# Carbon for water treatment: Preparation details for teachers and technicians

The following instructions detail set-up for the Activated Carbon for Water Treatment experiment. Links are provided to retailers we used however alternative providers are available.

Given that products from different providers may have different properties, we advise testing any mixtures of activated carbon and fragrance oils before use in the classroom.

## Equipment (per student)

* 6 plastic 25 mL hinged-lid deli pots [link](https://www.amazon.co.uk/dp/B00EZ2AM4I?psc=1&ref=ppx_pop_dt_b_product_details) (one drop of fragrance oil in each, 3 pots for each fragrance)
* 3 plastic 50 mL centrifuge tubes with screw cap [link](https://www.amazon.co.uk/dp/B07T62Z18Z?psc=1&ref=ppx_pop_dt_b_product_details)
* 1 plastic funnel [link](https://www.amazon.co.uk/gp/product/B00J06MTH2/ref=ppx_yo_dt_b_asin_title_o07_s00?ie=UTF8&psc=1)
* Small spoon (that can fit inside neck of centrifuge tube)
* BBQ charcoal 20 g
* Activated carbon granules 20 g [link](https://www.finest-filters.co.uk/200g-activated-carbon/)
* Watch or timer

## Other equipment/consumables

Tactile dots – available from RNIB shop, amazon or stationary shops. Brightly coloured and clearly shaped stickers of any kind work well.

Essential oils were bought at Holland and Barrett (Miaroma range). Similar oils with the same active ingredients are likely to work well but should be tested before classroom use.

* Wintergreen
* Cinnamon Leaf
* Vanilla

## Set up

Pupils can prepare their own solutions or a stock solution of the fragrance can be prepared.

### Individual solutions:

Add a single drop of fragrance oil to each deli pot and seal. There should be 3 deli pots for each fragrance and they should each have a different tactile label.

### Stock solutions:

If you prefer to use a stock solution, add 20 drops of fragrance oil to 400 mL distilled water. Smell the solution by wafting above the beaker towards your face. DO NOT inhale the vapours directly.

Keep stored in a sealed container and shake before use. Be aware storage for prolonged periods may result in loss of fragrance.

## Carbon

BBQ charcoal should be crushed to a similar grain size to the activated carbon using a rolling pin or similar hard object. You can discuss with pupils why it is important to keep this consistency between experiments.

**Total activated carbon added should be approximately 10 g so give number of spoons based on spoon size.**