measuring cup
- Testing strips
- Goggles
- Instruction Manual



EXPERIMENT SUGGESTIONS

BEFORE YOU BEGIN

Your job is to clean dirty water. But first, let's make some!

Here are some safe and fun ways to make dirty water at home or in class:

- Mix water with a little soil or sand from outside
- Add a few pieces of crushed leaves or grass
- Stir in a small amount of cocoa powder or instant coffee
- Add a drop of dish soap (just one!) to test for soap-contaminated water

EXPERIMENT 1: STARTING OUT

- Add layers from bottom to top: Charcoal, Sand, Fine gravel, Coarse gravel
- Connect canisters, lock into larger repository
- Slowly pour in your dirty water.
- Use your testing strip and your eyes! Write down the results.

Try Again Tip: Did water go through too fast or too slow? Try adjusting the amounts of each layer.



EXPERIMENT 2: THE UPSIDE DOWN CHALLENGE

- Reverse layers from bottom to top: Coarse Gravel, Fine Gravel, Sand, Charcoal, Sand
- Connect canisters, lock into larger repository
- Slowly pour in your dirty water.
- Use your testing strip and your eyes! Write down the results.

Take notes: Was the water cleaner? How did adjusting the layers change the results?

EXPERIMENT 3: THE MISSING MATERIAL

- What if you had to clean water, but were missing one of the materials?
- Remove that material from your filter
- Build the filter as usual.
- Pour in your dirty water
- Observe and test the results.

Ask yourself: What happens when a layer is missing? Which material seems the most important?



BONUS CHALLENGE: MAKE YOUR OWN EXPERIMENT

- Every experiment you do gives us more information. Scientists make mistakes, try again, and get better every time. You're doing the same.
- Try mixing and matching different amounts of materials, different types of dirty water

REMEMBER, NEVER DRINK THE WATER YOU TEST, EVEN IF IT LOOKS CLEAN OR THE TESTING STRIPS SAY IT'S SAFE.

THIS WATER IS FOR LEARNING ONLY — NOT FOR DRINKING!