

# Cleaning Water



## Topic

Cleaning water using a home-made water filter

## Introduction

If you fill a bucket with water from a pond or the bed of a stream and then let it settle, you will see just how dirty is untreated water. Debris such as stones, soil, leaves, and sand is clearly visible. But there is also dirt you cannot see such as bacteria and decaying life. In this experiment, you will be making a simple home-made water filter and testing its effectiveness.

## Time required

1 hour

## Materials

cup of coarsely broken charcoal (e.g., for a barbecue)  
cup of rinsed sand  
cup of washed gravel  
15-cm-diameter clay pot  
filter paper for coffee machine  
pond water (1 liter)  
fine sieve (as for sifting flour)  
large dish or bowl (20 cm in diameter and 5 cm deep) to collect water  
0.5-liter plastic jug  
bucket to collect pond water

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## Safety note



Collect water from the edge of the pond. Do not go into the pond. Do not drink the pond water before or after filtering it. Wash your hands after collecting the pond water and at the end of the experiment.

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## Procedure

1. Use the bucket to collect a sample of pond water. You will need at least a liter.
2. Wash the clay pot well and leave it to dry.
3. Line the pot with the filter paper.
4. Place the pot in the large dish or bowl and pack it one-third full with the charcoal (see diagram 1 on the next page).
5. Rinse the sand in the sieve under running tap water and, while it is still wet, pack it into the pot to fill the next third.



# Our Findings

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1. To remove any contamination before filtering the pond water.
2. The gravel traps large debris that is not caught by the sieve, while the sand traps smaller pieces of dirt. The charcoal and paper filter out the finest particles.
3. The water in the dish is much cleaner than the original pond water and has debris.
4. Bacteria and other microorganisms are still present. Water could be boiled or sterilizing tablets added to kill these microorganisms.
5. Screens or metal grids are placed where water is taken from rivers and reservoirs to keep out floating weeds and rubbish. Water is pumped into tanks where large particles settle on the bottom – this sediment is pumped away. Chemicals are added to water to make small particles stick together so that they can be filtered out. Chlorine is then added to kill bacteria and other microorganisms.