

# Investigating what happens when polymers are disposed of



## *Education in Chemistry*

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[rsc.li/EiC417-medical-plastics](http://rsc.li/EiC417-medical-plastics)

**This experiment accompanies the above article ‘Body, heal thyself’.**

Many materials we use every day are made from polymers, especially plastics. Nearly all types of [plastic can be recycled](#), but around 70% of the 5 million tonnes used in the UK each year are sent to landfill. When buried, they are exposed to a range of chemistry in the soil and each plastic will react differently.

In this investigation you will look at how plastic materials change over time when they are buried. Suggested materials include food packaging, ‘foam’ takeaway containers, dried PVA glue, plastic carrier bags, synthetic uppers from shoes and synthetic fabrics like nylon, polyester and polyamide.

## Method

1. Collect a range of plastic materials from home and school. Look out for those that claim to be biodegradable.
2. Decide with your group how you will carry out your experiment. Here are a few questions to get you started:
  - What kind of soil will you use?
  - Will you water your soil? How often?
  - Where will you keep your samples? What about the temperature?
  - Does the depth the samples are buried at matter?
  - Does sample size matter?
3. Set up your samples and photograph them (and analyse with the IR spectrometer if you are doing this step).
4. Bury your samples and leave them somewhere where they won't be disturbed.
5. Dig up your samples and compare them visually (and with the IR spectrometer) with the photographs from the start of the experiment.