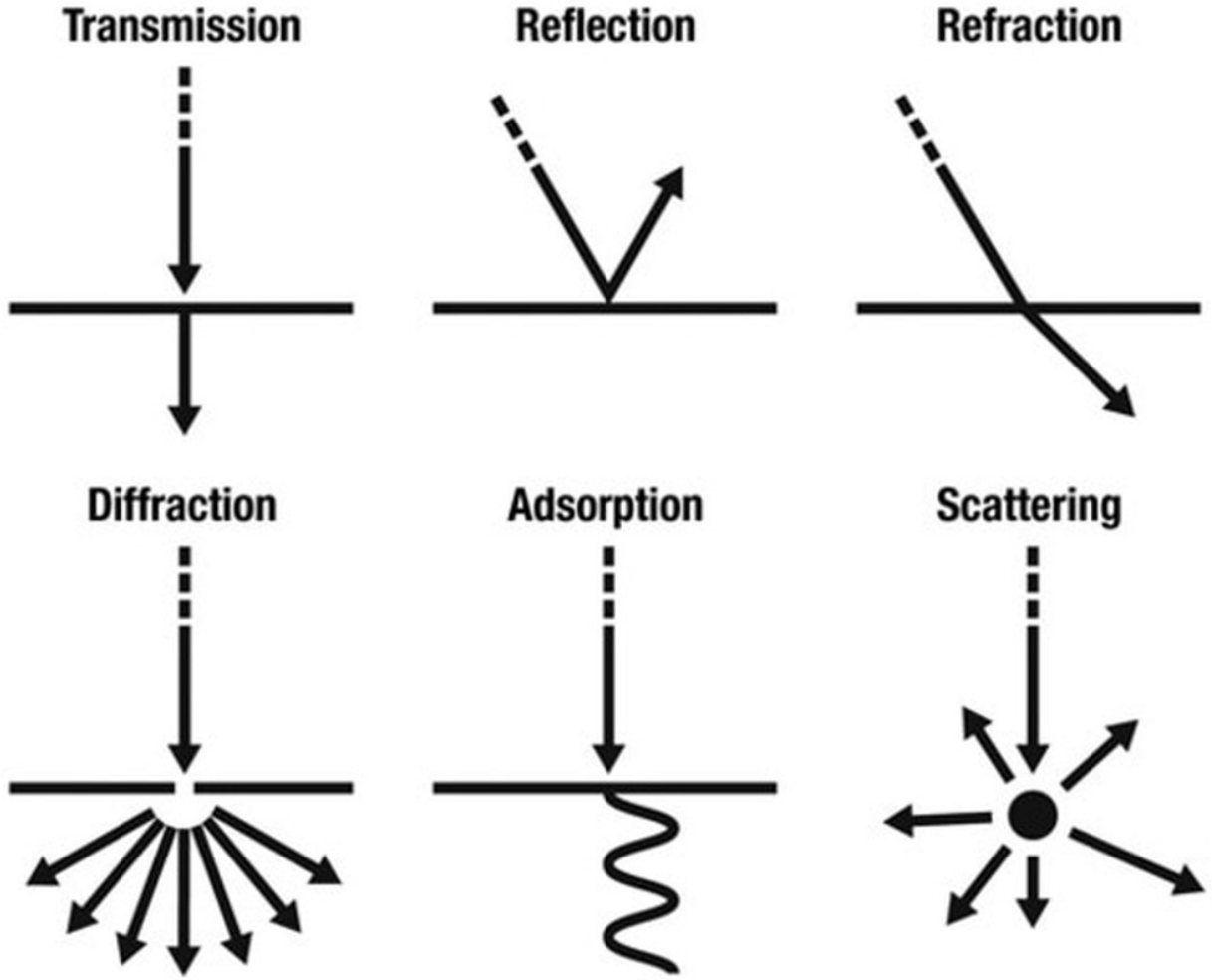


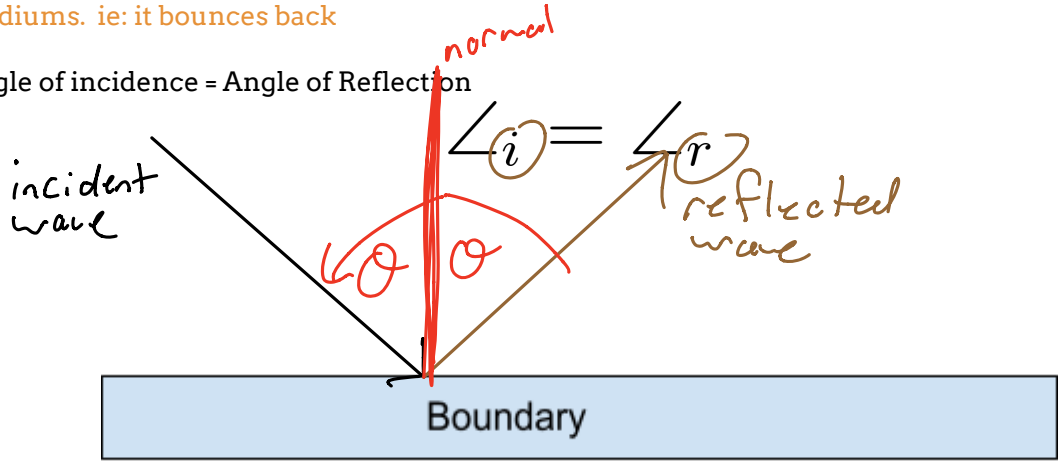
Behaviour



Reflection:

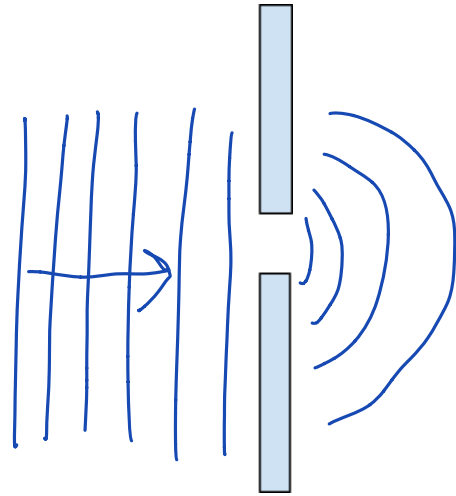
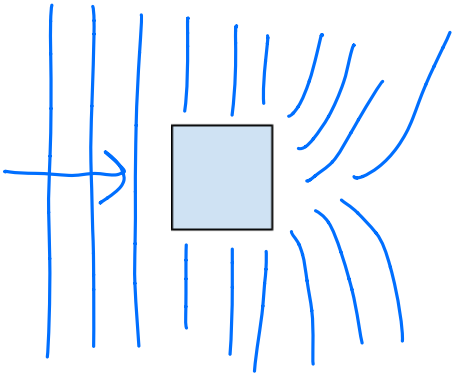
This is the change in direction of a wave when it encounters a boundary between different mediums. ie: it bounces back

Angle of incidence = Angle of Reflection



Diffraction:

This is the bending of a wave around the corners of an obstacle or when passing through a slit.



Transmission:

Some/All of the wave energy passes through the boundary between the medium.


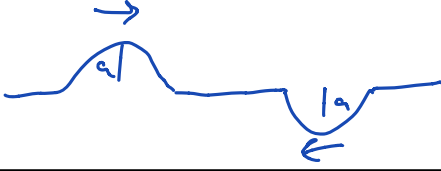




The amount of transmission depends on the makeup of the medium on the other side of the boundary.

Absorption:

Some of the wave energy can be transferred to the particles of the boundary.

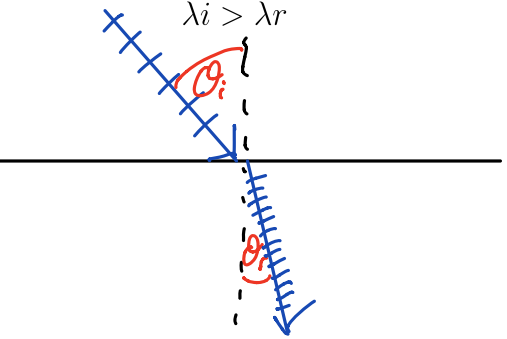

Interference:

This occurs when two waves meet while travelling along the same path

	Constructive	Destructive
Before		
Meeting		
After		

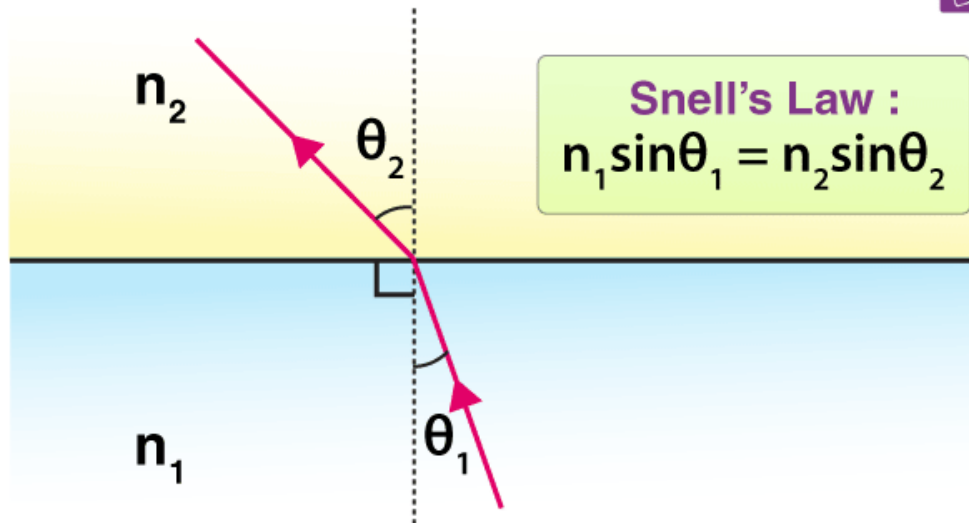
Refraction:

When waves pass from one medium to another they may change direction. They will change in speed and wavelength (λ)

<p>When a wave slows down: $\angle i > \angle r$ $\lambda_i > \lambda_r$</p> 	<p>When a wave speeds up: $\angle i < \angle r$ $\lambda_i < \lambda_r$</p> 
--	--

Snell's Law

This formula relates the angles of incidence with the angles of reflection



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Example:

A beam of light enters a block of diamond at an angle of incidence of 24° . What is the angle of refraction for the light as it travels through the diamond?

Know or lookup: $n_{\text{air}} = 1$ and $n_{\text{diamond}} = 2.42$

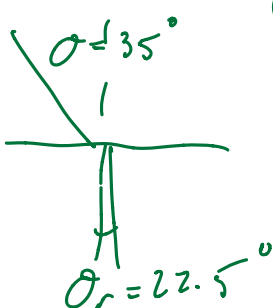
$$n_1 \sin \theta_1 = n_2 \sin \theta_2$$

$$1(\sin 24) = 2.42 \sin \theta_r$$

$$\sin^{-1}\left(\frac{\sin 24}{2.42}\right) = \theta$$

$$9.68^\circ = \theta$$

A ray of light enters an unknown material with an angle of incidence of 35° . If it has a refracted angle of 22.5° , what is the angle of refraction for the material and what material is it?



$$n_1 \sin \theta_1 = n_2 \sin \theta_2$$

$$(1) \sin 35 = n_2 \sin(22.5)$$

$$\frac{\sin 35}{\sin 22.5} = n_2$$

$$1.50 = n_2$$

↳ Crown Glass (pure)