

AP Physics Lab

Lab 22-A: *Refraction of Light in Water*

Equipment:

- lasers and power supplies
- semi-circular water containers
- scratch paper
- index cards
- protractors

Purpose:

- Calculate the index of refraction of water, using the refraction of a laser light.

Procedures:

- Use a piece of scratch paper under the semi-circular container to draw the diagram.
- Use an index card as a straight edge to draw the rays of light.
- Aim the laser into the water at the center of the straight boundary. The laser should enter the water at an angle to the normal and exit the water at the curved boundary without refracting.

Report:

1. On scratch paper, trace the exact path of the laser as it enters the water at the straight boundary and exits the water at the curved boundary of the container.
2. On notebook paper, sketch the normal line and incident and refracted rays at the straight boundary.
3. Measure and label θ_1 and θ_2 .
4. Calculate the index of refraction of water. Compare your answer to the theoretical value (1.33).