

## Snell's Law - Refraction

Name \_\_\_\_\_ Date \_\_\_\_\_

### Source Notes:

This lab was modeled after the "Snell's Law" lab #33  
"Laboratory Physics", Murphy Doyle, Merrill, 1990.  
ISBN 0-675-02477-3

Jim Haine - Wissahickon High School, Ambler PA.  
1997(?)  
Modified 2010

### Teacher Notes:

### Modifications:

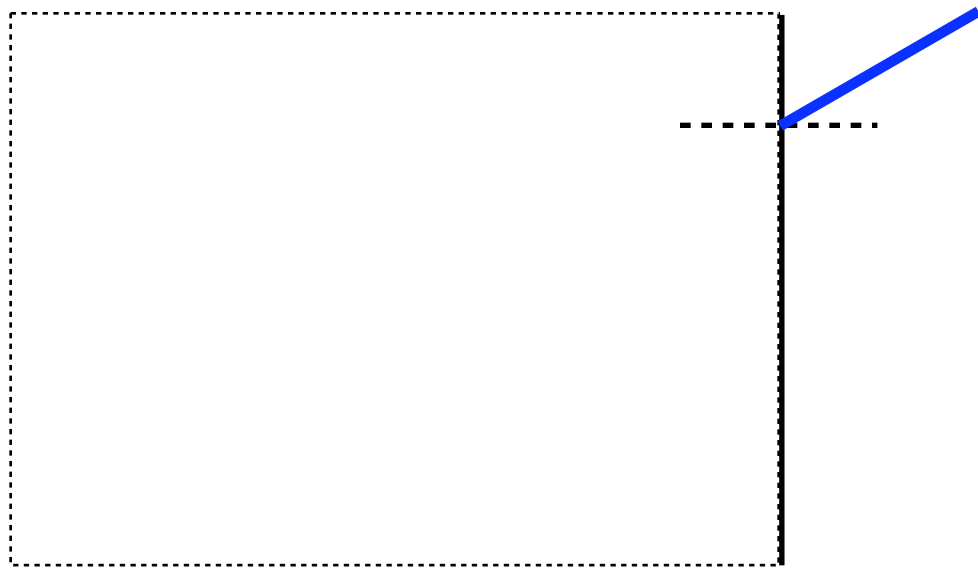
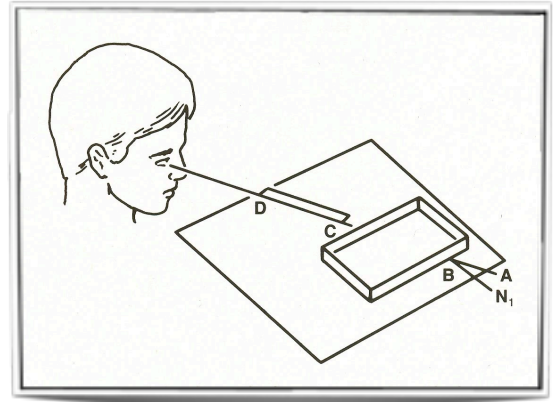
Grade

# Snell's Law - Refraction

Name \_\_\_\_\_ Date \_\_\_\_\_

## Measurements

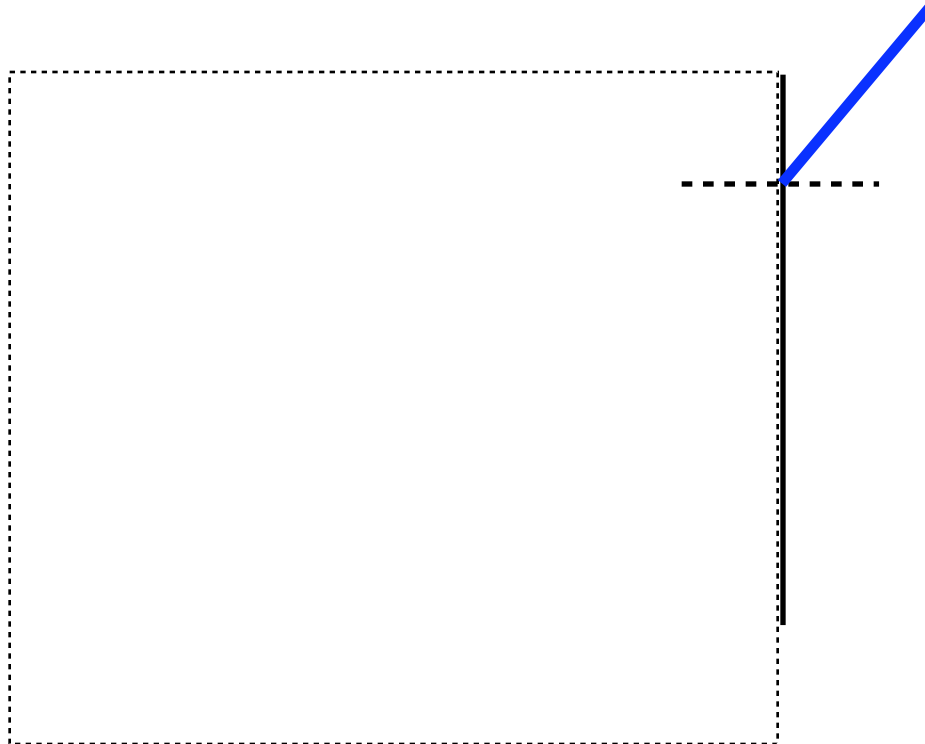
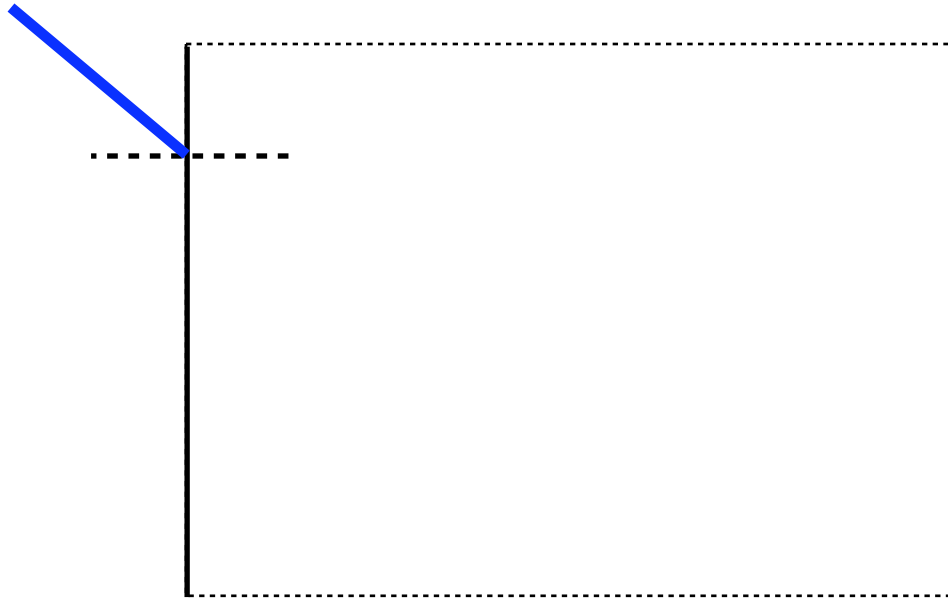
Place the square of glass above the drawing so that one clear edge is above the dark line. Trace the opposite side. Place something dark above the glass. Look straight through the side of the glass and look for the blue line from the other side. Use your ruler to trace a small segment of this line. Remove the glass from the drawing, and connect this one to the bottom edge of the glass. Now, create a line from where the blue line entered the glass to where your site line emerged. The angle of incidence is measured between the blue line and a perpendicular shown here with a dotted line. The angle of refraction is measured between your inside line in the same dotted line.



Grade \_\_\_\_\_

# Snell's Law - Refraction

Name \_\_\_\_\_ Date \_\_\_\_\_



Grade \_\_\_\_\_

## Snell's Law - Refraction

Name \_\_\_\_\_ Date \_\_\_\_\_

### Calculations

$\theta_i$	$\theta_r$	$n$
30		
40		
50		

$$n = \frac{\sin \theta_i}{\sin \theta_r}$$

### Analysis

1. Is there a good agreement between the two values for the index of refraction of plate glass?
2. According to your diagrams, are light rays refracted away from or toward the normal as they pass at an angle from an optically less dense medium into an optically more dense medium?
3. According to your diagrams, are light rays refracted away from or toward the normal as they pass from optically more dense medium in the optically less than medium?
4. Compare the angle of incidence to the angle of refraction. Is the measure of the angle of refraction what you should expect? Explain.
5. Use your results to determine the approximate speed of light as it travels through glass. By what percent is the speed of light traveling in a vacuum faster than the speed of light traveling in glass?