



Lesson 5: Separation challenge

separating plastic waste from other materials

How can we remove plastic from our environment?

Unfortunately, when we throw plastics away, it doesn't actually go 'away'. Some may be buried in the earth, some may be burnt, and some may be recycled but lots accidentally ends up in the environment. Removing big bits of plastic from the environment is relatively simple; we can pick it up and recycle it or put it in the bin. However, removing small bits of plastic is much harder. As scientists we're trying to work out ways of removing microplastics from different areas of the marine environment. In this lesson, children will work out which methods are best to remove microplastics from different areas of the marine environment.

Science concepts

The children will consider

- that plastic does not biodegrade in the environment
- that plastic is persistent in the environment and has negative effects on ecosystems
- that scientists are working to find ways to remove plastic from the environment

Science skills

- separating mixtures by sieving, filtering, and floating

Key vocabulary

estuaries, filter, float, marine environment, microplastics, muscles, mussels, nature-based solution, pollution, separate, sieve/sieving



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You will need

For this activity, you will need to create 3 types of mixtures for children to work with. Each mixture will represent a different type of marine environment.

1. beach: sand mixed with a selection of plastics and a selection of natural materials
2. estuary: muddy water mixed with a selection of plastics* and a selection of natural materials**
3. sea, lake or river: water mixed with a selection of plastics and a selection of natural materials

* a selection of plastics to put in each sample: some bigger plastic items like bottle lids and bits of old plastic bags or toys, as well as small plastics such as polystyrene beads from a bean bag, fibres from a rope cut into small pieces, cut up plastic sheeting/carrier bags, bits of plastic cups.

**a selection of natural materials of varying sizes to put in each sample: leaves or seaweed, roots, shells, sticks.

To analyse the samples:

- large beakers
- sieves
- funnels and filter papers or coffee filters
- bowls and trays or bowls to sort the samples into
- magnifying glasses and forceps
- Additional Printables:
 - [Separation challenge instruction sheet](#)
 - [Separation challenge data recording sheet](#)