



Water Filter Creation

Make your own water filter to make water safe to drink.

This activity is from www.cafod.org.uk

YOU NEED:

500ml of water mixed with 1 tsp of cocoa powder and rice
 2 litre plastic bottle
 clean chux cloth
 24 cotton wool balls
 plastic bag
 some gravel

scissors
 4 white (not dyed) paper towels or serviettes
 rolling pin
 spoon
 washed rough-grade sand and charcoal.

TIP

Your nearest builders, DIY or pet centre should be able to provide clean gravel and rough-grade sand. You can rinse ordinary barbecue charcoal in a wire sieve. To wash the sand, pour a little water in to the top of your container. Let it overflow as you gently tip the container and watch the smaller particles of sand disappear with the water. Caution: Ensure charcoal has not been pre-treated with petrol or other substances which may be harmful.

STEP 1

Take a 2 litre plastic bottle, cut carefully in half.

Fold a chux cloth four times and roll it up.

This is a porous bung which can be pushed firmly into the bottle neck. Watch your hands on the cut edges.



STEP 4

Take a fourth paper towel or serviette. Wrap 12 cotton wool balls inside it. This is your 'cushion filter'.

It slows the flow of water allowing more time for impurities to be filtered out.

Twist the edges of the towel or serviette together on the underside and push your cushion down into the top half of the bottle tightly.



STEP 2

Turn the top half of the bottle upside-down like a funnel and place it inside the bottom half which will hold the filtered water.

STEP 3

Line the top half of the bottle with three white paper towels or serviettes.

Alternative: try using a paper coffee filter.



STEP 5

Sprinkle three parts of gravel on top of the cushion filter. Pack down tightly with a spoon leaving no gaps at the edges.



STEP 6

Place 12 more cotton balls on top of the gravel layer.

This is a small model water filter. We need the cotton balls and serviettes for quicker absorbency of impurities. In a bigger filter these would not be needed because the layers would be thicker and the water would spend more time filtering.

STEP 7

Put the charcoal inside a plastic bag on a hard surface. Tie a knot with the handles. Using a rolling pin, carefully crush the charcoal into smaller pieces.



Layer two parts of charcoal on top of the gravel. Pack down tightly with a spoon leaving no gaps at the edges. The charcoal removes bacteria.

STEP 8

Sprinkle three parts of sand on top of the charcoal layer.

Pack down tightly with a spoon leaving no gaps at the edges.

Now you are ready to pour. Pour your dirty water slowly and carefully into the centre of the funnel and wait for it to trickle through the layers.

THE RESULTS

You'll see that the filtered water is much cleaner.

But this is a model water filter and you won't be able to drink the water this time!

To be sure that there were absolutely no bacteria in the filtered water you would need to use a bigger version of the filter with thicker layers.

It would take three days for the water to filter through, but with a little more time and some more materials you could make a bigger filter.

DISCUSS

- What would life be like if you had to filter all your water in this way?
- How would you feel waiting for the water to filter?

