

8Ja LIGHT ON THE MOVE

- 1 Write the correct scientific term next to each definition.

absorb	to take in
transmit	to pass through a substance
reflect	to bounce off a surface
scatter	to send things off in different directions

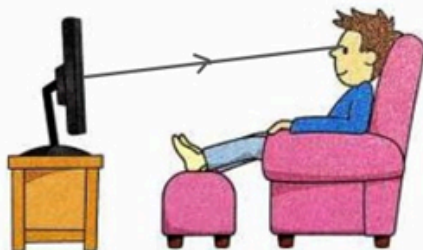
- 2 In a thunderstorm, you see the flash of lighting before you hear the thunder. Give the reason why this happens.

light travels much faster than sound

- 3 Light and sound both travel as waves. Write down two differences between light waves and sound waves.

- i sound waves are longitudinal waves and light waves are transverse waves.
ii Light can travel through vacuum but sound needs a medium. iii Light is faster than sound

- 4 Add light rays to the drawings to show how the boy can see a programme on TV, and how the girl can read a book.



Use a ruler and a pencil
Pay attention to the direction of arrow heads

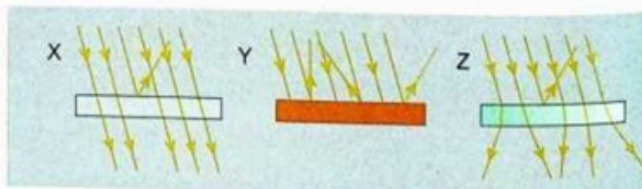


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- 5 Look at the diagram.

Which material (X, Y or Z) is:

- a translucent Z
b opaque? Y
c Explain your answers.



Z is letting most of the light to pass through, but the direction of the light is changed.

Y is reflecting or absorbing all the light that hits it (no light can pass through)

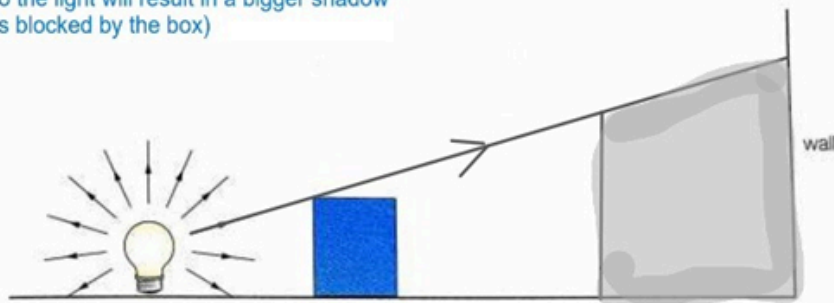
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- 6 Someone is singing in another room with the door closed. Explain why you can **hear** them but not **see** them.

Sound can pass through the materials that the door/ wall is made of, but light cannot.

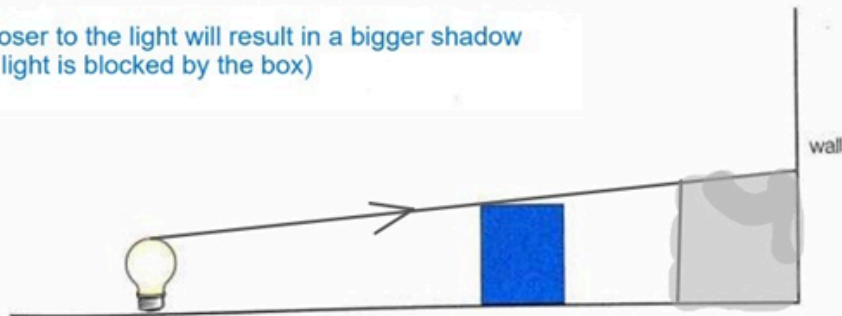
- 7 The diagram shows a box standing next to a light source.

Box closer to the light will result in a bigger shadow
(more light is blocked by the box)



- a Explain why the box makes a shadow on the wall.
- b Finish drawing one of the rays to work out where the top of the shadow will be. Shade in the shadowed part of the wall.
- c The box is moved closer to the wall. Draw lines on the diagram to help you to work out the new size of the shadow.

Box closer to the light will result in a bigger shadow
(more light is blocked by the box)



- d Draw a smile on the face to show how confident you are that your answers to parts a to c are correct – the bigger the smile, the more confident you are.



DRAWINGS AND CONVENTIONS (WS)

SB

1 Why do we need to use ray boxes and paper when we investigate light?

The box produces a narrow beam or beams of light that can be marked on paper.

This makes it easier to follow and measure the paths of light rays.

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2 Why is it important to use agreed symbols and conventions in science?

So that all scientists can understand the diagrams.

3a Draw one line from each scientific term to its correct definition.

Scientific term

angle of incidence

angle of reflection

incident ray

normal

plane mirror

ray diagram

reflected ray

Definition

a diagram showing rays of light as straight lines with arrows showing which way the light is going

a flat mirror

a line drawn at right angles to the mirror

a ray of light travelling away from the mirror after being reflected

a ray of light travelling towards a mirror

the angle between the incident ray and the normal

the angle between the reflected ray and the normal

b The diagram shows light being reflected by a mirror.

i Complete the diagram using the standard conventions for ray diagrams.

ii Label your diagram using words from part a.

