Energy 2 - Light

Lesson 1

Reflection of Light

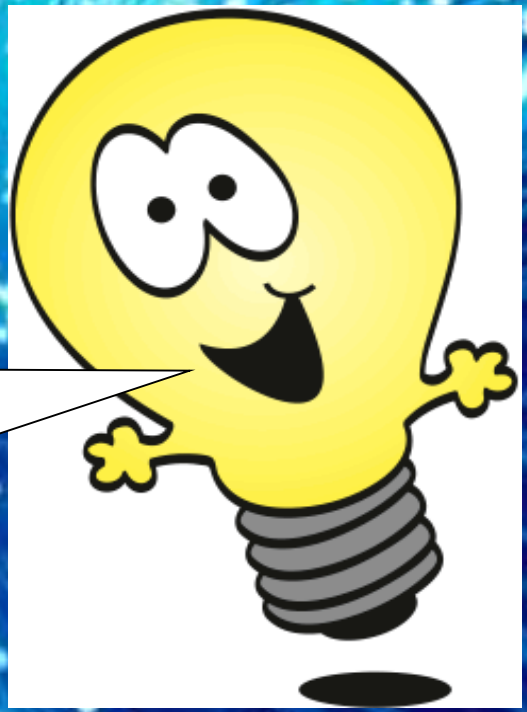
Reflection of Light

Learning Intention:

At the end of this lesson, I will understand what happens to light when it is reflected and how this is applied to everyday life.

Reflection of Light

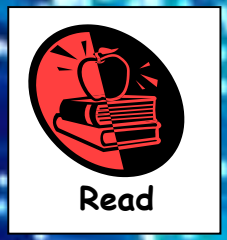
Where have you heard of reflection before?

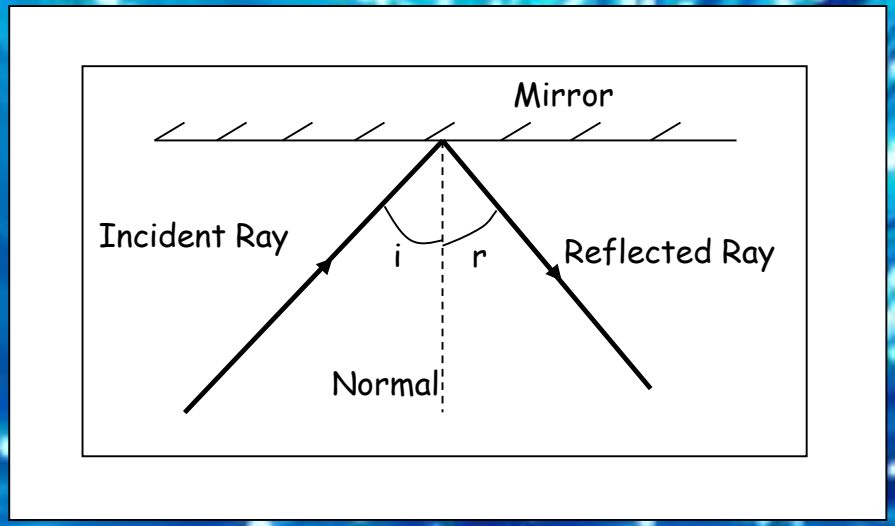


Why study reflection

Reflection has loads of applications as we will see later, many applications are related to road safety. Can you think where?

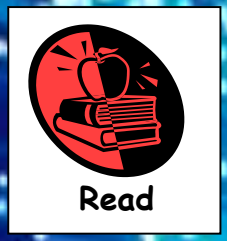
Reflection of Light

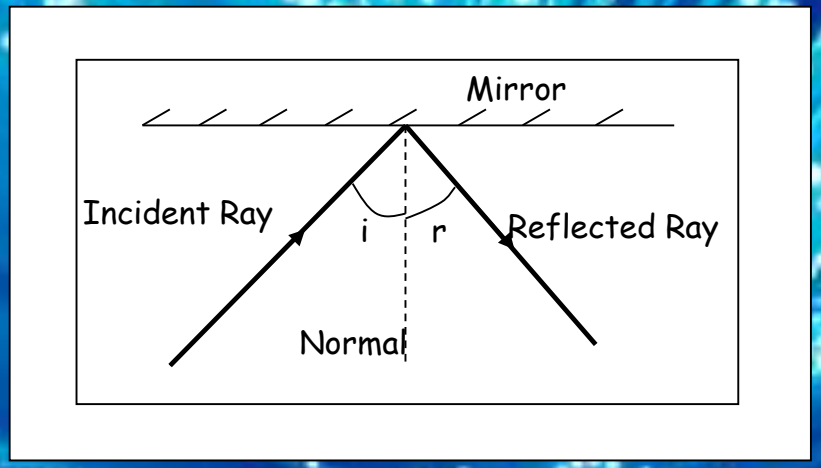




When light reflects off a mirror, we can study what happens to it. However, we need to understand some terms first of all.

Reflection of Light



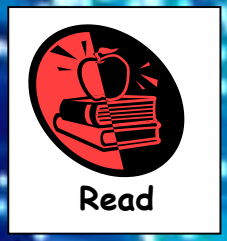


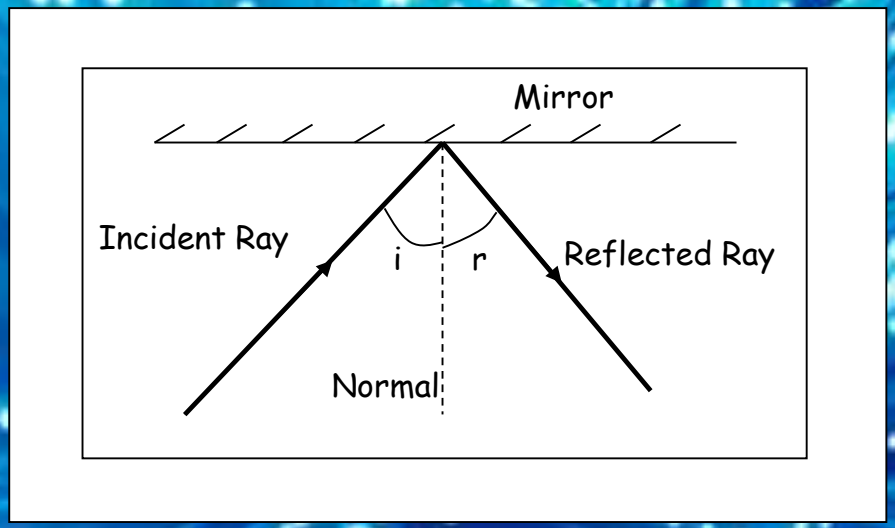
The **incident ray** is the beam of light that is being shone on to a mirror.

The **reflected ray** is the beam of light that has bounced off a mirror.

The **normal** is an imaginary line that is drawn at a right angle from a reflecting surface at the point where the incident ray strikes the mirror.

Reflection of Light





The **angle of incidence** (i) is the angle between the incident ray and the normal.

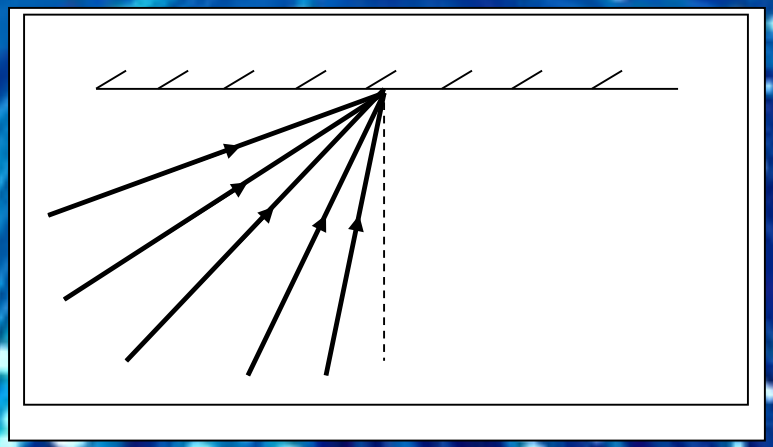
The **angle of reflection** (r) is the angle between the reflected ray and the normal.

Reflection of Light

Experiment

Follow the link below to find out how to carry out this experiment to find out the law of reflection.

http://www.youtube.com/watch?v=q_u348D5g3s



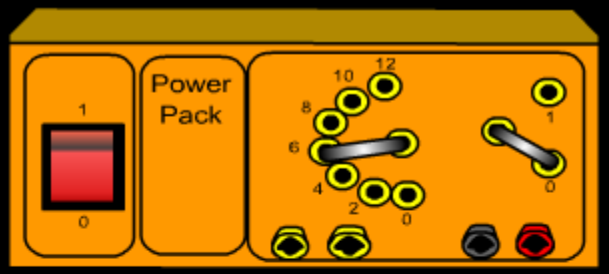
Reflection of Light

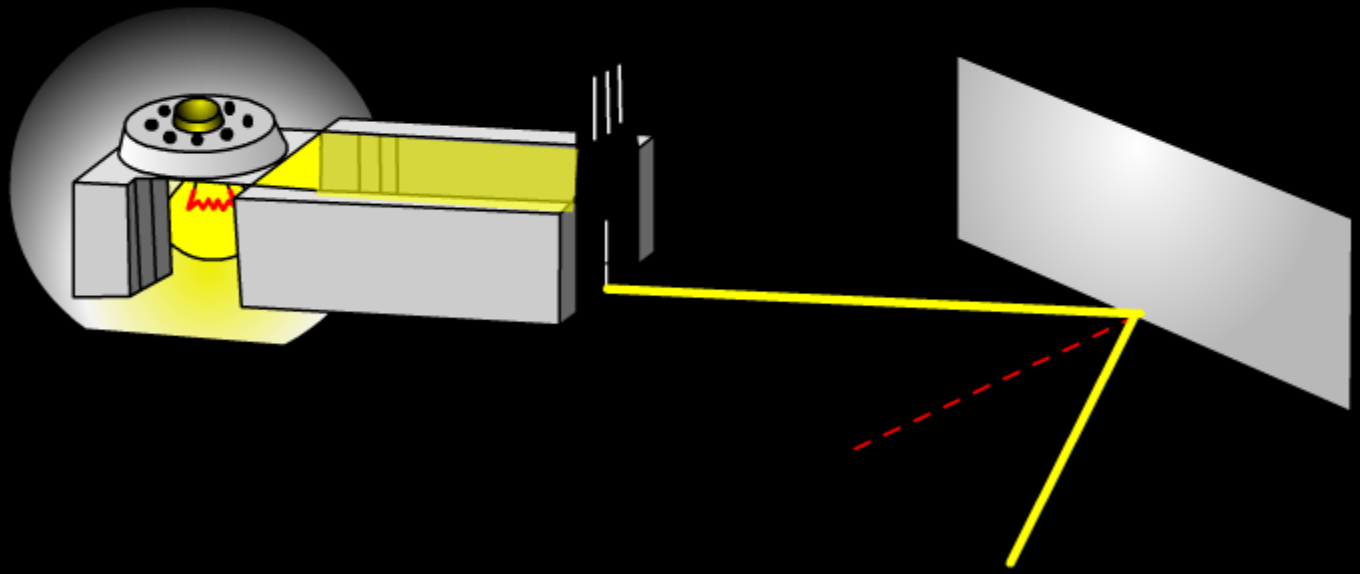
Experiment

Write out a brief scientific report in your jotter. This guide should help you:

Aim: What are you trying to find out?
Method: How are you going to carry out the experiment? A labelled diagram is needed.
Hypothesis: What do you think will happen?
At this point, you are ready to start the experiment.
Results: A table of results and a graph is often required.
Conclusion: What did you find out? Was your hypothesis correct?

Reflection of Light





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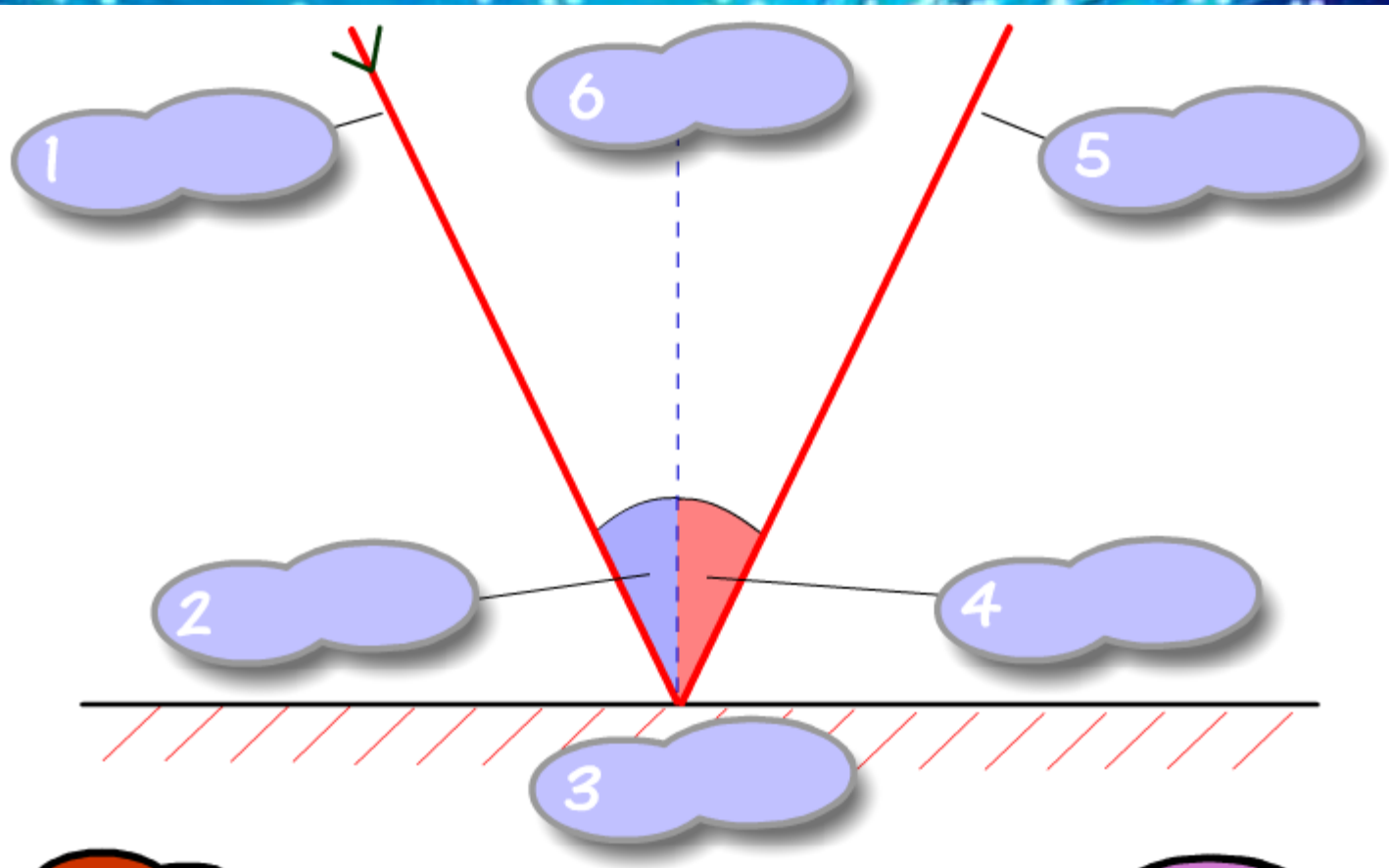

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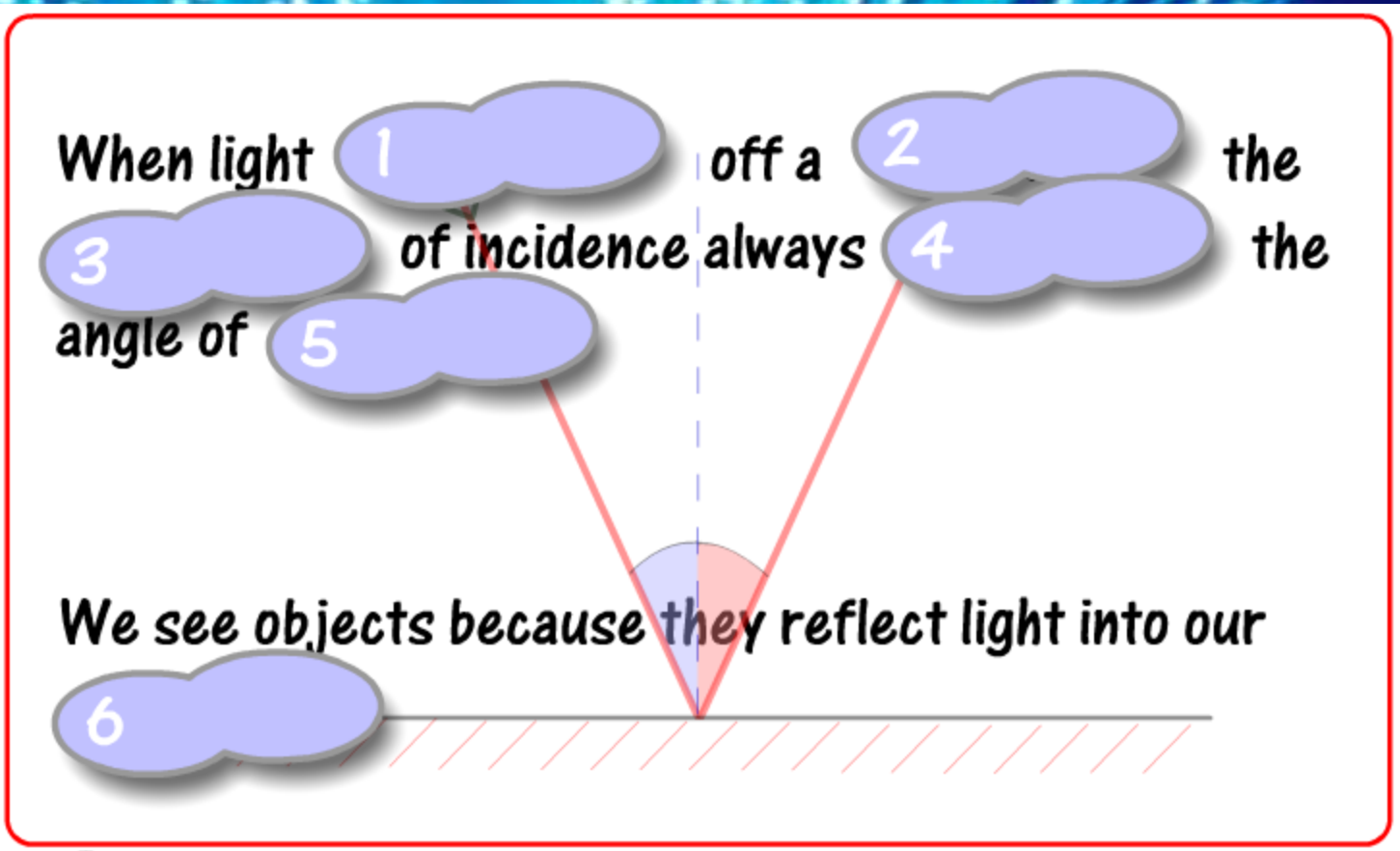


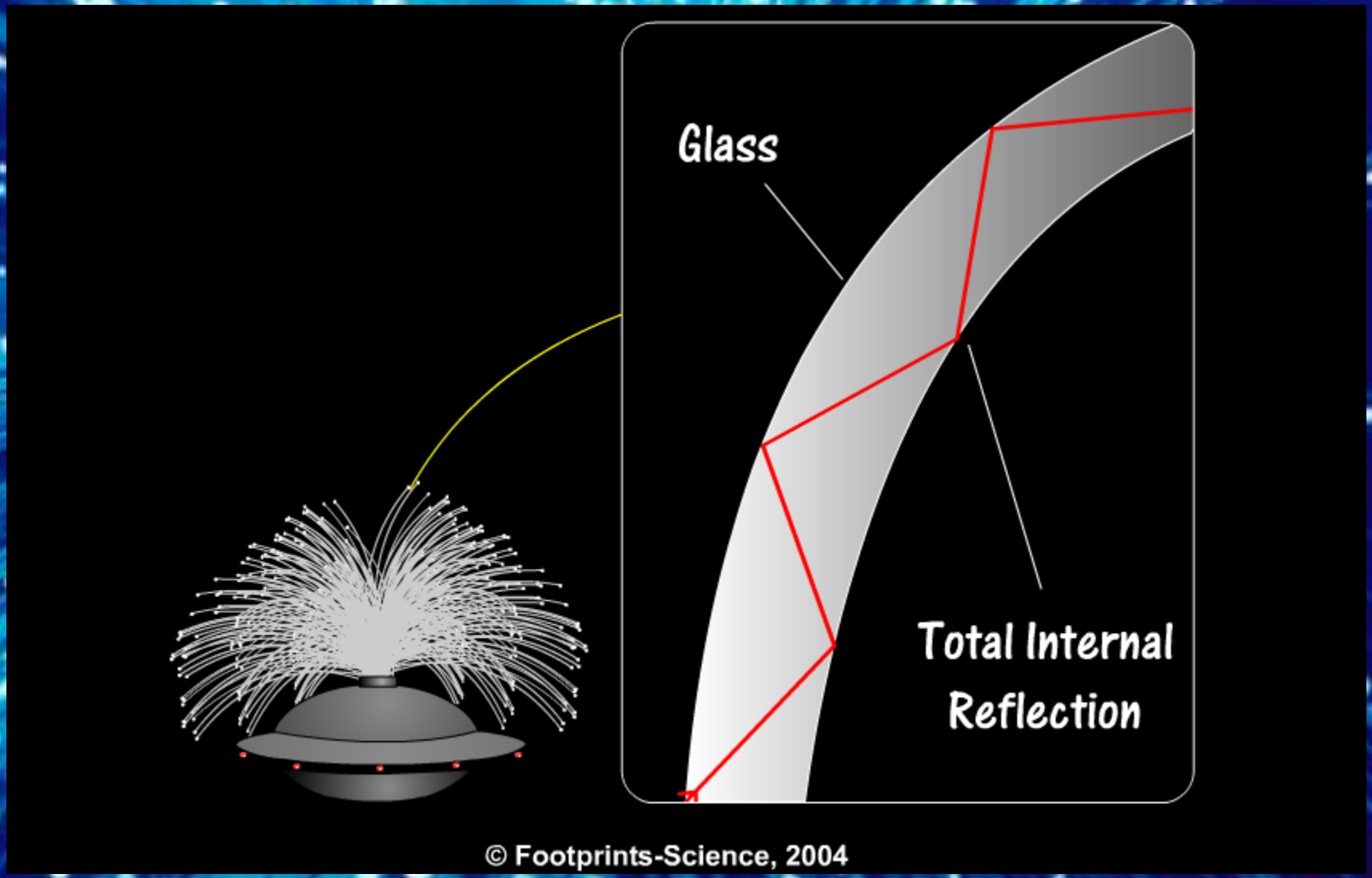
Reset

Show answers

Drag and Drop the following labels :

eyes

Reflection of Light



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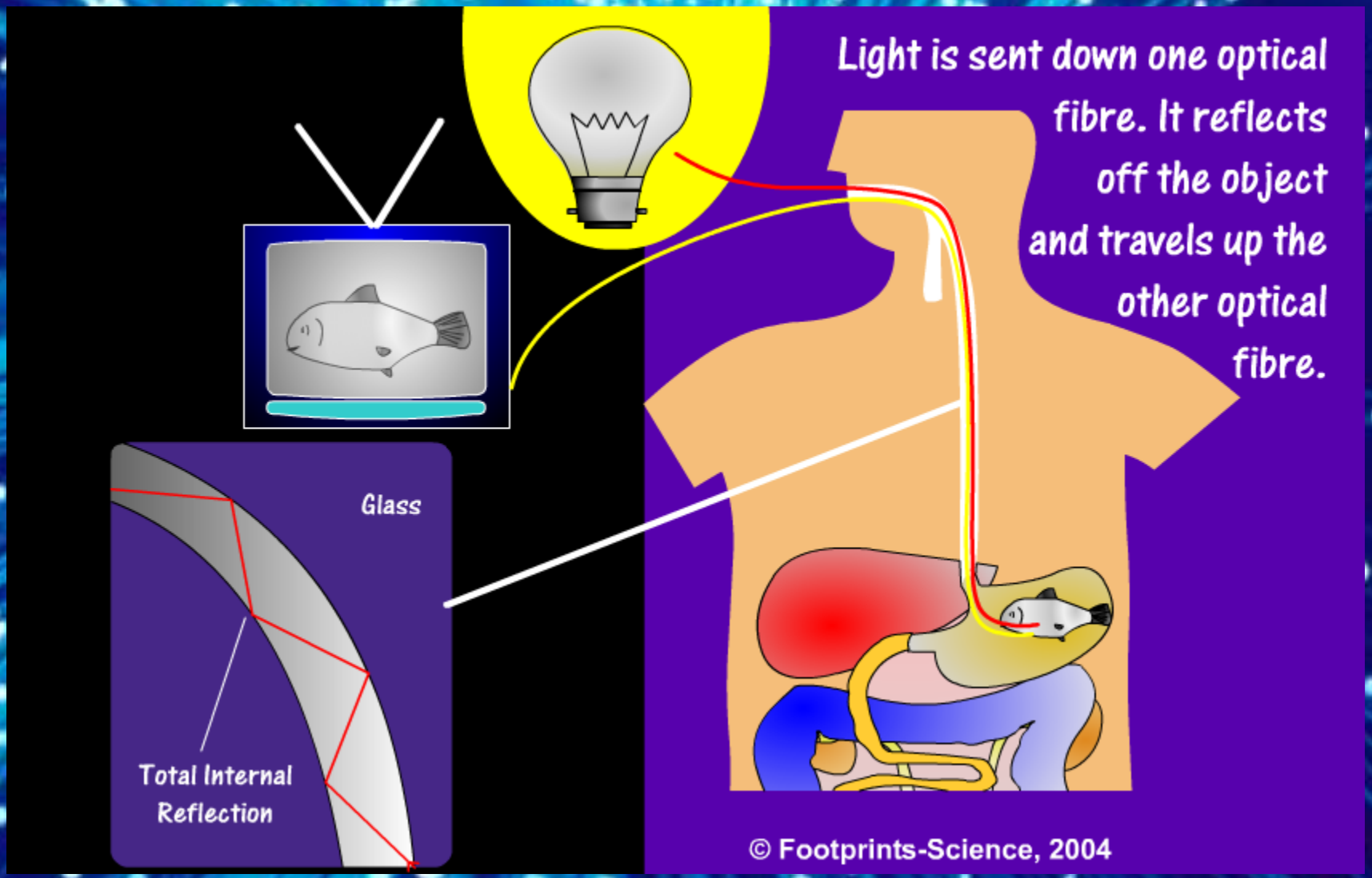
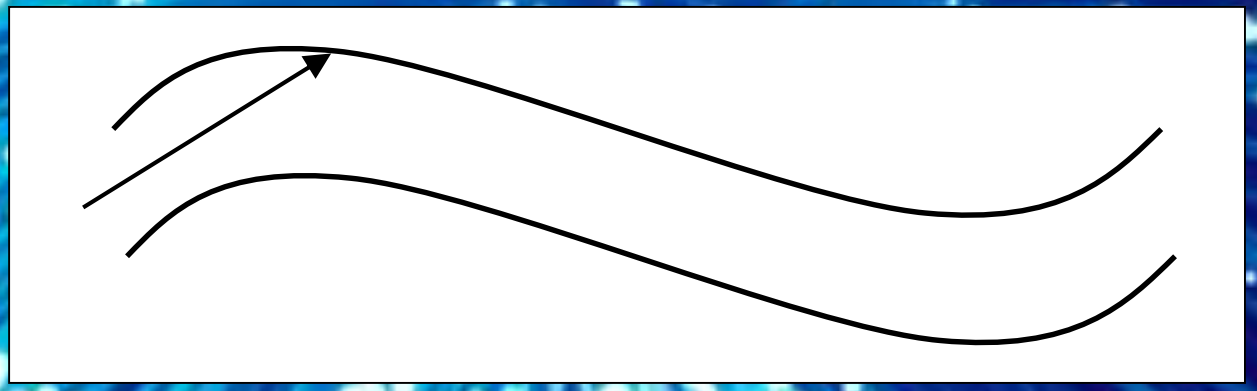


Reflection of Light

Questions

1. How are fibre optics used in everyday life?

2. Copy and complete this diagram, to show how a light signal travels along an optical fibre.



3. Give three advantages of using fibre optics over copper wires to transmit signals.

Reflection of Light

Questions

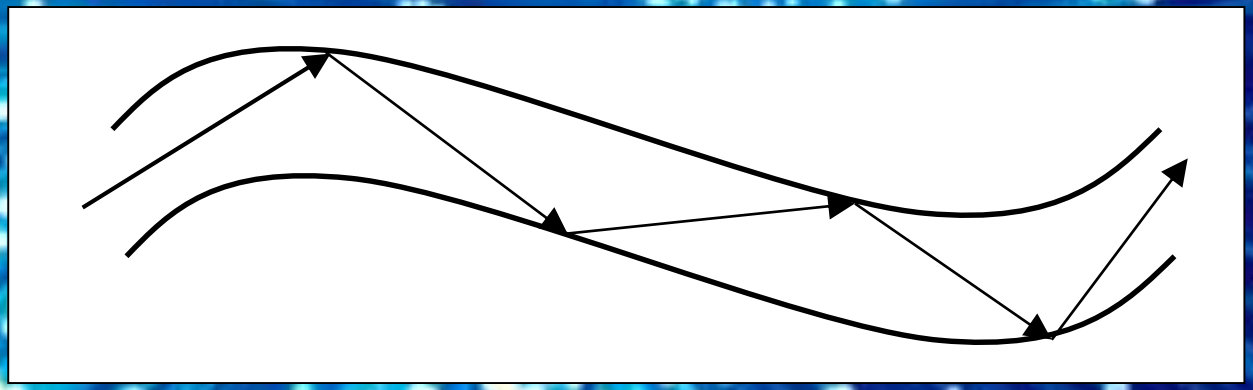
1. How are fibre optics used in everyday life?

Telephone systems, Internet and cable television.

Reflection of Light

Questions

2. Copy and complete this diagram, to show how a light signal travels along an optical fibre.



Reflection of Light

Questions

3. Give three advantages of using fibre optics over copper wires to transmit signals.

Less expensive
Thinner
Able to carry more information
Less interference
Lighter

Use of Convex mirrors

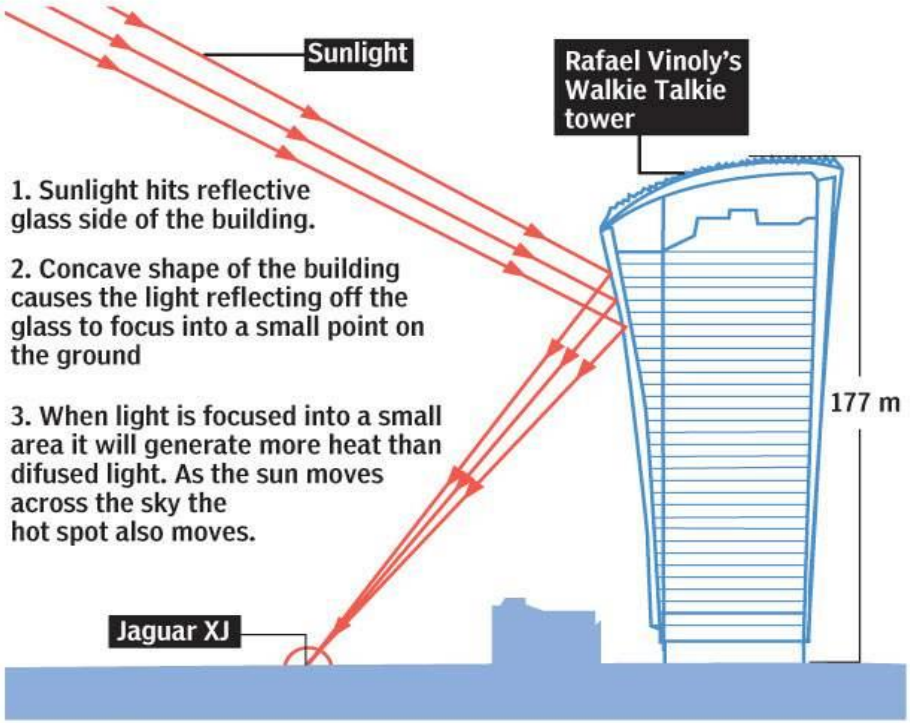
Convex mirrors increase the field of view

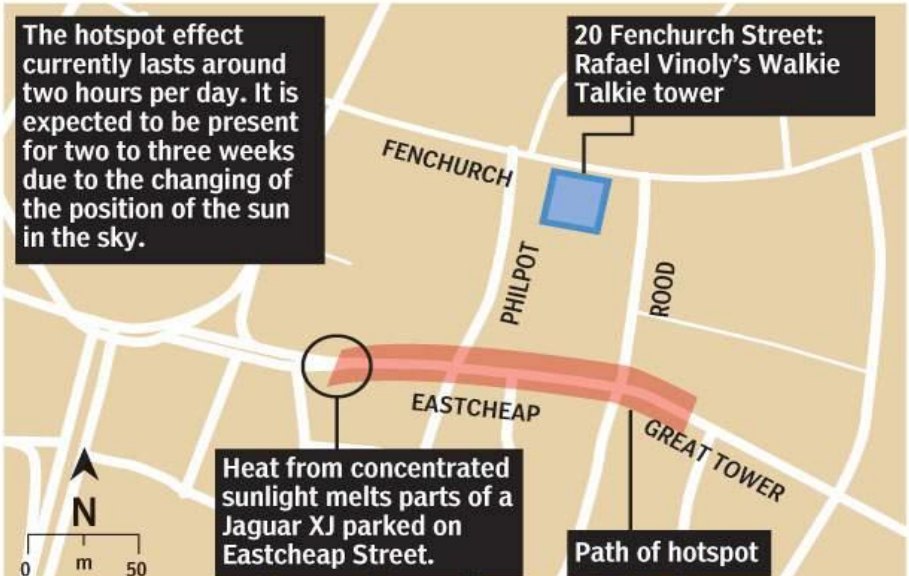
…and for Kyle

Vdara Hotel Las Vegas

Guests at the new Vdara hotel have been complaining that **because of an architectural flaw on the glass skyscraper, the sun's rays are being magnified and reflected onto an area of the pool, causing severe burns**. There have been reports that even plastic has melted from the heat.27 Sept 2010

HOW A SKYSCRAPER CAN TURN THE SUN INTO A "DEATH RAY"





Uses of Mirrors

Convex mirrors- blind spot mirrors, mirror at junctions, security mirrors, bomb squad inspection mirrors.

Concave mirrors- solar ovens and solar cookers, SAS might have them in their packs, satellite dishes.

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Learning Intention:

I understand what happens to light when it is reflected and how this is applied to everyday life.