

KS2 Design and Technology - Designing Dyes

The learner will create their own natural dye and use it to colour fabric / a garment of their choice, using Reto Pulfer's work as inspiration.

Estimated time = 1 ½ hours

Curriculum Extract:

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts (for example, the home, school, leisure, culture, enterprise, industry and the wider environment). When designing and making, pupils should be taught to:

- select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities
- investigate and analyse a range of existing products.

Key terms:

- **Natural** - Something that is not made or caused by humans. For example, plants are natural as they are not made by humans.
- **Installation** - Installation art is a style of art that uses three-dimensional objects.
- **Recycle** - Recycling is the process of taking materials ready to be thrown away and changing them into reusable materials.
- **Environment** - The environment is everything around us. All our surroundings including the air, soil, water, plants, and animals make up the environment.
- **Sculpture** - A sculpture is an artwork that is 3D (three-dimensional - an object rather than a flat drawing or painting). Sculptures can be made by carving, modelling or placing materials together. They can be made out of stone, wood, fabric or any other material the artist wants to use!
- **Dye** - Dye is what we use to colour materials. It is often used to colour the fabric used to make clothing. A dye can be natural, usually made from plant material such as berries, or artificial, meaning that it is made by humans from chemicals such as petrochemicals.
- **Pigments** - A pigment is something that is added to something else to give it colour. Natural pigments can be made from animals, plants, rocks and minerals or even the ground itself, for example clay plus salts. Pigments can also be created by people.
- **Fixative** - Fixative is a liquid used to preserve the surface of things.
- **Raw** - Something not cooked or changed by any process.

LB2021 Project:

Reto Pulfer presents a new artwork titled *hyperbolisch ratlos ortlos inhaltslos* (2015–21) at The Lewis's Building. His artwork begins with the process of using natural pigments from plants and applying the dye to materials such as recycled bedsheets, paper and wood to form environmental sculptures. His work forms large tent-like structures to create an installation that we can interact with, providing us with a space to think about the relationship between our bodies and nature.

Materials:

- Light-coloured fabric
- Berries, fruit, vegetables, spices or flowers to make your coloured dye
- Salt or vinegar
- Cold water
- Large bowl or container



The pictures above show Reto Pulfer's installation at the Lewis's building. You can see the blue fabric he has dyed using natural materials and jars of plants he used to create his dye.

With the help of an adult, use the instructions below to create your own naturally dyed fabric. After you have made your dyed fabric, think about the following questions:

- How is the dye you have used here different to the dye that was used to colour the clothes you usually wear?
- What was good about making your own dyed fabric?
- What could you do differently next time?

Activity Instructions

1. Collect light-coloured fabric to dye. This could be an old t-shirt that you want to change up or an old bed sheet - anything that you want to experiment with. Make sure that the fabric you are dyeing is made of natural fibres - 100% cotton, silk and wool are all good options. Acrylic or polyester fabrics won't work, and neither will any sort of blended fabric. Ask an adult to help you find out what your fabric is made from.
2. Decide what colour you want to dye your fabric. You can use lots of things that you may find around your house or garden. Look at the list below to see which berries, vegetables, spices, flowers, or plants can make which colours:
 - Brown Onion skins (orange)
 - Red Onion Skins (pink)
 - Coffee grounds/tea (brown)
 - Strawberries/cherries (pink)
 - Roses (pink)
 - Lavender (pink)
 - Red cabbage (blue/purple)
 - Beetroots (deep red)
 - Artichokes (green)
 - Celery leaves (yellow)
 - Turmeric (yellow)
 - Blueberries/blackberries (purples)
3. Make a fixative to soak your fabric in. By using a fixative, the colour that you create will stick (or 'fix') to the material and will be less likely to disappear when you wash the fabric. If you're using berries for your dye, you should use a salt fixative. Put 1/2 cup salt in 8 cups of water. Put your fabric in here and boil for one hour. If you're using plants to dye your fabric, use a vinegar fixative. Combine one part vinegar and four parts of water and boil the fabric in the mixture for one hour. When your fabric is done, rinse it out under cold water.
4. Make your dye. Wearing gloves (you don't want to dye your hands too!), cut or tear your raw ingredients into small pieces. Place it in a pot and pour in water (2 parts water to 1 part raw ingredients. For example: one cup of torn cabbage leaves to two cups of water). If you are using a spice, such as turmeric, the proportions will be 1-2 tablespoons of spice to 3-4 cups of water. Bring mixture to a boil and simmer for about an hour. The longer you simmer, the more intense your colour will become. When done simmering, strain the dye into a container or bowl big enough to fit your fabric.
5. Dye your fabric. Place your fabric into your dye container and allow it to sit for a while. Once your fabric has turned a colour that you like (remember, the colour will lighten a little as your fabric dries), pull it out of the dye, rinse with cool water until it runs clear and hang to dry.