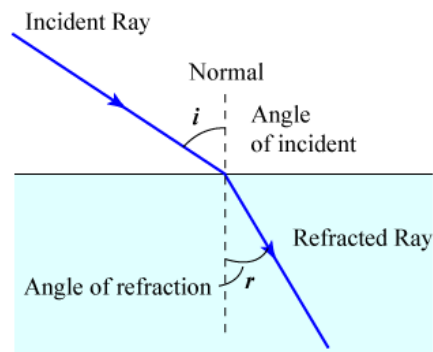


Topic 4: Refraction



Refraction:



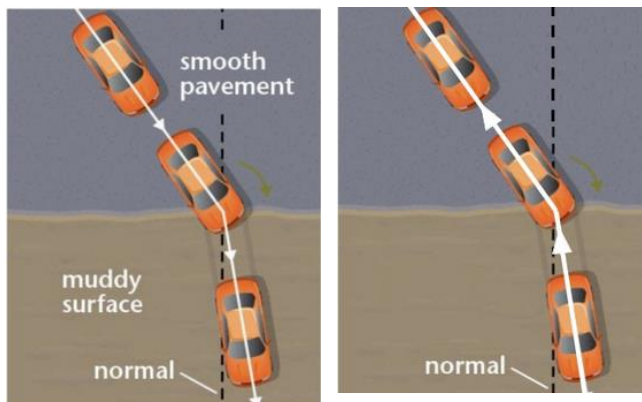
Absolute Index of Refraction:

- n = index of refraction (*no units*)
- c = speed of light in a vacuum = 3.00×10^8 m/s
- v = speed of light in any medium (m/s)

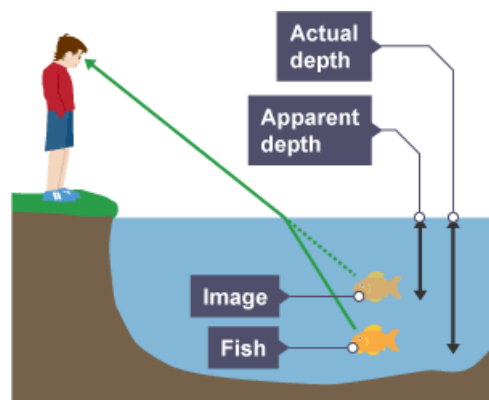
Equation

Example: What is the speed of light in plastic if its index of refraction is 1.456?

Cause of Refraction:



Apparent Depth:

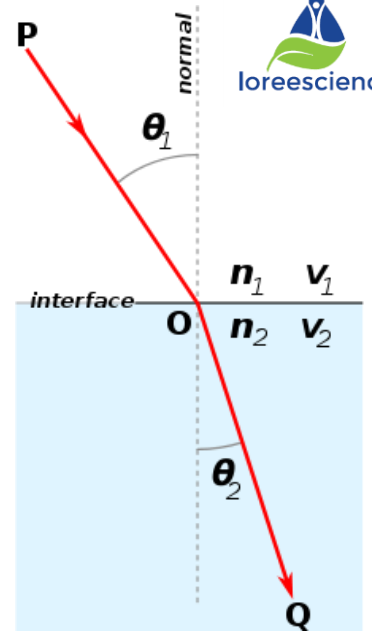


Snell's Law:



Example 1: Calculate the index of refraction for a substance where the angle of incidence is 30.0° and the angle of refraction is 50.0° , and the index of refraction for the second substance is 1.50

Example 2: Calculate the angle of refraction and draw the path of the refracted ray entering the cornea ($n=1.3375$) from air ($n=1.000277$) when the angle of incidence is 25°



Refraction Phenomena & Applications

Total Internal Reflection (TIR):

The Critical Angle:

Example: What is the critical angle for light travelling from diamond ($n=2.42$) to air ($n=1.00$)?

TIR Examples:

Dispersion:

