

River & Cloth



Workshop Plan for Solar Dyeing



Introduction

The dyeing phase of the River & Cloth project will focus on obtaining colour from natural materials. The aim of the project is to extract colours from natural materials using a variety of techniques. This worksheet gives information about the extraction of colour using solar-dyeing techniques, a method discovered by Textile Artist India Flint. The River & Cloth dyeing workshop plans include eco-dyeing, hapa-zome and ice-flower dyeing techniques also discovered by India Flint.

Facts

Textile workers along the river Wandle used the sun to bleach linen and cotton before it was dyed or printed.

Originally, linen was sent from England to Holland to be bleached and whitened. The cloth was sent in the spring and returned in the autumn. The Dutch method of bleaching was introduced into England in the late 16th century. The earliest Dutch bleachers were known as 'whitsters'. The Dutch bleachers settled along the banks of the river Wandle and large areas of meadow-land was used for bleaching cloth.

The process of bleaching the cloth involved soaking and washing the cloth in water, treating the fabric with a solution made from wood ashes and then laying it out in the bleaching fields for the sun to bleach it.

Between what is now Dean City Farm and the tram-line on the edge of Morden Hall Park was Bunce's Meadow which was used as a bleaching field.

In solar-dyeing we use the heat of the sun over a period of time to extract the colour from the plants to dye our cloth.

Materials Required

- A range of plants, vegetables and flowers for natural dyes (for ideas please see Plants & Colour Fact Sheet)
- A range of found metal such as rusty iron nails & screws, old copper or brass washers, coins or keys, tin & aluminium cans etc. The rustier or more oxidised the better.
- Containers – can be jars, bottles or plastic containers, Tins, cans, pots or pans
- Wool and silk fabrics – such as wool delaine, habotai silk (heavy) and calico (light) – 0.1 metre per person.
- Alternatively, you can use light coloured clothing made from natural materials such as cotton, linen, wool or silk
- String or rubber bands
- Dye bath solution – any of the following:
 - Water
 - Vinegar Water (5ml per 500ml water)
 - Salt Water (1 tsp per 500ml water)
 - Sea Water
 - Cream of Tartar Water (1 tsp per 500ml water)
 - Alum Water (1 tsp per 500ml water)
 - Alum & Cream of Tartar Water (1 tsp of each per 1000ml water)
 - Soya Milk
 - Calgon may be added to these solutions to soften the water (1/2tsp per 1000ml water)
- Litmus Papers (one book of 60 sheets per 6 people)
- Rubber gloves (one pair per person)
- Aprons (one per person)

Health & Safety

The jars & containers can get very hot on sunny days!

Rubber gloves and aprons should be worn whenever dyes are being handled.

Some plant materials are toxic. It is most important that you only use plant materials that you can identify and that are not hazardous.

Preparation

Any fabric used should be pre-mordanted prior to the workshop. For an explanation of what mordant is and how it can be used, please see the Fact Sheet on Mordants.

Tear the fabrics into 0.1 metre strips and give two to each participant - one of silk and one of wool.

Activity

The display of plants and metals is used as a starting point for a discussion about the colouring of cloth using natural and synthetic dyestuffs. For discussion ideas see the Facts section of this sheet and the Plants & Colour/Growing Plants for Dyeing Fact Sheets for ideas on which plants to include.

Note: Natural dyeing is unpredictable. The same dyestuff e.g. blackberry leaves will produce different results depending on the time of year the leaves are picked, where the plant is growing, how much rain has fallen while it was growing etc. Also the water used can significantly affect the result, soft water will produce different colours to hard water for example. So the examples shown in the Sample section below are for guidance only

Step One

Participants select the plant materials and found metals they wish to test. The plant materials and found metals are wrapped in the fabric or old clothing and secured with string or rubber bands and bundled into their container.

Participants select the dye bath solution they wish to use.

The solution is added to the container.



Step two

Participants test the pH of the dye bath with the litmus paper.

Participants complete their solar-dyeing record sheet.

The container is sealed with a lid or with foil/cling film & rubber bands.

The container is placed in a safe place in a sunny spot.

Step Three

Leave for at least two weeks - for best results leave longer - up six weeks to fully extract the colours from the plant materials and found metals.

To increase the temperatures reached in the solar-dyeing process, the jars can be stood on reflective material such as foil. This will reflect the sunlight back into the jar.

Alternatively the jars can be placed in a biscuit tin painted black. The black paint will absorb more heat from the sun and the sealed biscuit tin will act as an oven.

Step Four

At the end of the dyeing period, open the dye pot or jar, dispose of the dye bath solution, take the fabric bundle from the container and unwrap to discover what your dye experiment has produced.

Ask participants to record the final results on the solar-dyeing record sheet.