

Refraction Investigation

Instructions:

- 1. Place the medium (glass, acrylic, or gelatin) in the middle of a piece of white paper.
- 2. Trace the outline of the medium and then remove it from the paper.
- 3. Draw a line perpendicular (normal line) to the new medium along one of the longer sides a little off from center.
- 4. Measure a 30° angle from the normal line and draw a line with a colored pencil.
- Place the medium back on the paper in the same spot (on top of the tracing) and shine the laser along the 30° line that you drew. Trace the laser light that comes out the other side.
- 6. Connect the inside ray to the outside rays.
- 7. Make a new normal line on the other side of the medium that is perpendicular to the surface.
- 8. Measure all of the angles that the rays make with the normal lines.
- 9. Using different colored pencils, repeat this process for 45° and 60°.

30°	Normal Line





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Initial Angle	Angle 1	Angle 2	Angle 3
30°			
45°			
60°			

Questions:

- 1. What patterns do you find between the angles for a given situation (i.e., for only the 30° initial angle situation)?
- 2. What patterns do you find as you increase the first angle?
- 3. What do you attribute to these patterns?
- 4. Make a prediction for the angles you think would take place if the first angle were 10°. What evidence helps you make this prediction?
- 5. Make a prediction for how you think your angles would change if we replaced the medium with one that was denser than the one you used.

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