



CHAPTER 6: WAVES

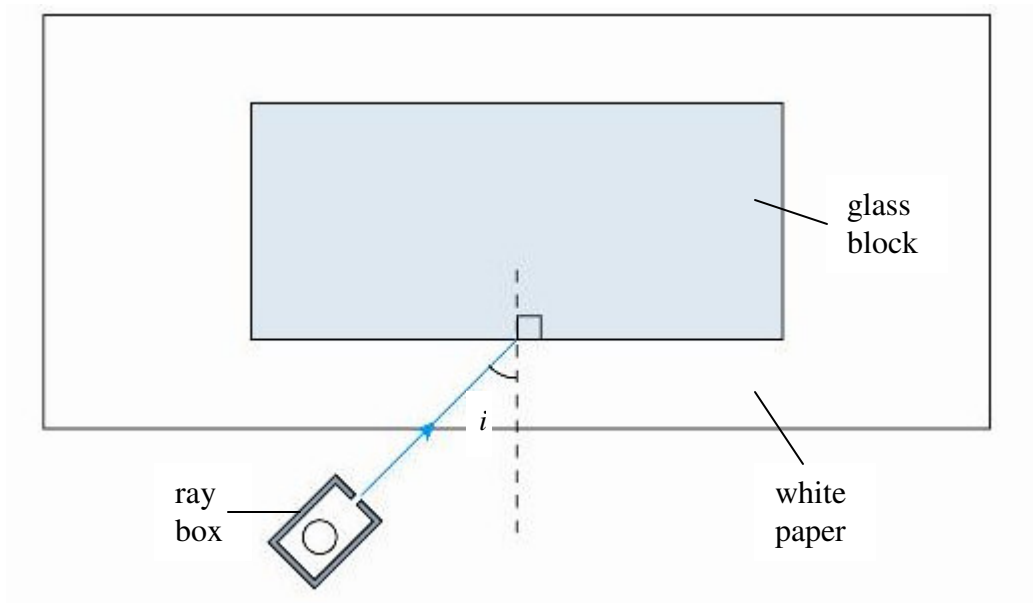


EXPERIMENT ON THE REFRACTION OF LIGHT WAVES

Aim : To study the refraction of light waves

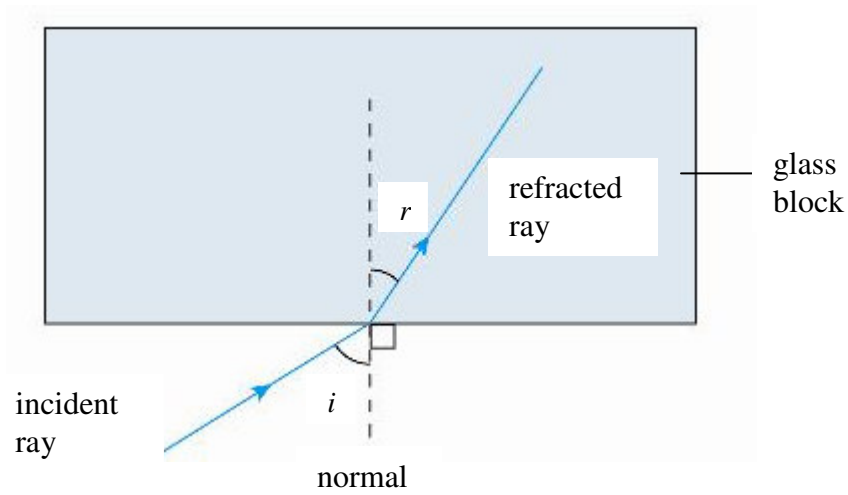
Apparatus and materials: A glass block, ray box, power supply, protractor, metre rule and white paper

Procedure:



1. The apparatus is set up as shown in the above diagram.
2. The incident ray is adjusted so that the angle of incidence $i = 20^0$ to the glass block.
3. By using a protractor, the angle of refraction in the glass block, r , is measured.
4. The experiment is repeated using $i = 30^0, 40^0, 50^0$ and 60^0 .

Observation:



| Angle of incidence, $i/^\circ$ | Angle of refraction, $r/^\circ$ |
|--------------------------------|---------------------------------|
| 20 | 13 |
| 30 | 19 |
| 40 | 25 |
| 50 | 30 |
| 60 | 35 |

Analysis:

1. Glass is a denser medium, air is a less dense medium.
2. The speed of light is slower in glass than in air.
3. When a light ray travels from air to glass, its speed changes and hence its direction of travel changes.
4. Refraction occurs and light is refracted towards the normal.
5. A graph of $\sin i$ against $\sin r$ is a straight line passing through the origin.

