

## **TO MEASURE THE INDEX OF REFRACTION OF GLASS USING A LASER POINTER TO TRACE LIGHT RAYS.**

In this lab you will trace light rays as you have done previously. However, instead of lining up pins, you will use a laser pointer.

### **SAFETY WARNING:**

The laser pointers are NOT toys. They are to be used only in a manner consistent with the two safety assignments you have completed.

### Procedure:

- Place a piece of glass near the center of a piece of white paper. CAREFULLY trace the outline of the glass on the paper.
- Holding the laser pointer at an angle, use pencil dots to trace one ray as it enters the glass and as it exits the glass on the other side.
- Draw three lines:
  - One line is drawn up to the glass on the “entrance” side.
  - One line is drawn up to the glass on the “exit” side.
  - A third line is drawn connecting the two previous lines showing the path of the light inside the glass.
- Label the angle of incidence as  $I$ .
- Label the angle of refraction as  $R$ .
- Measure the angle of incidence and the angle of refraction using a protractor.
  
- Calculate the Index of Refraction.
  
- Repeat for a total of at least 5 trials at different angles. You may use the same piece of white paper, or use different pieces.
  
- Compute the average of the indices. Report the average as your conclusion.

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### Regarding lab report:

The procedure should have enough detail that someone could duplicate your experiment by simply using your lab report. The data should be set out in a neat data table which would enable someone to check your work and verify your conclusion easily. Include the worksheet(s).