



## Science on the Shelves Project

### 'Fun with Flour' Activity Sheet

In this activity, you can:

- learn how to make glue,
- learn how to make paint,
- learn how to make play dough and
- learn how to make salt & water dough, all from flour!

Please follow any **safety instructions highlighted like this in red**. Before trying out any of these recipes you should have a responsible adult on hand and this will probably be the person whose kitchen you are using! This is even more important if you are going to use a recipe that involves cooking.

You'll notice that there's often a version that requires cooking and one that doesn't. In general, the cooked recipes produce thicker, smoother products that are less prone to going mouldy and smelly in a short time. But even so, it's best to store all products in sealed containers or freezer bags in the fridge (don't forget to label them) and to make small quantities freshly rather than large batches.

#### Flour and water glue, cooked

Boil 5 cups of water in a pan. Separately, in a bowl, mix 1/4 cup of sieved flour with a cup of cold water. Mix to a smooth consistency (this bit is like making custard or a white sauce) and when all the lumps have gone, add the mixture to the water in the pan. Gently boil, stirring continually for 2-3 minutes until the mixture thickens.

Allow to cool before using.

You can make a thicker glue (that has the benefit of drying more quickly) by using 1 whole cup of flour to every 3 cups of water.

#### Flour paste, uncooked

Mix 1/2 cup white flour and 2/3 cup water together to a paste with a creamy consistency. Add water by the drop or flour by the teaspoon to improve consistency and help avoid lumps. A few drops of peppermint oil have been suggested as a preservative, preventing the growth of mould.

## Paint, cooked

Heat 1 cup of flour and 2 cups of water gently in a pan over a low heat with constant stirring until thickened. Allow to cool. Mix in drops of food colouring until you get the desired colour. You can scale up this recipe, dividing it into batches before adding different colours to each.

## Play dough, cooked



First, you'll need to assemble the following ingredients:

- 2 cups white flour,
- 2 cups water,
- 1 cup salt,
- 2 tablespoons vegetable oil,
- 1 tablespoon cream of tartar,
- 1 teaspoon food colouring (optional).

Stir all the ingredients together in a pan over medium heat until the dough begins to pull away from the side of the pan. Remove from the heat and allow to cool. When cool to the touch, knead the play dough for a few minutes. Make sure it's stored in an airtight container, preferably in the fridge. You can add a few drops of food colouring to make different colours.

If you want to try your hand at making silly putty as well as play dough, we have a recipe for silly putty in our Let's Get Physical activity.

## Play dough, uncooked

You can prepare the play dough from the same recipe without cooking if you replace the 2 cups of water with 2 of boiling water. **This still requires the utmost care and attention from a responsible adult.** In this case, first sift the dry ingredients together. Separately, mix the oil, water and food colouring together. Gradually add the hot liquid to the dry ingredients, mixing with a wooden spoon until a soft dough forms. When this is firm enough and cool enough, you can remove it and knead as above.

## **Salt and water dough, uncooked**

This kind of dough is ideal for making decorations that you might wish to detail further and keep.

Mix thoroughly 1/4 cup of salt, 1/4 cup of water, and 1 cup of flour. Work into a very smooth dough using a wooden spoon and then your hands. Use biscuit cutters and a table knife to cut out the shapes you want. The dough will harden over 24 hours, after which it can be painted or covered with glitter. If you want to thread your decoration, make sure you make a hole before the dough hardens!

