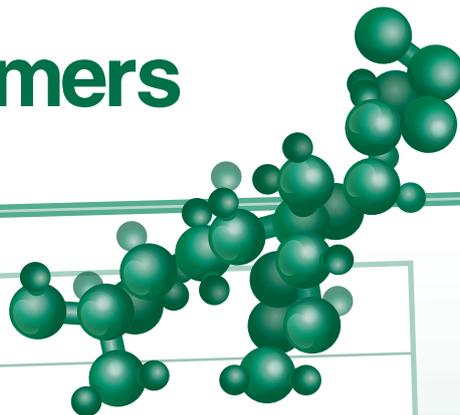




# Protecting polymers



From: polly\_murs@horners.star  
To: creststar@britishscienceassociation.org

## Dear CREST Star Investigators,

I am one of the scientists at Horners. We all love finding new uses for polymers. I have a big problem. Last night I made macaroni cheese for my lunch. My favourite! I covered the plate with foil and put it in my backpack. The foil tore on my way to work and my lunch spilt everywhere. I don't think foil is the best material for wrapping my lunch. You can't even put foil in the microwave so I have to eat my lunch cold. Cling film is one of my favourite polymers. I think it might solve my problem, but there are so many different types. Can you help me find the best one?

Dr Polly Murs



### ★ Your challenge

Help Polly find the best cling film to protect her lunch.



### Talk about

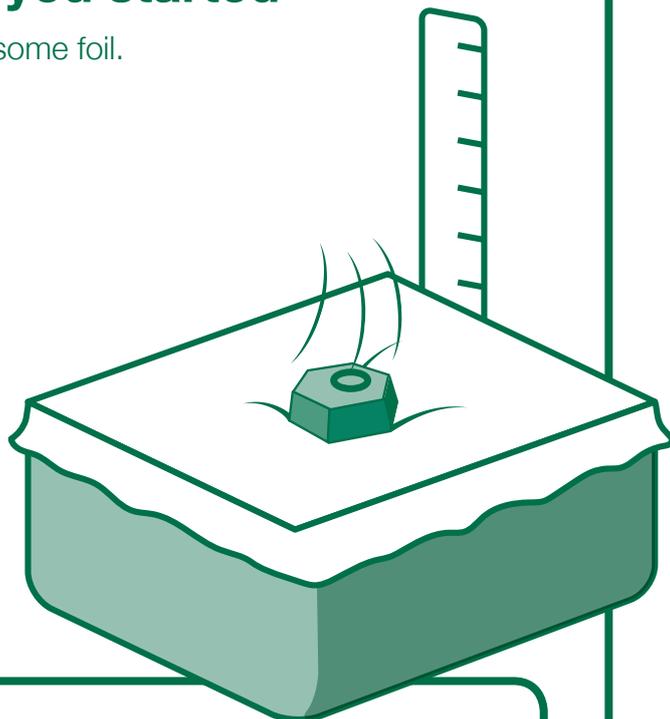
- ★ Do you bring lunch to school? What do you wrap it in?
- ★ What are the differences between aluminium foil and cling film?
- ★ Cling film doesn't feel sticky so how does it stick?



## ★ Here are some ideas to get you started

You will need some different types of cling film and some foil.

- ★ Do you notice any differences between them?  
How are they different from foil?
- ★ Wrap each material being tested around a container, then drop a weight onto the film from 10cm above.
- ★ Do any of the films break? Do any come loose?
- ★ What happens if you drop the weight from higher up?
- ★ What happens if you put cling film in the freezer?
- ★ Remember to compare the films to foil as well!



## ★ Now test your ideas

- ★ Which cling film is strongest?
- ★ Which cling film is stickiest?
- ★ How do the cling films compare with foil?

## ★ Sharing your ideas

Put your results in a table and display them in a bar chart.  
Make a video of your investigation to send to Dr Polly Murs.

## ★ Safety

- ★ How will you make sure you test your ideas safely?

## Congratulations!

You have now found the perfect protecting polymer!  
Collect your stickers and get ready for your next challenge.

## ★ Here are some extra challenges

- ★ Find out how plastic films are used by doctors and nurses.
- ★ Make a list of other polymers Polly can use to protect her lunch.
- ★ Find out more about which polymers can be recycled.