5.3 Investigating Light Reflections

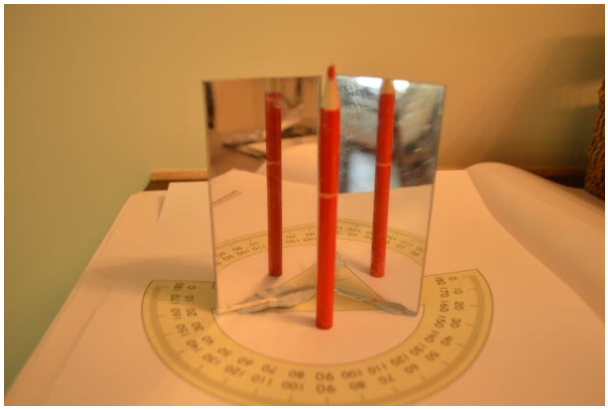
Experiment 1 Finding images in flat mirrors

Equipment
2 or 3 small flat mirrors
pencil
blu-tack or plasticene
tape

Aim
To see the type and number of images you can get in many mirrors

Method
1. One Flat Mirror
   - Start with one flat mirror standing up on blu-tack
   - Stand your pencil in front or you can hold it.
   - How many images of the pencil do you see in the mirror? Record in table.
   - You can move your eye to either side does the image move?

2. Two flat mirrors
   - tape the two mirrors standing up together with a little space between so you can bend them in.
   - Start with flat (180º) Put the pencil close to the very centre of the join. How many images do you see? Record this
   - With your hands move the mirrors in so they get closer together. Measure 120º between them. How many images do you see? Record this



   - now move them in so there is only 60º between them. How many images do you see? Record this
   - now move them in so they are only 30º apart/ Hpow many images do you see? Record this
3. If you have time see how many images can you get from 3 flat mirrors close together?

	One mirror	two mirrors 180º	two mirrors 120º	two mirrors 60º	two mirrors 30º
Number of Images					

What conclusion can you make?

Experiment 2 Investigating Colour Reflection

Aim

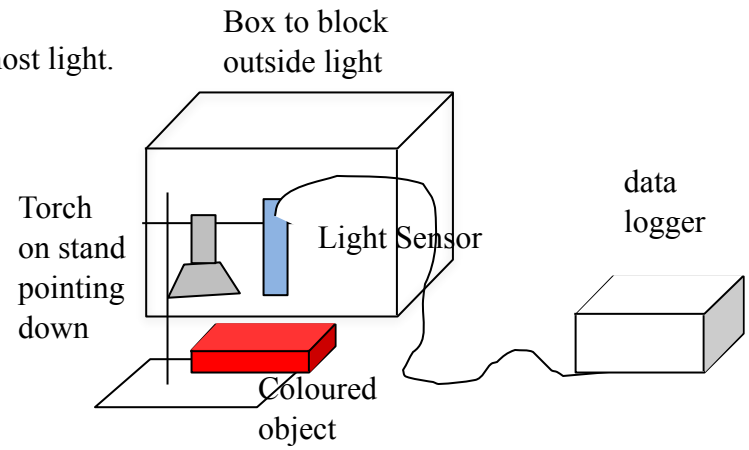
To determine which colours reflect the most light.

Equipment

Torch, Light sensor or meter, Stand

Different coloured materials

Set Up Illustration



Method

1. Select at least 5 different colours
2. You should try light and dark colours as well. Black and white are colours!
3. Point your torch and your light meter at the colour.
4. Remember to keep your experiment fair: What things will you have to keep the same?

Results

Colour						
Light Reading						

Conclusion

What is the colour with the most reflection?

What is the colour with the least reflection?

Do shades of the same colour make any difference?

Would the colour of the torch light make a difference?

Experiment 3 Investigating Mirrors

Aim to find the best shape mirror to get the most light.

Equipment
Torch, light sensor, flat mirror, various silvered bowls or aluminium lined cooking bowls (no flat sections)

Method

1. Reflect light from your torch off a flat mirror. Measure the light about 10cm from the mirror coming from the mirror only (shield the sensor)
2. Now replace the flat mirror with the inside of a curved bowl. Again measure about 10cm cm from the centre of the bowl.
3. This time use the outside of the bowl (still metallic). Measure from 10cm away.

Results

Shape	**flat**	**Curved in (concave)**	**Curved out (convex)**
Brightness			

Conclusion
If you wanted to make a very bright torch what would shape would you make the reflector?