



THE EPSRC/MRC CENTRE FOR DOCTORAL TRAINING IN
OPTICAL MEDICAL IMAGING (OPTIMA) PRESENTS

STEM ON A SHOESTRING: RAINBOWS WITH DR KIRSTY ROSS

In collaboration with Glasgow Science Festival & EXPLORATHON



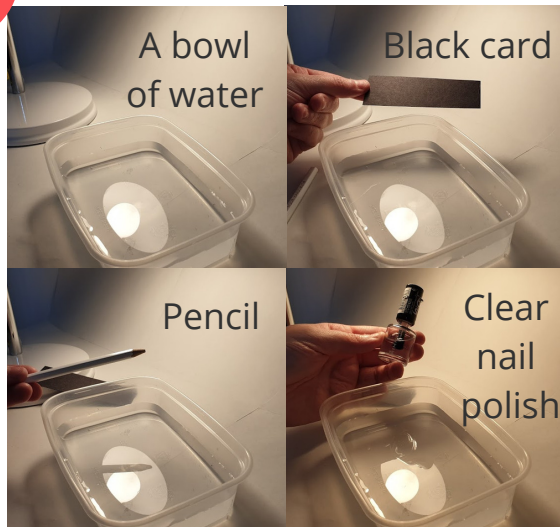
CAN YOU CATCH A RAINBOW?



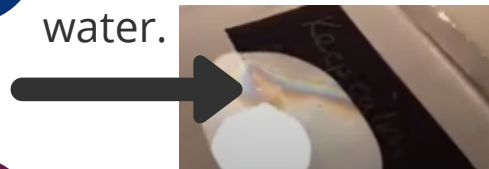
@DRKIRSTYROSS

OUTREACH OFFICER FOR
OPTIMA CDT

1 YOU NEED THE FOLLOWING:



5 You should see a rainbow over the surface of the water.



6 Lift the card out of water & let it dry.



7 Congratulations!
You've caught a rainbow!

2 Write your name on the card.



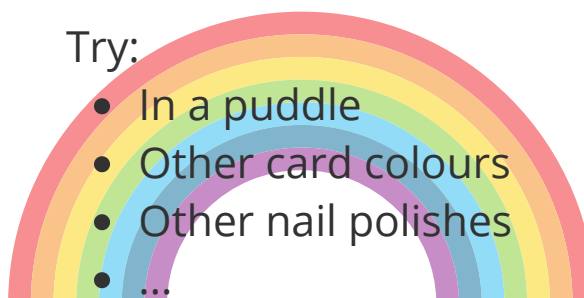
3 Dunk the card in the water, all the way to the bottom!

4 Drip one drop of nail polish on the water. You'll need to be quick!

EXTENDING THE ACTIVITY...

Try:

- In a puddle
- Other card colours
- Other nail polishes
- ...



CAUTION

Do this in a well ventilated space, as nail polish produces fumes that may give you a headache. Mop up any spills of water

THE SCIENCE

White light is made from the colours of the rainbow. The nail polish spreads out on the water into a thin film that is **nanometres** thick (1 million nm = 1mm).

When white light hits the film, the film only bounces certain **wavelengths** (or colours) back to your eyes. You can tell how thick it is by the colours you can see. Blue = 450-490nm, Green = 520-560nm, Red = 635-700nm

THE APPLICATIONS

Thin films are used in coating mirrors and other surfaces inside the most advanced microscopes used in optical medical imaging.