



HANDS-ON EXPERIMENTS

POLARISATION

Light from reflections on water has a special property - it's **polarised**. This means that the light has been filtered so that all the light waves are travelling in the same orientation.

The same effect can be achieved with a piece of polariser (like you find in 3D glasses), it works a bit like a tiny sieve that filters out any light waves that are the wrong orientation.

Polarised light can be blocked using a polariser that's rotated in the correct way. The ExpeditionSevern crew use polarised lenses to reduce reflections from the water. This experiment will show you what we can learn about materials by using polarisation.



The Experiment

What you'll need: Two polarisers (the lenses from 3D glasses will do), some clear plastic, an LCD screen, sticky tape. Optional: Fruit sugar (fructose).

- 1 Test out the polarisers - what happens if you combine them? What about looking through them at a computer screen?
- 2 Stick a piece of sticky tape to the clear plastic, place it on a computer screen and look at it through the polariser. You should see a change of colour.
- 3 Investigate what happens to the colour when you cross several pieces of tape over each other.
- 4 Create lots of layers of sticky tape by randomly crossing pieces of tape over the clear plastic.
- 5 See if you can predict how many layers of sticky tape there are in different places using the colours you can see through the polariser.

Further Investigation

- Polarised light can be used to measure how much sugar goes into recipes for sweets.
- Create a solution of water and fructose (fruit sugar) and see if you can see the difference as you add more fructose.
- Can you find an accurate way of measuring this difference?

VIDEOS FOR THIS RESOURCE AT:

INTRODUCTION:



Clickable Link:

<https://youtu.be/3HfRPTHBwCw>

CONCLUSION:



Clickable Link:

<https://youtu.be/YvezeqfdUc8>

