This activity, and more like it, can be found in 4-H Canada's **Steeped in Soil Activity Book**.

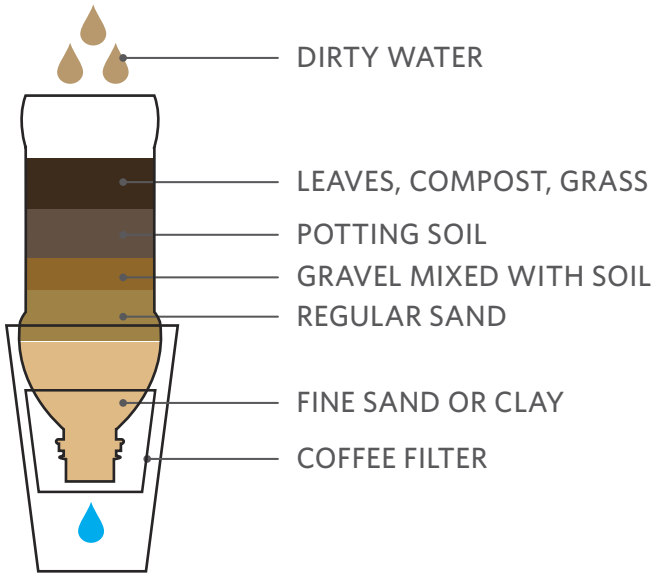
Learn more at **4-h-canada.ca/steepedinsoil**

Clear As Mud

Soil plays an important role in filtering water, as it trickles down through all of the layers to reach the water table. This activity will show how muddy water can become clear after a journey through soil!

Materials:

- 2 litre pop bottles, with the bottoms cut off—one for each of the filters you want to make
- Yogurt containers that can hold the 2 litre pop bottles
- Coffee filters
- Fine sand or clay (bottom layer)
- Regular sand (next layer)
- Gravel mixed with soil (next layer)
- Potting soil (next layer)
- Leaves, compost, grass (top layer)
- Dirty water—you can make it by adding dirt, leaves, food colouring, or pieces of paper.



Instructions:

1. Turn the pop bottle upside down and place in the yogurt container to keep it upright and steady.

2. First put in the coffee filter. This will represent the super fine particles and compaction that water has to pass through slowly in the real world.

3. Add a layer of fine sand or clay. Then add the regular sand, followed by gravel mixed with soil, potting soil, and topping it off with some grass, leaves, or compost.

4. Carefully give the bottle a couple of firm whacks on your work surface to settle the layers.

5. Mix up your dirty water and slowly pour it over the top layer of your soil filter.

6. Leave it to slowly filter through the layers. This may take a while, so come back to it periodically throughout your meeting.

*Even though the water coming out of the filter might look clean, it is not safe to drink.

Discussion:

- What does the water look like after it passes through the soil filter?
- What would happen if you removed the top layer of grass and leaves? What would happen if you removed one of the other layers? What would happen if you really compacted the soil? Consider redoing the activity to see what water filtration looks like in areas that have lost soil layers due to erosion, compaction, or desertification.
- How might your results change if you simulated a heavy rain storm (dumping in all of the dirty water quickly) or a light rain (sprinkling water on slowly)?
- Could these layers of soil filter out different things like oil? Or fertilizer?

SUSTAINABLE DEVELOPMENT GOALS

6 CLEAN WATER AND SANITATION

In order to have clean water to drink, it takes thousands of years for it to slowly pass through the soil into the groundwater. What can we do to protect soils that act like a filter for the water we drink? What can we do to reduce runoff into clean water?