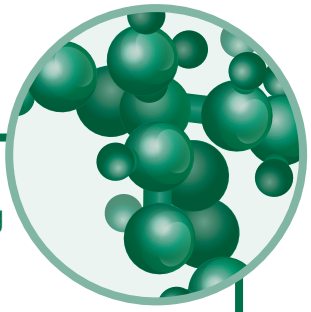
Protecting polymers

★ What do I do?



1. Read the ACTIVITY CARD to familiarise yourself with the activity.

2. Check the Resources list - see overleaf.

3. Set the scene by discussing the email from Polly. Encourage the children to talk about cling film and foil. Do they use either at home? How do they bring packed lunches to school?

4. Give out samples of cling film and foil for the children to investigate. What similarities or differences can they notice?

5. The static electricity that helps cling film to stick can be demonstrated by hanging a piece of cling film of the edge of a table. Rub a plastic pen with fabric, then hold it close to the sheet of cling film. Can the children see the cling film move towards the pen?

6. Encourage the children to make predictions. Do they think cling film will help solve Polly's lunchtime problem?

7. Give each group a selection of weights, a container to stretch the materials over and a ruler.

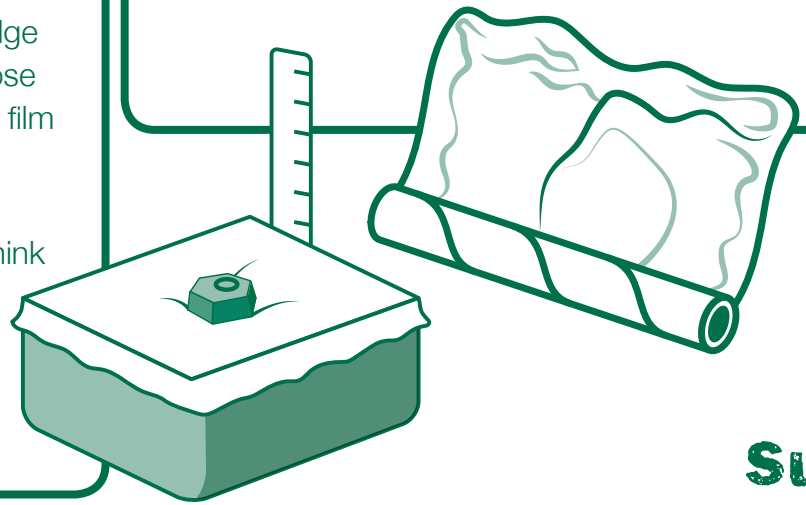
8. Make sure children wrap each material being tested around the whole container.

9. Set each group the challenge of finding the best material for Polly. Give them time to investigate the different options.

10. If possible allow each group to put a sample of their best material into a freezer to see what happens. They could microwave the cling film too. **It is not safe to put foil in the microwave.**

11. Children can record their findings in a table. Can they make a video of their investigation to send to Polly?

12. There are extra challenges on the ACTIVITY CARD. These can be used if there is any spare time or if children want to try out more ideas at home and earn a bonus sticker.



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★ Handy hints

Things to look out for

★ Testing foil and cling film against paper will help children understand the useful properties of polymers. For example water resistant, light weight and mouldable.

★ Aluminium foil is more practical than cling film for protecting food in the freezer. It will hold its seal and is more likely to prevent freezer burn.

★ Children can learn more about polymers in the Polymer problem CREST SuperStar activity.

Resources

★ A selection of cling films (including PVC free cling film)

★ Aluminium foil

★ Lunch boxes or other containers

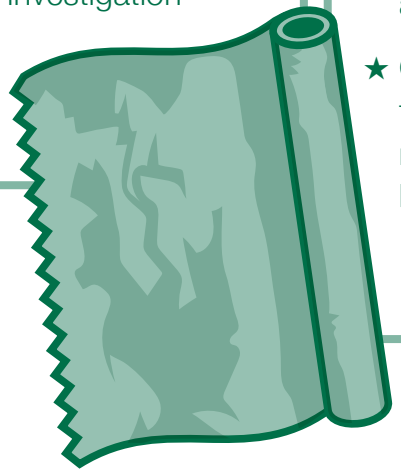
★ 50 gram masses to act as 'weights'

★ Rulers

★ Video camera or other equipment (e.g. mobile phone) to video the investigation

★ Freezer

★ Microwave



Background information

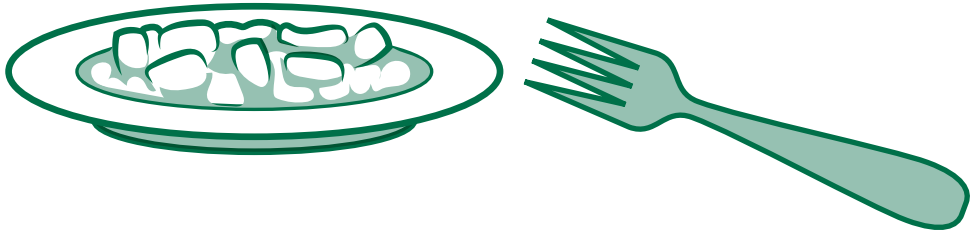
★ Cling film first entered the domestic market in the 1950's. Cling film is made from thin plastic, so it is a good insulator. When you pull cling film off the roll, some of the electrons from one layer are pulled onto another layer, creating areas of positive and negative charge. The cling film holds this charge, causing it to be attracted to areas of opposite charge on other non-conductive materials such as ceramic plates.

★ Aluminium foil has been used as a food covering since the 1930's. Foil does not stick to other materials but can hold its shape when wrapped around food or other substances. Foil acts as a very good barrier to bacteria and odour.

★ Cling film and foil are both used for many things other than food protection. Cling film is especially useful in medical settings. Often cling film is used to help treat burns, but it has many other uses.

Safety

★ Very important: do not put foil in the microwave.



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