Prism

Apparatus

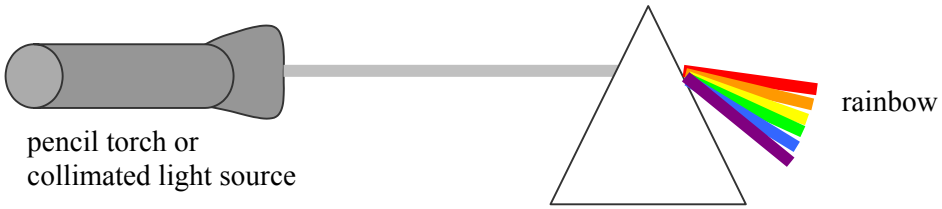
light box with collimated beam or pencil torch, prism

Action

The students shine the light through the prism and experiment by varying the angle between the beam and the side of the prism. They should observe a rainbow coming out of the prism at angles less than the critical angle.

The Physics

When light moves from air into the prism the light is refracted or bent, and it is bent again as it leaves the prism. The prism has a refractive index which varies for different wavelengths. The refractive is greater for shorter wavelengths, and hence the blue component of the incident white light bends more than the red component. If a laser was shone through the prism, only a single colour would emerge as laser light is (approximately) monochromatic.



Accompanying sheet

Prism

Shine the light through the prism.

What do you see going into the prism?
What do you see coming out?

Which is refracted (bends) more – light of long or short wavelength?