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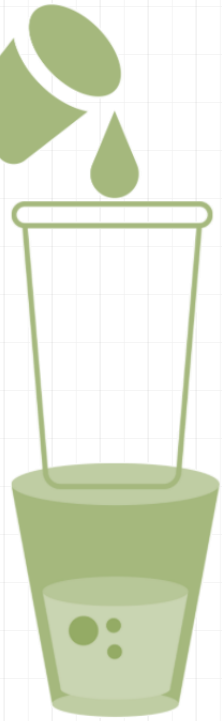
HANDS-ON ACTIVITY: **Create Your Own Water Filter**

Try experimenting with dirt, rocks, and water to create the best filter!

START HERE!

H2Ohio is Ohio Governor Mike DeWine's program to ensure safe and clean water for all Ohioans. H2Ohio focuses on reducing chemicals, such as phosphorus, creating wetlands, addressing failing septic systems, and preventing lead from entering our water systems. The health of Ohio's rivers and streams is affected by what happens to the land surrounding them. Runoff, water that flows across roads, parking lots, farm land, and much more, introduces items that dirty the water. However, soil plays a n important role in capturing and cleaning the water all around us. Through natural filtration, soil can work to remove contaminants, chemicals and other unwanted items, which were introduced to the water from runoff.



MATERIALS

IN THE BOX:

- Two paper cups, one plastic cup, two coffee filters, and a pen

FROM HOME:

- Dirt, rocks, cereal, oats, playground sand, and other materials you think can be used to create a filter!

INSTRUCTIONS

1. Fill the paper cup with water.
2. Pour several scoops of dirt and mix it around..
3. Using the other paper cup, poke a small hole at the bottom using your pen.
4. Place a coffee filter inside the cup to cover the hole and line the bottom of the cup.
5. Place a handful of dirt and rocks or other materials you find around the house over the coffee filter.
6. Now place this cup into the clear cup and pour the dirty water into the cup so it can filter down through the dirt, rocks, and coffee filters.
7. Look at the difference in the water before and after! The filter, dirt, and rocks collects the other dirt and particles in it making the water much cleaner.

Just as a reminder, we do not eat or drink our science experiments. While it might look refreshing, do not consume your filtered water.

WHAT'S GOING ON?

A filter is a porous material through which a liquid or gas is passed in order to separate the fluid from other matter, such as contaminants like chemicals, dirt, rocks, and other items.

Even though soil can be considered dirty, it does not mean it cannot create something clean. When water passes through soil, it is cleaned by physical, chemical, and biological processes. Small microorganisms, bacteria, and fungi use pollutants and change filthy water into something different. As water moves through the small holes between soils, larger containments are removed. Eventually, this water, filtered through layers of soil, returns to us as cleaner water.

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Here are some examples of how farmers support clean water

Source: Ohio Department of Agriculture

Scan me to learn more!

Source: Ohio Department of Agriculture

H2Ohio Best Practices

1 Voluntary Nutrient Management Planning: Nutrient management plans give farmers information on where to place fertilizer, when, and how much.

2 Variable-rate fertilization: Applying scientific fertilizer levels based on the need of each sub-acre. Reduces fertilizer application without risk of losing yield.

3 Subsurface nutrient application: Applying fertilizer below the surface to reduce runoff.

4 Manure incorporation: Mixing manure into the soil to keep it in place and prevent runoff.

5 Conservation crop rotation: Planting certain crops that reduce erosion and enrich the soil, thus reducing runoff and decreasing the need for fertilizer.

6 Cover crops: When planted after the main harvest, cover crops reduce erosion, hold nutrients in the soil, and improve soil health.

7 Drainage water management: Slowing down runoff to give phosphorous more time to settle back in the soil.

8 Two-stage ditch construction: Creating modified drainage ditches to slow water flow and allow the phosphorous to settle.

9 Edge-of-field buffers: When trees or shrubs are planted along farm fields in the right place, the plants hold on to the phosphorous and prevent its release into the water.

10 Wetlands: Wetland vegetation and soils absorb phosphorous, slow down the movement of water, offer a natural filtering process, and allow phosphorous to settle.