

Lab 8: Introduction to refraction

By
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Abstract

1. Objective: Introduction to refraction.

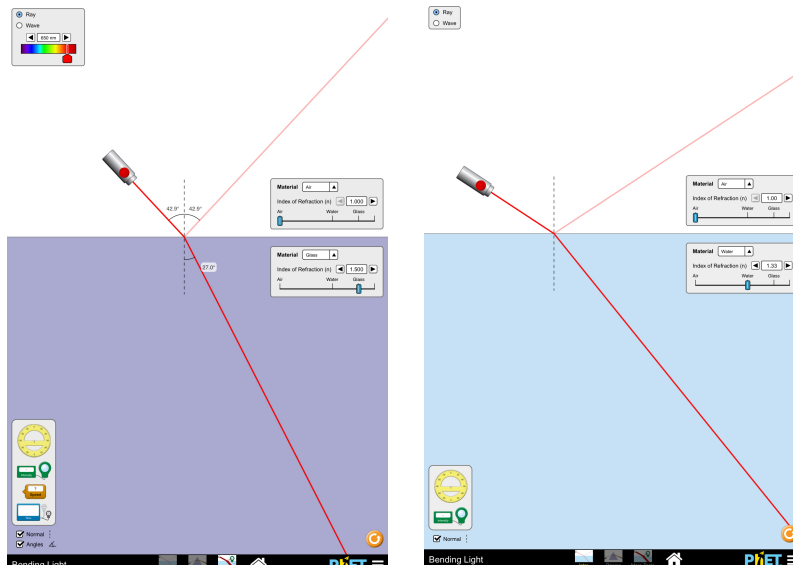
2. Introduction:

Refraction is the bending of light as it passes through a medium of different refractive index. Snell's Law, also known as the law of refraction, is a formula that describes the relationship between the angle of incidence and the angle of refraction when light passes through a boundary between two different media. The law of refraction is states as follows:

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

The law of refraction tells us that the ratio of the sines of the angles of incidence and refraction is equal to the ratio of the refractive indices of the two media. This means that if we know the refractive indices of two media and the angle of incidence of a light ray passing through the boundary between them, we can use Snell's law to determine the angle of refraction of the light ray.

3. Apparatus and Materials:



4. Procedure and Results:

$$n_1 = 1$$

$$n_2 = 1.33$$

$$\theta_1 = 42.9^\circ$$

$$\theta_2 = ?$$

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

$$\sin \theta_2 = \frac{n_1 \sin \theta_1}{n_2}$$

$$\sin \theta_2 = \frac{1 \sin 42.9^\circ}{1.33} = 0.51$$

$$\theta = \sin^{-1} 0.51 = 30.66^\circ$$

6. Conclusions

To conclude we have demonstrated that refraction follows the law of reflection, which states that the angle of incidence of a light ray is equal to the angle of reflection when the light ray reflects off a smooth surface. The reflection of light can be used to create optical illusions or to design optical devices such as telescopes or microscopes. Overall, a reflection lab provided valuable insights into the properties and behavior of light as it interacts with different optical devices and surfaces.

7. Question:

What happens when a ray light passes from one medium to another?

Two things happen. Some light will be reflected, and some light will pass through the material and be bent.