

DON'T DRINK THAT WATER

KEY OBJECTIVES

1. Children will learn about water safe for consumption
2. Children will understand the difference between water filtration and purification
3. Children will learn how to reuse/ recycle their water, thus saving, in the process

INTRODUCTION

In this experiment, we will filter water that we can reuse to water our plants and cleaning. Filtered water is NOT the same as purified water, so the water in this experiment, in its final state, is not suitable for consumption.

GUIDING QUESTIONS

1. Can we drink water from the toilet bowl if it looks clean?
2. Why can't we drink the water if we filter the dirt?
3. What would make the water safe to drink?
4. Do we have to filter rain water?
5. What other materials can be used to filter water?

MATERIALS

- 1 x 2l clear plastic bottle
- Scissors
- Tape (to cover the cut out edges of the bottle)
- Cloth (light and absorbent)
- Elastic band
- Cotton wool
- Charcoal/ activated charcoal (can be found at pharmacy)
- Pebbles
- Sand (fine)
- Topsoil
- Greywater collected from dishwashing water, rainwater or muddy water

CONNECTION TO SDGS



TOPICS

Natural Sciences

CROSS LINKS

None

KEYWORDS

FILTRATION PURIFICATION GREYWATER
PERMEATE ABSORB OBSERVATION
CONSUMPTION

LEVEL

Primary

RESOURCE TYPE

EXPERIMENT

INTENDED AUDIENCE SIZE

30 learners in person, 20 learners if online

MODE OF DELIVERY

Can be done in person or online

TIME FOR ACTIVITY

25 - 30 min.

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TASKS



1. Clean your water bottle and cut around. Approximately 1/3 from the top. Please ask an adult to assist you with cutting.



2. Remove the bottle cap and place the cloth over the opening. Secure it with the elastic band. Layer the filtration system using the top part of the bottle, in this order:

1. Cotton wool
2. Activated charcoal
3. Sand
4. Topsoil
5. Pebbles/ stones

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3. Place the filtration system (with the opening facing down) into the bottom part of the bottle and gradually pour the grey/ muddy water. (NB: DO NOT shake the filter).



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4. As seen in the image, the water is significantly cleaner than when we poured it. You can use the water to water plants or cleaning the floor. Bring out the scientist in you and experiment using different materials and testing as we did in the images below:

Test 1: Try different materials for filtering

Filter B:

- Materials and order of layering:
- Cotton discs
- Charred wood
- Topsoil
- Dried grass and leaves
- Pebbles/ stones
- Pour greywater, gradually



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Observation:



The same greywater was used and the result of the water is evident. Filter A clears better than Filter B.

Filter C:

- Sponge
- Activated charcoal
- Topsoil
- Dried grass and leaves
- Pebbles/ stones
- Pour greywater, gradually



Filter C was not as effective. Most of the charcoal permeated through the sponge and changed the color of the water.

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Observation:



The filtration system used affects the color of the water, as seen in the image above.

Test 2: Use the more effective filters to observe any further color changes in the other bottles.

Use Filter A to filter water from Bottle A again. Observe changes.



Observation: The change is inconclusive. There seems to be a slight change but it could be due to light.

Use Filter A to filter water from Bottle B. Observe changes.

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Observation:



Observation: The water became clearer with the use of Filter A.

Use Filter B to filter water from Bottle C. Observe changes.

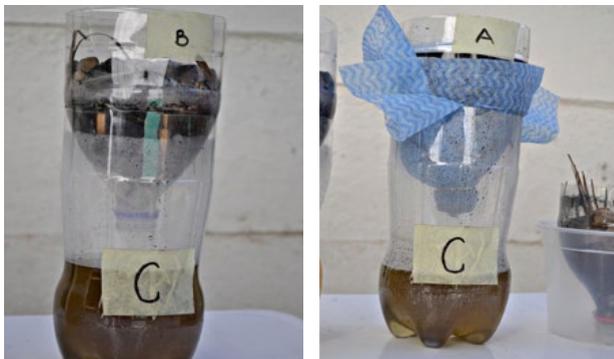


Observation: The charcoal accumulated in Bottle C was almost all filtered out using Filter B.

Use Filter A to filter water from Bottle C. Observe changes.

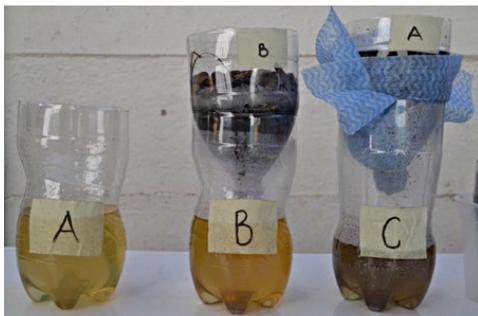
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Observation:



Observation: The water became clearer with the use of Filter A.

Conclusion:



Feel free to experiment with other material to filter your water.

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FOSTERING DISCUSSIONS

- The process of water purification.
- How to test if the purified water is safe to drink.
- How do they separated water suitable for drinking and water for the toilet.

SAFETY INSTRUCTIONS

An adult might want to assist you with cutting.

POSSIBLE EXTENSIONS

Included in tasks description.

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