

# HOME LEARNING ACTIVITY:

## MAKE YOUR OWN BIOPLASTIC

### Introduction

Plastic is a really useful material. There are about 50 types of plastic in common use every day, from PVC, which can be used to make transparent and very flexible cling film, through to Kevlar, which is used to make body armour. Look around your home and you'll find plastic everywhere, from your phone to your computer, to your TV, to your kitchen appliances and food packaging and even maybe your furniture.

But there's a big problem with plastic. What happens when we don't need it any more? Well, it *CAN* be recycled, but you need all of the plastic you recycle to be of the same type and ideally the same colour. And with so many types of plastic out there, sorting them at a recycling facility can be really tricky!

So more often, plastic is buried in the ground at a landfill site, or it stays where people drop it, or it ends up in the sea. Plastic doesn't rot away. It can 'photo-degrade' - that is, it gradually becomes more brittle when exposed to sunlight for long periods, so when it's floating in the ocean and it gets knocked together by the waves and currents, small bits gradually break off.



Some beaches in the Pacific Ocean are now covered in little plastic fragments and you can even find lots of plastic bits on UK beaches if you look carefully (check out the photo, above).

### Bioplastic

New plastics are being created that use natural materials like corn or chicken feathers, which will break down much more quickly in the environment. Many of them are experimental at the moment and there's still a long way to go. For example, many dissolve in water, so they're not great for holding liquids! But in the future, making plastic that breaks down naturally in the environment should be possible.

# You can try making your own biodegradable plastic made from natural materials, or 'bioplastic' using a few simple ingredients...

## You Will Need

- Corn flour
- Water
- Cooking oil
- A measuring spoon
- A microwave
- A microwavable container
- An adult (if required - to help with the microwaving!)

## Instructions

1. You can make as much as you like, but the proportions of ingredients to use are 1 tablespoon of cornflour to 1.5 tablespoons of water to 4 drops of cooking oil.



2. Mix the ingredients well in your microwavable container until you have a milky liquid.

3. Put the mixture in the microwave and give it about 30 seconds on high. It should start to bubble and become slightly transparent. If you have made a larger amount of mixture, you may have to heat it for longer to get it to bubble. Keep watching and don't let the mixture start to burn!



4. When the mixture is looking slightly transparent, ask your grown-up to take it out of the microwave very carefully. It will be hot! Make sure you let the plastic cool down until you are able to handle it safely. This will take 5 minutes or more.

5. Knead the plastic until it feels like play dough. You can now cut or mould it into the shape you want.



6. Leave it to cure for 24 - 48 hours. It should then be solid and maintain its shape. If you'd like to make coloured bioplastic, try adding food colouring to your mixture before microwaving.