

**Science - Year 6**

**Light – Block 6L**

# **Crime Lab Investigation**

Session 5

Resource pack

# **UK CRIME LAB - EVIDENCE FILE**



**Magnifying glasses found at suspects' houses:**

**X2 - Anaya Jindal**

**X4 - Hannah Jackson**

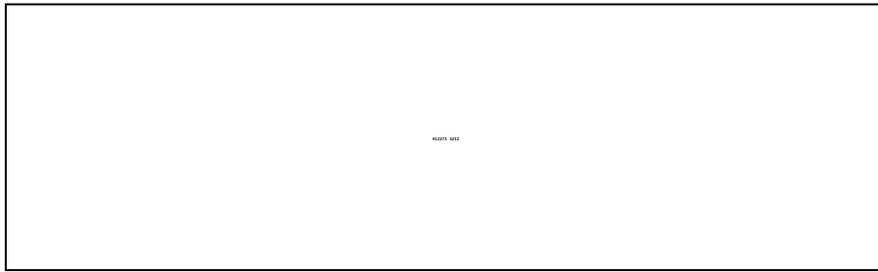
**X6 - Oliver Browning**

## Sally Bircumshaw's encrypted password and reminder:

Password reminder:

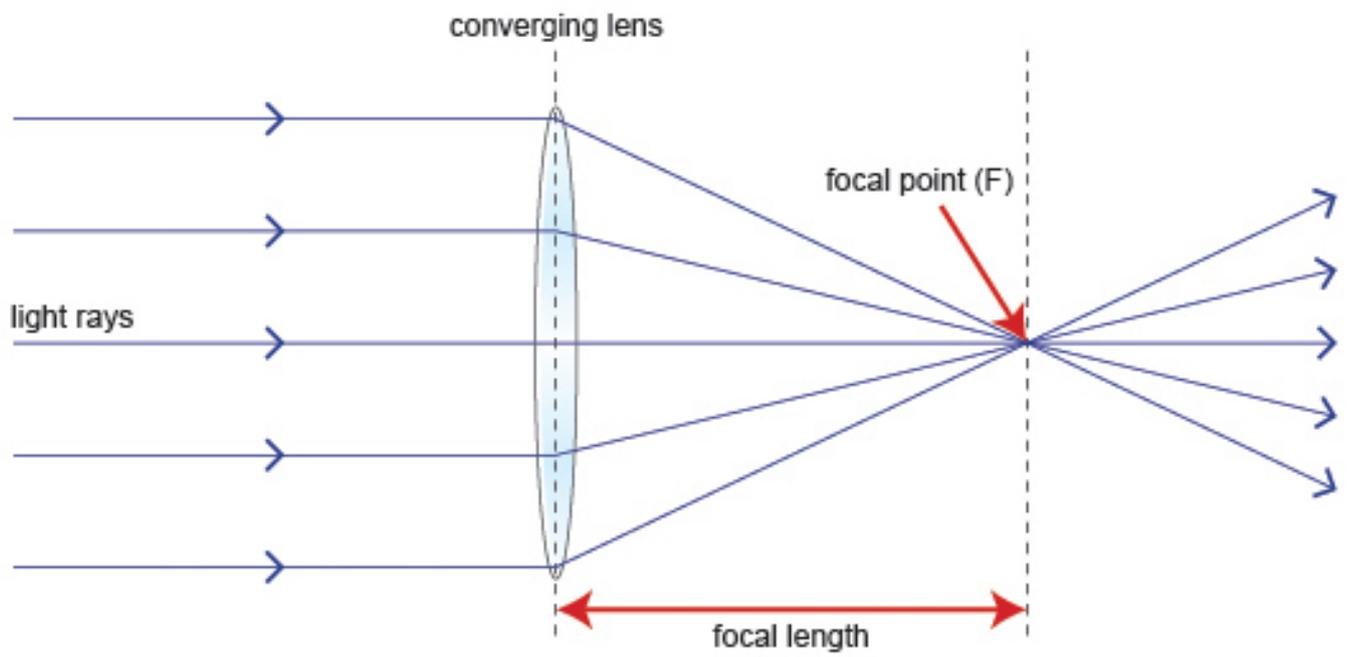
*Split the light... find the colours within. Match the numbers... and you're in*

The following numbers were found - they are not the password but a code based on the seven rainbow colours that spell two words. These two words are the password.



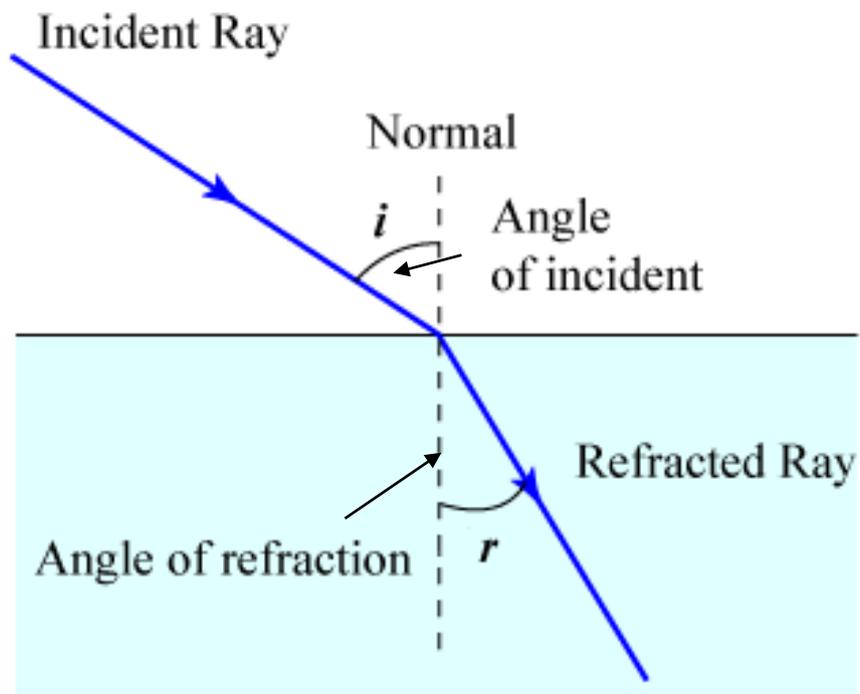
These numbers can only be read with a magnifying glass - do all suspects have a strong enough magnifying glass to read it?

# How a lens bends light

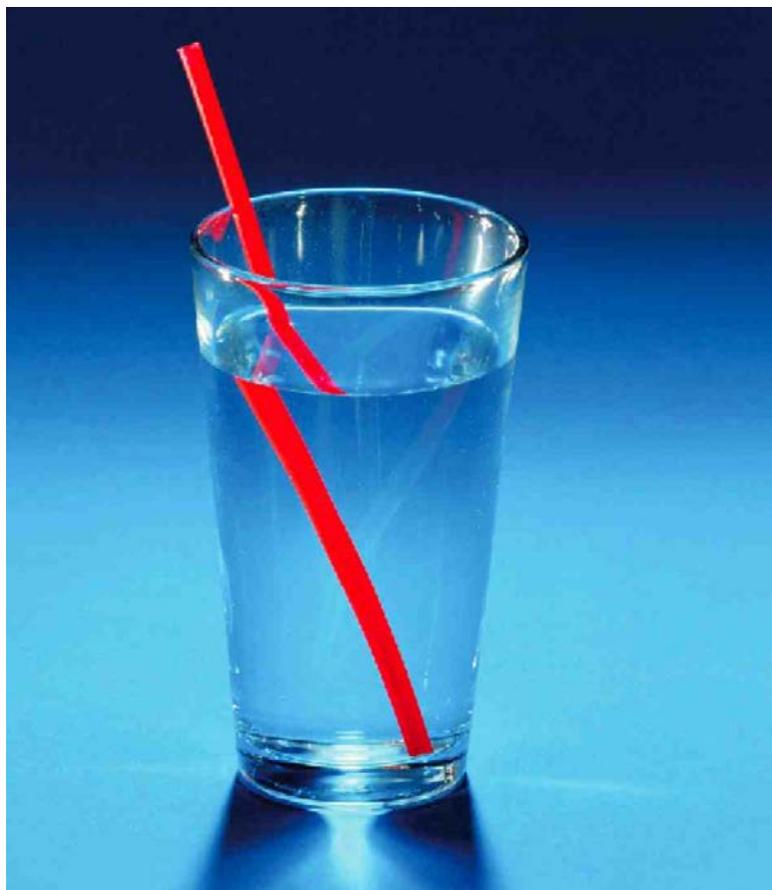


# Refraction of light

(For example, from air to water)



## Effect of refraction



# ALTERNATIVE METHODS FOR SPLITTING LIGHT

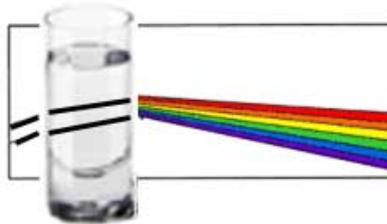
## METHOD 1

### You will need:

- A glass of water
- A sheet of white paper
- A sunny day

### How to do it:

1. Put the sheet of white paper on the floor. Place the glass of water carefully on the edge of a table or on a sunny windowsill so that it is half on and half off the edge.
2. Check that the sun is shining directly through the water and onto the sheet of white paper.
3. Move the paper and the glass until a rainbow appears on the paper.



## **METHOD 2**

1. Half fill a shallow container with water and place a mirror in the water at an angle.
2. Shine a torch (or sunlight) into the water where the mirror is under water.
3. Hold a piece of white paper above the mirror and adjust the angle until you see a rainbow appear.

## **METHOD 3**

Tape a clear plastic lid over the end of a torch and turn it on facing up towards the ceiling.

Put some bubble solution on the lid and blow a large bubble using a straw, so that it covers the whole lid.

Hold the torch up in line with your eyebrows and you should see rainbow colours.

## **METHOD 4**

Use an old CD and shine a torch on the silvery side

Hold a piece of white paper so that the light that reflects off the CD lands on the paper. The reflected light should create a rainbow.

# WHITE LIGHT SPINNER - HOMEWORK

## You will need;

A colour printer (colour your own spinner if you don't have one)

Some thin card

Scissors

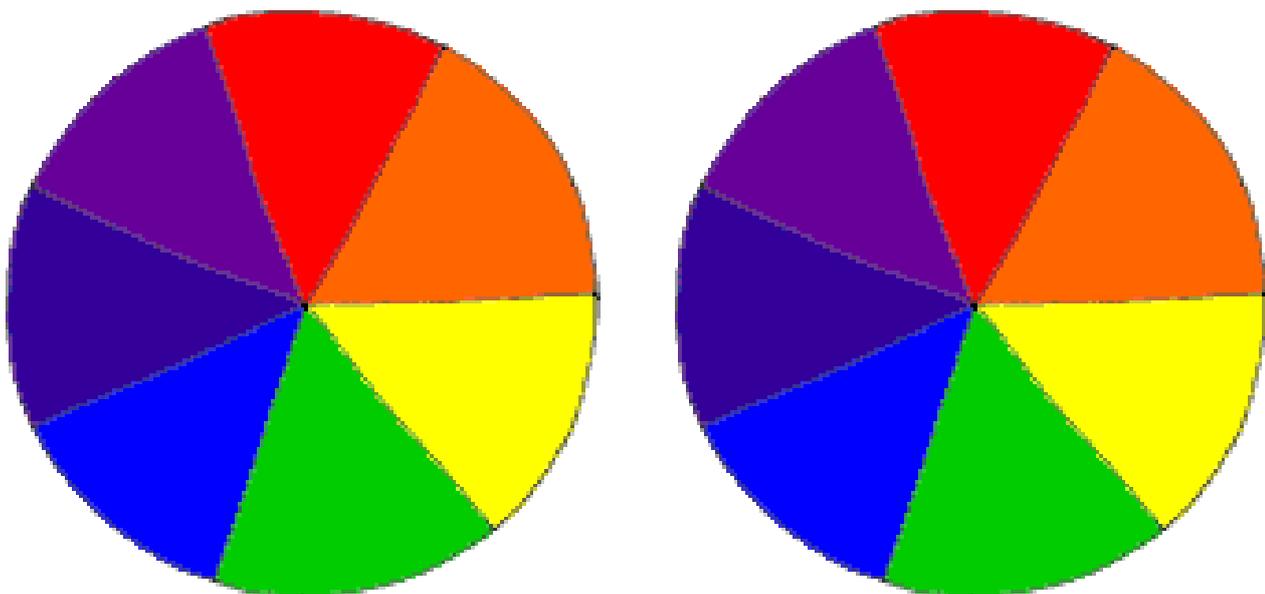
Felt-tip pens

Glue

A length of wool or string

## How to do it:

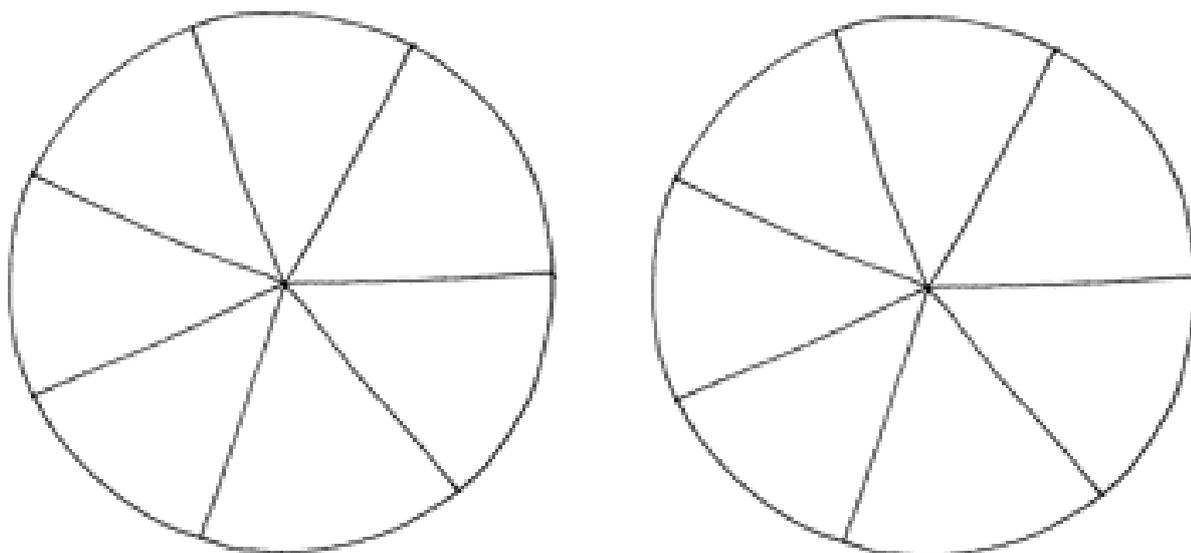
1. Print out this page on a colour printer.
2. Carefully cut around the coloured circles.
3. Glue them back-to-back.
4. Pierce near the centre twice so that the holes are fairly close together.
5. Thread the wool/string through one hole first then double back through the other hole.
6. Tie the ends together and wind your spinner up by holding one end in each hand and flipping the coloured disc over and over. Pull your hands apart to see the colours spin.



The spinner spins around so fast that our eyes cannot keep up with all of the separate colours. They look as if they are mixing up together and so appear white or a whitish colour.

The opposite happens when a rainbow is made: the white light is split up and we see all of the separate colours.

Here are some blank circles for you to print onto thin card and colour yourself. Try colouring them with different combinations of colours to see what happens.



### **Spinner tips:**

Your spinner...

- ...doesn't turn white? There's probably too much of one colour on it. Print out another one and try again.
- ...looks green when you spin it? Try making the red, purple or blue sections darker.
- ...looks blue when you spin it? Try making the yellow, green or red sections darker.
- ...looks red when you spin it? Try making the blue or green sections darker. Colour over them again or use a stronger colour.