

cwk

Date

3 - Mirrors & Reflection

- Level 4 - Describe that light is reflected from plane surfaces in a predictable way
- Level 5 - Make and record accurate measurements of angles of incidence and reflection with respect to the normal;
- Level 6 - Use understanding about reflection of light at plane surfaces to explain observations. e.g. how a periscope works

Qatar International School Science Department

Why are signs on emergency vehicles, such as ambulances, written back to front?



Class brainstorm

How many different uses of a mirror can you think of?

Main

Show pupils how Plane mirrors work and the law of reflection.

Best role modelled on the board, using a board ruler mirror and laser. If you don't have this use the following slides and have the pupils mimic what you are doing.

Pupils will need to be able to replicate this for an exam question.

This is the back of the mirror.



This hairy line is the symbol we will use to represent mirrors.

This is the shiny side of the mirror

The ray of light that hits the mirror is called the INCIDENT RAY



The arrow in the middle tells us what direction the light wave is moving.

We draw a dotted line at 90 degrees to the mirror, where the light hits the mirror

INCIDENT RAY

This line is called the normal

When drawing mirror diagrams:

1. Your mirror must have a 'hairy back'
2. Lines must be straight and drawn with a ruler
3. Normal must be drawn at 90 degrees to the mirror.
4. Angle of reflection must be approximately the same as angle of incidence
5. All light rays must have an arrow to show direction and source.

INCIDENT RAY

ANGLE OF INCIDENCE (i)

normal

ANGLE OF REFLECTION (r)

REFLECTED RAY

Why do mirrors reflect?

Diffuse Reflection (rough surfaces)

Specular and Diffuse Reflection

Specular Reflection **Diffuse Reflection**

Figure 2

TASK: Draw a mirror and incident ray

Place your mirror on top and shine a laser down the line, mark where the laser bounces off and join this up to make the reflected ray.

Complete your diagram measuring the angles with a protractor and labelling the diagram.

INCIDENT RAY

Plenary

How does a periscope work?

Complete the diagram to find out

Extension Questions

How does a kaleidoscope work?

How does a make up mirror make you look larger?

How does a car mirror work?

Why is writing in a mirror backwards but not upside down?