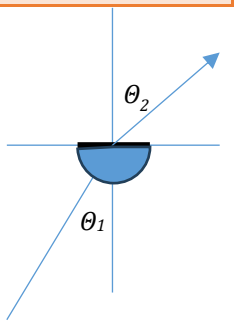
***Physics 11-03 Total Internal Reflection Lab*** ***Name: _____***

**Objective:**

- Use total internal reflection to measure the index of refraction of a prism.




**Materials:**

- Semicircular prism
- Laser level
- Protractor

**Procedure:**

1. Draw two perpendicular lines to form a T.
2. Place the flat side of the semicircular prism on the cross bar of the T with the stem of the T bisecting the curved side of the prism.
3. Shine the laser into the curved side of the prism so that it is normal to the surface and aimed at the center of the flat side.
4. With the laser near the center line, draw the incident ray and the refracted ray. Look closely inside the prism, do you see any reflection from the flat surface?

5. Move the laser a little farther from the center line and draw the incident and refracted rays. Look for internal reflection again. Is it any stronger?

6. Slowly move the laser around the curved edge of the prism but still aimed at the center of the flat side. What do you notice about the refracted ray?

7. Keep moving the laser until the refracted ray is along the flat surface of the prism. Draw the incident and refracted rays.
    a. What is the angle of incidence?
    b. What is the angle of refraction?

8. Move the laser farther from the center line.
    a. What happens to the refracted ray?
    b. Is the internal reflection stronger?

9. Use Snell's Law with the angle of incidence and the angle of refraction from step 7 to find the index of refraction for the prism.
    $n$ = _____