

Maker Challenge!

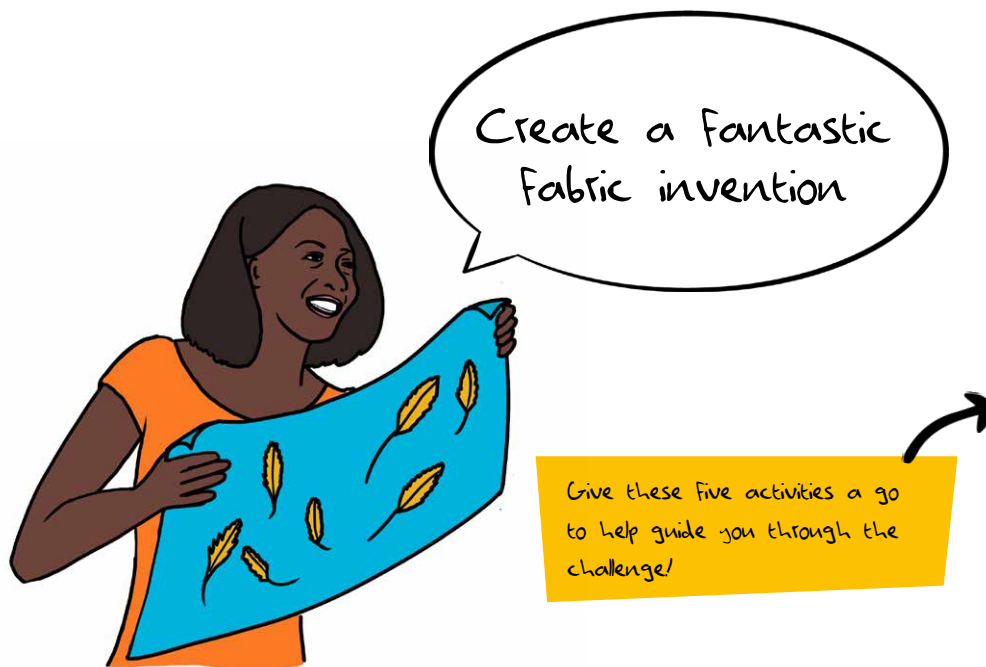
By material- designer Ella Bulley

Calling all Little Inventors!

Take the fabric dyeing challenge set by material- designer Ella Bulley and try five different activities to get your thinking about materials to help you design an amazing invention!

Do try this at home, take care with sharp objects and hot water. Make sure you get some adult help. There are how-to guides and tips included too to help you with your project. Happy making!

Ella's invention challenge



- 1. Let's get creative!** Draw symbols that tell the stories of you, your family, community or culture
- 2. Design a textile fabric.** Design a piece of textile fabric with your own symbols that tell a story or communicates a message.
- 3. Material explore!** Investigate the kitchen and the garden for different vegetables, fruit, food waste and flowers that could be used to create wonderful colours.
- 4. Prepare your fabric and start dyeing!** Find old t-shirts or pillow cases and get ready to transform them into something exciting.

INVENTION SHEET.

What could your fabric be? Invent a way your fabric could be used.



Ella Bulley is a material designer based in London, UK.

Ella works with different kinds of materials from sugar to glass. She often likes to challenge people's thoughts on materials and show new ways that they can be used, such as making earth friendly plastic from potato starch.

Ella likes using traditional craft making techniques to investigate materials, like those found in textiles and working with clay.

Here are some pictures of her work!



Saccharum: Exploring sugarcane and sugar. All these vessels are made from sugar!



Garden Fossils: Future Fossils made from materials found in the kitchen.



Inter-Patria: Products to help Ghanaian expats adapt to new living spaces

Draw symbols that tell the stories of you, your family, community or culture

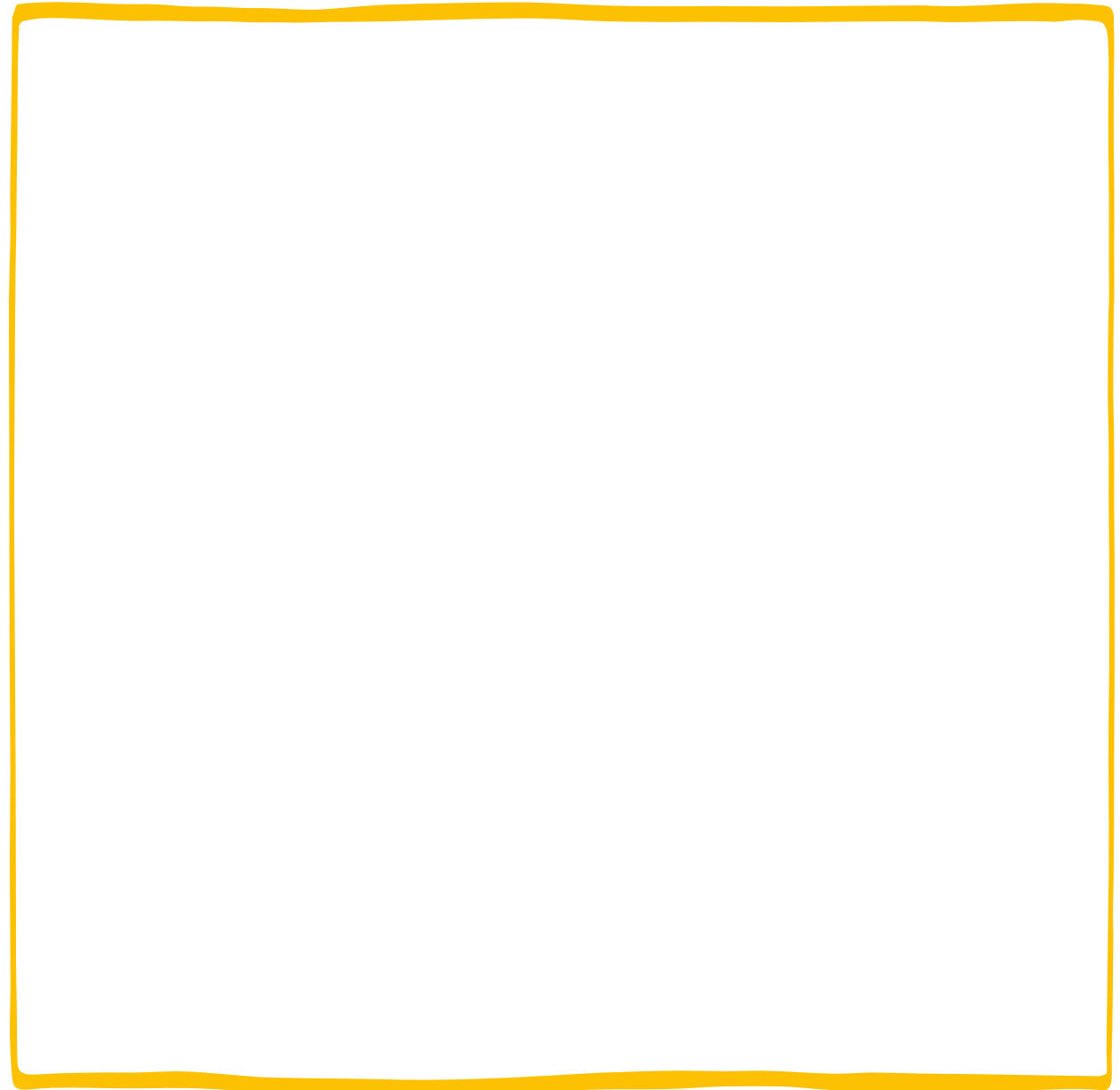
Adinkra symbols on woven kente fabric, Ghana



Ai Jurishi flag with family crest, Japan



Could there be a hidden message?



What can fabric be?

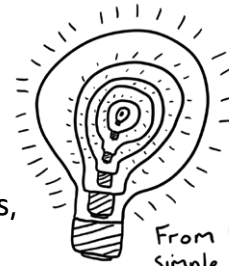
Design your own textile fabric. Design a piece of textile fabric that tells a story or communicates a message. Try including the symbols about you, your family, community or culture that you created in Activity 1.



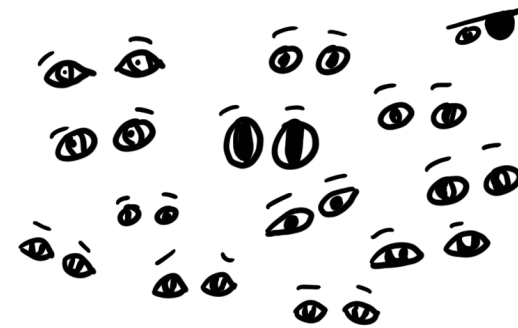
Material Explore

Investigate the kitchen and the garden.

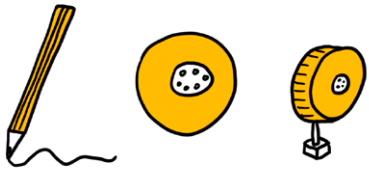
Note down or draw the different vegetables, fruit, food waste and flowers that could be used to create wonderful colours.



From little,
simple ideas,
big ideas can
Grow!



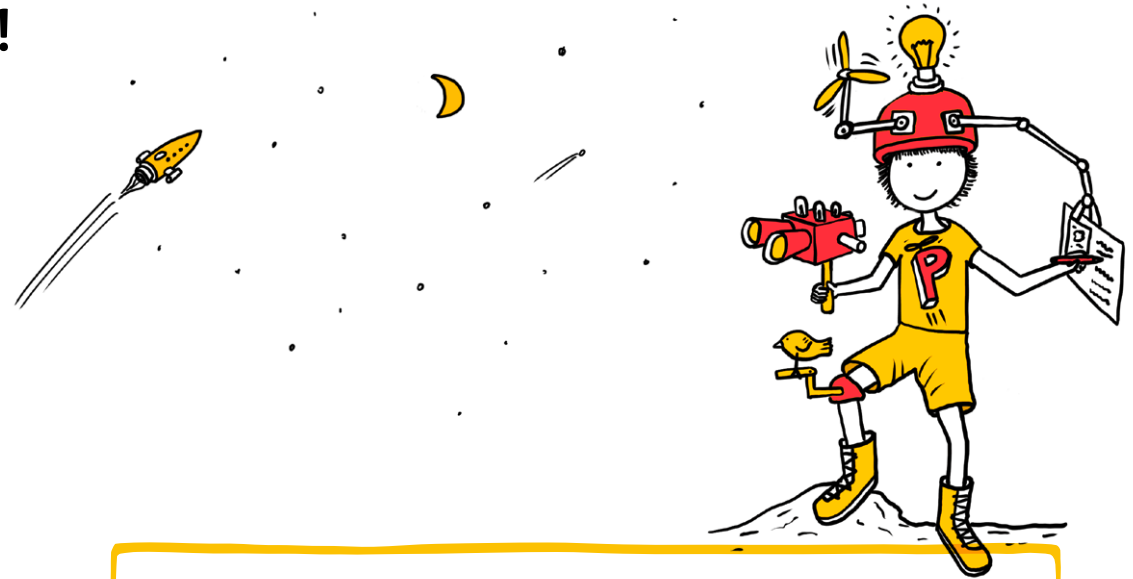
Now time
to get
inventing!



Prepare your fabric and start dyeing!

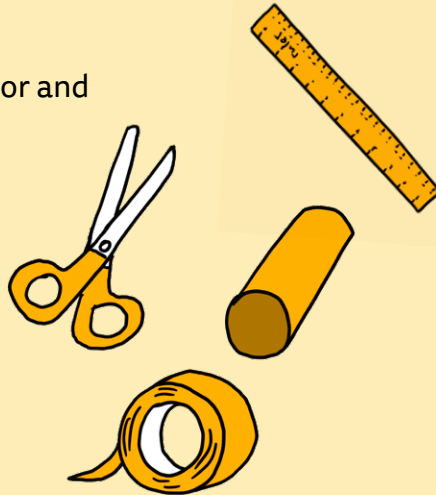
An old T-shirt or an old pillow case can be transformed into something new. All you need is some imagination, a few tools and natural products that can be found around the home, parks and gardens. Follow these instructions in how to prepare your material for the different dyeing activities.

Dyeing is a traditional way to add colour to fabric, threads and paper. This form of dyeing works best with natural fabrics, like cotton, wool and silk.



You will need:

- 1 old cotton pillow case or and old cotton t-shirt
- 750 ml hot water
- 250 ml vinegar
- Scissors
- Container with a lid
- Wooden spoon
- **An adult to help!**



Instructions

- 1.** Cut your pillow case or t-shirt into small pieces (I cut the pillow case into 4 pieces)
- 2.** Place your cut pieces of fabric into the container
- 3.** Add the vinegar and hot water
- 4.** Stir with a wooden spoon making sure all the fabric is covered
- 5.** Leave to soak for a minimum of 2 hours before moving onto one of the next activities.

Now you're ready to dye your fabric!

Follow the steps in the how to guides on the next three pages.

Leaf Rolling

Also known as Eco printing this method can be used with flowers.

You will need:

- Collected Leaves or flowers
- Fabric pre soaked in vinegar solution
- String
- Sauce Pan
- Water
- An Iron
- **An adult to help!**



1. Remove your fabric from the vinegar bath and squeeze out the excess liquid. Do not rinse!

Lay flat and place your leaves and/or flowers on the fabric.



3. Place in a pan and cover with water. Boil on medium heat for 10 minutes. Leave to cool.



2. Roll the fabric into a sausage. Fold the ends and tie tightly with the string.



5. Squeeze the water from fabric. Unravel and remove the leaves. Either continue onto the dip dyeing activity to create a new texture or set aside to dry, then iron to seal the colour.



Dip Dyeing

You will need:

- 2 red onion skins
- 750ml water
- A wooden spoon
- An iron
- **An adult to help!**



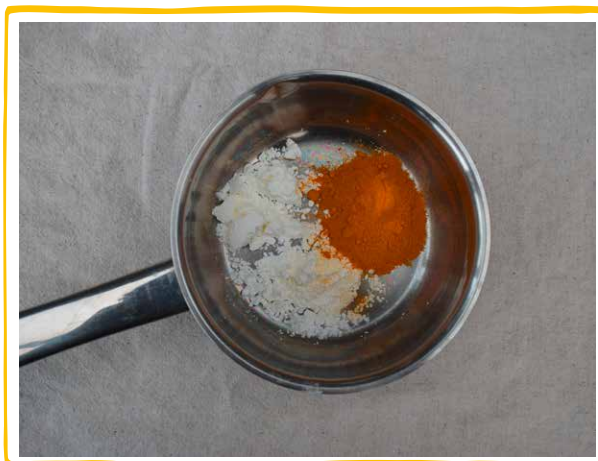
1. Using your adult's help place your onion skins and water in the saucepan.
2. Boil on medium heat for 15 minutes.
3. Remove the onion skins and place the onion water in the large bowl.
4. Remove your fabric from the vinegar bath and squeeze out the excess liquid. Do not rinse!
5. Place a piece of your fabric in the bowl for a minimum of 1 hour (the longer you keep it in the dye water the deeper the colour of fabric will be).
6. Once you are happy with the colour and the liquid is cool enough remove the fabric from the bowl.
7. Squeeze out the excess liquid and leave aside to dry
8. Iron to fix the colour.



Fabric painting with vegetable pigments

You will need:

- 1 teaspoons of turmeric
- 1/2 teaspoon cornflour
- 150 ml water
- A saucepan
- A teaspoon
- A table spoon
- Whisk
- Small bowl
- Paint brush
- A medium bowl
- Hot water
- An Iron
- **An adult to help!**



1. Add the turmeric and cornflour in the sauce pan.



2. Add about 1 table spoon of water and mix into a paste before adding the remaining water.



3. With an adult's help, cook the turmeric paste on low heat, whisking to ensure lumps don't form. Once it starts to thicken, remove and pour into a small bowl.



4. Remove your fabric from the vinegar bath and squeeze out the excess liquid. **Do not rinse!** Lay flat. Using a paint brush, paint your pattern and leave to dry.



5. To set the colour, with adult supervision place your fabric in a bowl and pour hot water on it. Leave to cool, rinse with water, then dry. Then iron to seal.

Tips and suggestions

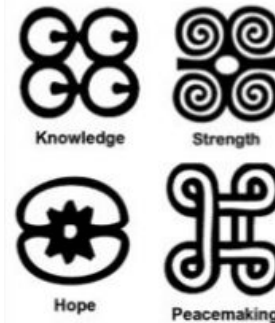


Discover fun textures by using more than one dyeing technique



Leaf rolled fabric boiled in turmeric water

Also uses your string to create patterns. The technique is also known as shibori



Adinkra symbols of Ghana have different meanings. Why not create your own symbols?



My fabric invention

From parachutes to tents to communication flags, fabric is used in many ways.

What amazing invention will your fabric be used for? It could be huge or tiny or somewhere in the middle.

Name it!
↙

.....
.....

First name

Age

School

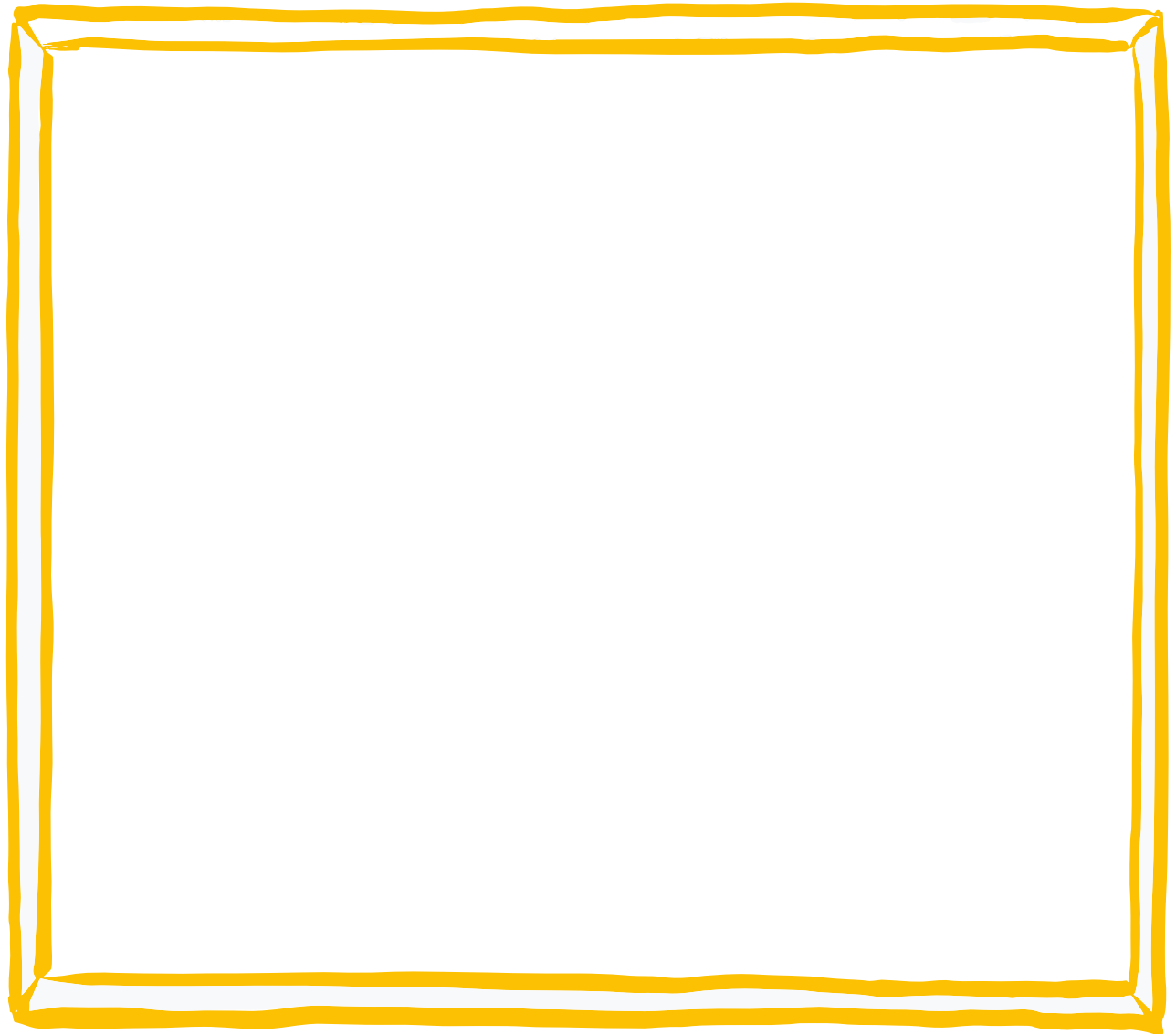
Town/city

Tell us more!

(who your invention is for, what it does, how it works!)

.....
.....
.....
.....
.....
.....

Draw your invention here! Use a black pen, add colours and labels



Upload your idea at littleinventors.org to get feedback and who knows, it could be chosen to be made real!