

15-minute Family STEAM Water Filtration

Materials Provided:

Plastic bottle
Activated charcoal
Cotton balls
Coffee Filter



Needed From Home:

Utility knife
Dirty water (make your own with stuff like coffee grounds, dirt, crunched-up old leaves, cooking oil, etc)
Spoon
Measuring Cup
Stopwatch or clock with a second hand
Pencil & Paper
Optional--gravel, sand (coarse and/or fine)

1. Ask a grown-up to cut the bottle in half. Then flip the bottle's top half over and put it in the bottom, so the top looks like a funnel. You'll build your filter in the top part.
2. Place the coffee filter at the bottom of the top part of your bottle.. Place a layer of charcoal & then a layer of cotton balls on top of the coffee filter. (optional--make additional layers with your gravel & sand)
3. Write down which filter materials you used and in what order you layered them.
4. Stir your dirty water and measure out a cup of it.
5. Pour a cup of dirty water into your filter. Start the timer as soon as you begin pouring.
6. Time how long it takes for all the water to go through the filter. Then write down how long it took.
7. Carefully scoop out the filter materials, one layer at a time. What did each layer take out of the water?

Experiment! Clean the bottle and try again. Put the filter materials in a different order each time, and time each experiment. What do you discover?

WHAT'S GOING ON?

The slower, the better! The longer it takes for water to move through a filter, the cleaner it gets. Water slips easily through the filter materials, but bigger gunk, like dirt, gets trapped. The filter materials usually get finer and finer, so they can catch whatever was missed earlier. Activated charcoal can be near the end of the water's path, because it uses an electrical charge to grab particles too small for us to see.

Your filtered water is not clean enough to drink. But a plant will love it!

Taken from kids.nationalgeographic.com/books/article/water-wonders



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