

*Experiment 6***Refraction of Light**

In this experiment, you will investigate **Refraction** and validate (try to prove or disprove) Snell's Law. You will also determine the **index of refraction** of some materials and calculate and verify critical angles associated with total internal reflection.

Preliminaries.

What is the **index of refraction** n and how does it relate to the speed of light?

With a good drawing, derive **Snell's Law**. Why is **Huygen's Principle** important?

Procedure.

Part I How are you going to “prove” Snell's Law – not just for one angle, but how would you prove the *relationship* for a full set of angles? What would you graph (in order to get a straight line)? How do you find the index of refraction of the acrylic from this graph? Is it important to have the ray pass through the center point of the (half) circle?

Part II Experimentally find the critical angle of Acrylic. Is it what you thought it would be?

Conclusion

State if your findings support the theory, and what your % error is and if this is consistent with your measured uncertainties.