AQA Physics GCSE

Required Practical 9

Light

Method taken from AQA Required Practical Handbook

Aim:

Investigate the reflection of light by different types of surfaces and the refraction of light by different substances.

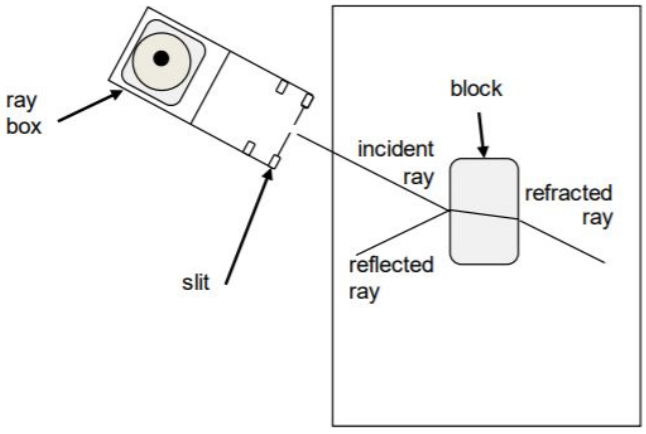
Equipment List:

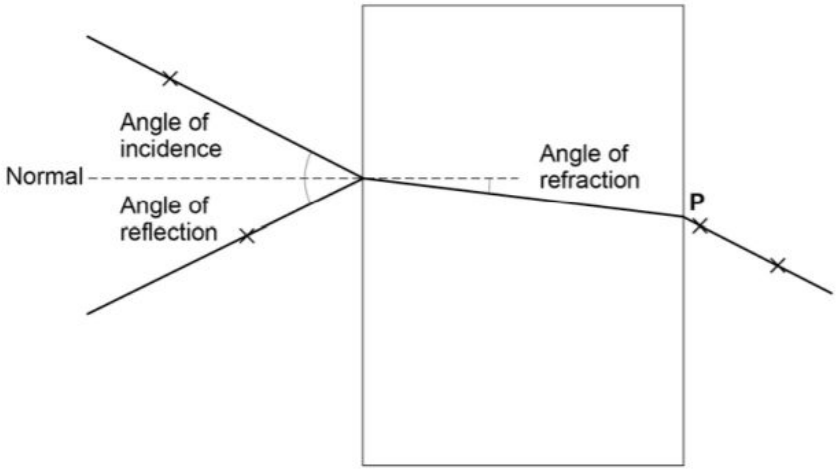
- Ray box
- Suitable power supply
- Collimating slit and lens
- Several transparent blocks made from different materials - glass, perspex, plastic.
- 30cm ruler
- Protractor
- Sheets of plain A3 paper

Method:

1. Slot the collimating slit into the ray box and turn on, producing a narrow ray of light.
2. Place the first block of material on top of a piece of paper. Trace around the block using a pencil.
3. Draw a normal to the block (a line at 90° to the surface of the block). Align the incident ray of light with the meeting point between the normal and the surface of the block.
4. Draw the reflected ray and refracted ray, as shown in the diagram below. Remove the block and draw a straight line between the point of reflection and the refracted ray on the other side of the block.
5. Using the protractor, measure:
    a. The angle of incidence - The angle between the incident ray and the normal.
    b. The angle of reflection - The angle between the reflected ray and the normal.
    c. The angle of refraction - The angle within the material between the normal and the refracted ray.
6. Repeat the experiment, using a new piece of paper for each different material of block.

Diagram:





Source: AQA Required Practical Handbook

Safety Precautions:

- Don't handle the ray box, as it will heat up during use.
- Take care carrying the blocks of material (especially glass).
- The room will be darkened, so the rays are clearly visible. Take care in your surroundings.