Refraction
SNC2D

Light will travel more _____ in more dense materials.

The _____ of the speed of light in a vacuum (or air) to the speed in the material
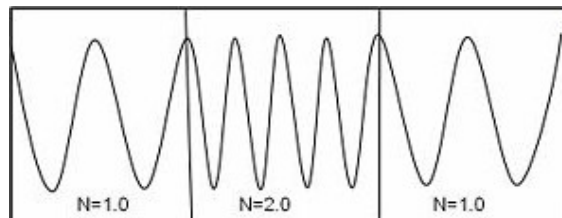
is the _____ (or _____), _____.

      Formula:

Example: For water, the _____ is _____.

          The speed of light in water is therefore:

Frequency and Wavelength

Since the wave slows down but the frequency _____ (the frequency of a

wave is always the frequency of the _____), the wavelength gets _____.

So in 2D (with the boundary at an angle to the wave), the wave will _____

as those parts that enter the more-dense material first _____

first. (The black lines show the crests or "_____").
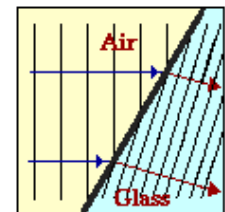
Refraction of light occurs
at the air-glass boundary.

If the ray is perpendicular to the boundary, _____.

Snell's Law: The amount by which the wave is bent is given by Snell's Law (n_i and n_r are the refractive indices of the media).

Formula: Sketch:

Note that a ray will bend _____ the normal when travelling into a

more-dense medium (and _____ from the normal when travelling into a less-

dense medium).

Sketch:

Problem Solving with Snell's Law:

When light passes from air into water at an angle of 45° from the normal, what is the angle of refraction in the water?

Note that since different _____ of white light refract slightly differently,

refraction can split white light into its different

wavelengths (i.e. _____) especially if

refracted _____.

This is called _____.

White Light
Glass Prism
Red
Orange
Yellow
Green
Blue
Indigo
Violet