

The Dyer's Workshop

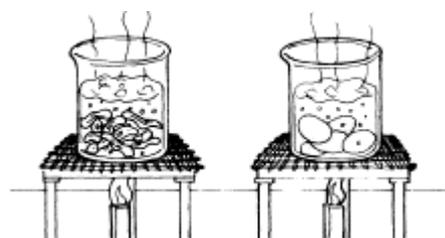
In the days before people learnt how to make dyes from chemical reactions, the only way to dye cloth was using natural dyes. You are going to make some natural vegetable dyes, and use them to dye some cloth. Why not try some tie-dyeing or batik when you've made them?



Eye protection must be worn

Job 1 Put some **ONION SKINS** into a beaker and some **BEETROOT SLICES** into another beaker.

Add about 100cm³ of water to each beaker. **CAREFULLY** boil for 15–20 minutes to get the juices out.



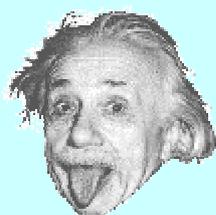
Job 2 When the dye is ready, let the beaker **COOL** for a few minutes. While you are waiting, you can repeat **Job 1** for **RED CABBAGE** and **RASPBERRY**.

Filter the cooled liquid into a clean beaker. This is your **DYE BATH**.



Job 3 Using tongs, put one piece of **COTTON** and one piece of **WOOL** into a dye bath. **CAREFULLY** boil them together for 10 minutes, stirring them with the glass rod from time to time. Take the materials out of the dye bath using tongs. Leave them to dry.

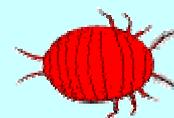
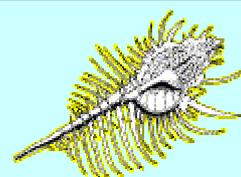
While you are waiting, do **Job 2** for **RED CABBAGE** and **RASPBERRY**.



Natural dyes can come from animals, too.

The Romans made a **purple** dye from a shellfish called *Murex*.

The British Army used to dye guardsmen's jackets with a **red** dye called cochineal. This came from a beetle found in Mexico!



Teacher Guide for Dyers' workshop

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Activity notes

This is a very easy way to prepare dyes, using standard laboratory techniques and natural sources. It makes a good introductory activity and makes the lab smell nice for a change! We have tried a variety of sources, including raspberries, onion skins, beetroot and red cabbage. All give pleasant, though not vivid, colours. We have tried some flower petals, too, but most (including the remains of Alison's wedding bouquet) seemed to make a sort of brown colour. Colour extraction works well if the plant material is cut up finely and not heated in too much water.

We provide the students with squares of unbleached calico (this should be washed first as there is usually a finish on the material which inhibits thorough wetting and uptake of the dyes). This can be dyed simply by immersing it in a beaker of the dye solution, but our students have experimented further with tie-dyeing and batik.

Tie-dyeing works best if the string is wound very tightly around the material, and the material is not left for more than 30 minutes in the dye bath. Batik works especially well. We use a can of molten candle wax, which is painted over the undyed cloth with a paintbrush. The cloth is then dyed, dried, and the wax removed by scraping or rolling the cloth to reveal the undyed areas. These can be left undyed, or the cloth can be put into a different dye bath to obtain multi-coloured effects.

Dyers' workshop

Students' checklist

Check you have:

- 3 x 250cm³ beakers
- 1 x 100cm³ measuring cylinder
- 1 x glass rod
- 1 x tongs
- 1 x Bunsen burner, tripod, gauze
- 1 x filter funnel with filter paper
- 1 x stand, boss, clamp

Dyers' workshop

Technicians' notes

For 5 groups of students:

15 x 250cm³ beakers
5 x 100cm³ measuring cylinders
5 x glass rods
5 x tongs
5 x Bunsen burners, tripods, gauzes
5 x filter funnels with filter paper
5 x stands, bosses, clamps

In the lab:

Pieces of pre-washed, unbleached calico
String
Can of candle wax (warmed over a Bunsen burner – teacher to supervise)
Assorted brushes
Drying line with bulldog clips