Refraction and Snell’s Law Lecture Handout

Directions: Complete the lecture handout using information obtained from the lesson.

- The bending of light as it travels from one medium to another is called ____________________
- As a light ray travels from one medium into another medium where its speed is different, the light ray will _______________________________________________________
- The __________________________ for a substance is the ratio of the speed of light in a vacuum to the speed of light in that substance.
- Index of Refraction formula:

  \[ \frac{n_1}{n_2} \]

- Snell’s Law Formula

\[ \frac{\sin \theta_1}{\sin \theta_2} = \frac{v_1}{v_2} = \frac{c}{n_2} \]

Sample Problem:

Snell’s Law

*A light ray of wavelength 589 nm (produced by a sodium lamp) traveling through air strikes a smooth, flat slab of crown glass at an angle of 30.0° to the normal. Find the angle of refraction, qr.*

Multiple Choice:

1. How is light affected by an increase in the index of refraction?
   A. Its frequency increases.
   B. Its frequency decreases.
   C. Its speed increases.
   D. Its speed decreases.

2. Light with a vacuum wavelength of 500.0 nm passes into benzene, which has an index of refraction of 1.5. What is the wavelength of the light within the benzene?
   A. 0.0013 nm
   B. 0.0030 nm
   C. 330 nm
   D. 750 nm