

## 1. Investigation: Changing Light?

Aim

To have students explore how light can be changed.

### 1. Changing Light Brightness

Equipment

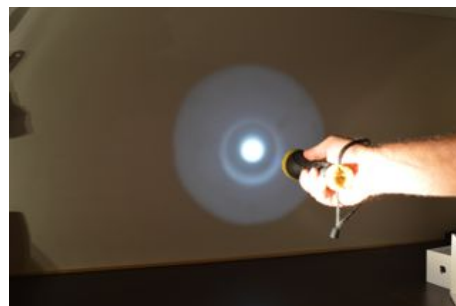
Small 2 volt torch

Digital light meter or sensor (optional)

Prediction: What happens to light as it gets further away?

Method

1. Work in pairs
2. One person stand close to a bare wall. Stand one ruler length or 30cm away holding your torch. Your partner measures where to stand.
3. Shine the torch on the wall.
4. What shape is the light?
5. How bright is it?
6. How big is it? Your partner could measure it with the ruler. Record in the results table or chart.
7. Move away two ruler lengths or 60cm. What do you notice about shape, brightness and size. Record on chart.
8. Repeat for 3 rulers or 90cm
9. Repeat for 4 rulers or 120cm..



Results

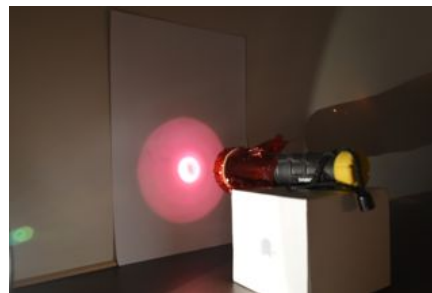
distance	Shape	Brightness	Size
30 cm (1 ruler)			
60 cm (2 rulers)			
90 cm (3 rulers)			
120 cm (4 rulers)			

Conclusion

1. Did your results match your predictions?
2. Does the shape of light change as you move away?
3. Does the brightness of light on the wall change as you move away?
4. Does the size of light on the wall change as you move away?
5. If your bed light was too bright for you to read, what could you do to make it not so bright?

## 2. Changing Light Colour

Equipment  
Small torch  
Rubber band  
Squares of coloured cellophane (red, blue and yellow)  
White card or paper



Prediction: What colour light does red and blue cellophane make? Blue and yellow cellophane make? Red and yellow cellophane make?

### Method

1. Cover the torch with red cellophane. Use a rubber band to hold it.
2. Shine the torch on the white card. (Not too close about 30cm)
3. What colour was the card?
4. Repeat for the blue and yellow cellophane by themselves.
5. Now try combining two cellophanes as shown in the table and record the colour on the card.

### Results

Cellophane Colour	White card Colour
Red	
Blue	
Yellow	
Red and Blue	
Blue and Yellow	
Red and Yellow	

### Conclusion

1. Did your results match your prediction?
2. What do you think all 3 filters would make?
3. Does mixing paint change colours too? Give an example.