

## 2.3 Activated carbon for purifying drinking water



How would you remove substances like dyes, flavourings, fragrances and bacteria from drinking water using activated carbon?



If activated carbon is unavailable, you can also perform the experiment using powdered charcoal. The result is not as good because the adsorbing surface of the charcoal is much lower.



### Set up:

- two plastic bottles
- scissors
- kitchen paper
- pipette 3 ml
- activated carbon or powdered charcoal
- ink

1. Cut two plastic bottles into two parts in the middle (see picture).
2. Drill a hole in the cap, screw it onto the top part of the bottle and put damp kitchen paper in the cap.
3. Fill the upper bottle halfway with activated carbon and cover the top with a layer of kitchen paper.
4. First, run two cups of clear water through the filter to make the activated carbon work better.
5. Make a slightly coloured aqueous solution with a little ink and slowly pour half of it into the upper bottle.
6. Use a beaker to collect the solution and compare the colour intensity.



### Observing and documenting:

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If you do not have activated carbon available, please use crushed (powdered) charcoal. This process is used in some African countries for water purification. Try to explain the mode of action of the activated carbon with the help of the illustration on page 2.



Could you use activated carbon in a respirator mask?



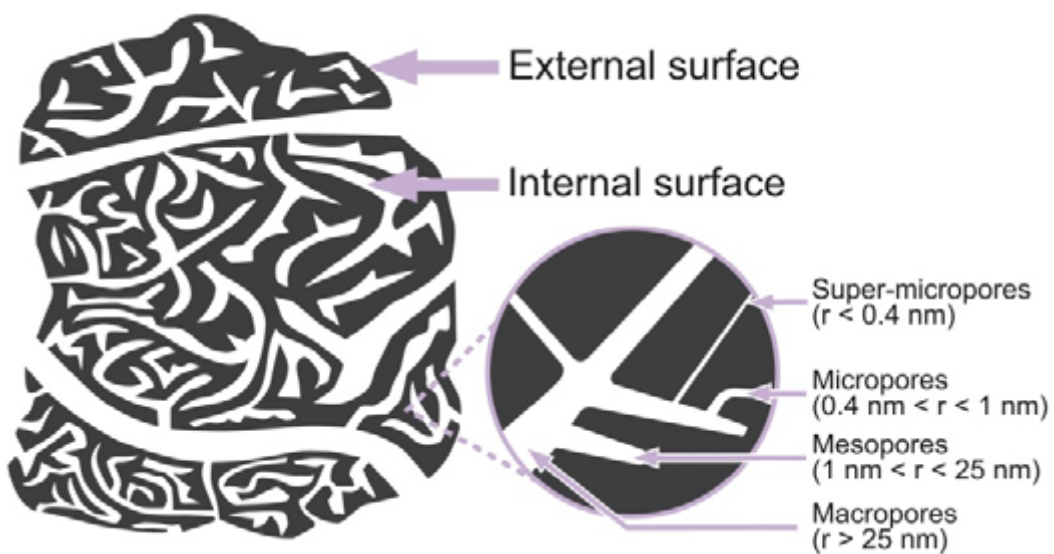
Technical application and vocational orientation:

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### Surface diagram of activated carbon



1 nm is one-millionth of a millimetre.