

Laboratory #14

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**PURPOSE:** Determining the index of refraction for glass by doing a practical lab.

**EQUIPMENT:**

- Panes of clear untinted glass
- Coins
- White paper
- Glass cutter

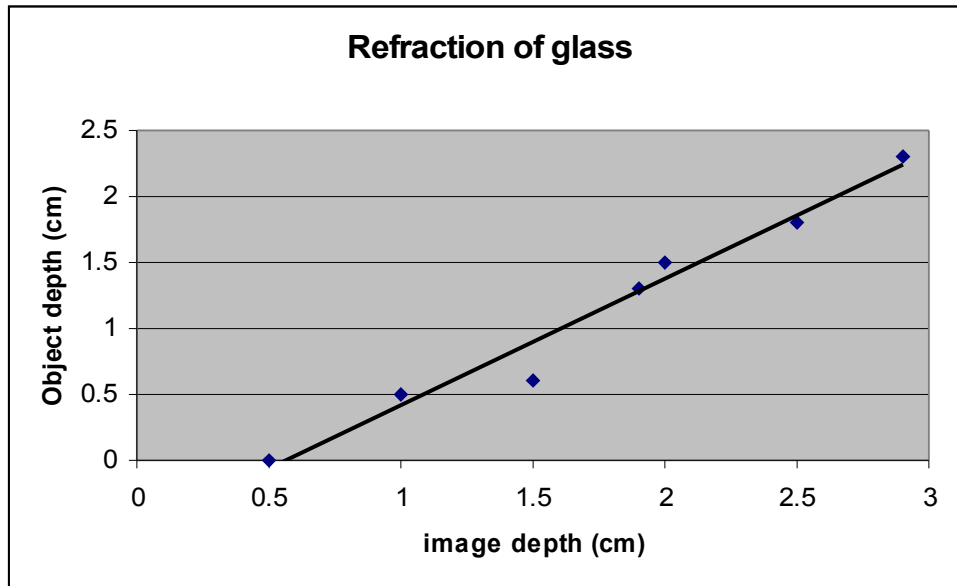
**PROCEDURE:**

- Use the glass cutter to cut the long panes of glass into square-shaped glasses.
- Place the coin on the white sheet of paper.
- Place a square-shaped glass on the coin and measure the image depth and the object depth of the coin. Record your measurements.
- Repeat the same steps as you put layers of glasses on top of the coin.

**DATA TABLE:**

Image depth $i$ (cm)	Object depth $o$ (cm)
0.5	0
1	0.5
1.5	0.6
1.9	1.3
2	1.5
2.5	1.8
2.9	2.3

## DATA CHART:



## ANALYSIS:

The researched expected value for the index of refraction of glass, based from the google website, is 1.52. The slope for this graph is 0.95808, the intercept is -0.5406, and the line of best fit is calculated to be  $y = 0.95808x - 0.5406$ . The error analysis is calculated by the formula  $(\text{slope} - 1) / 1$  which has the result of -0.0419. According to the theory in lab10, if the slope is close to one, then the theory is true. The calculated slope is 5% close to one which I can conclude that my slope is true.

## CONCLUSION:

I chose to use a XY scatter graph for this lab because it compares the pairs of values and it best shows the plotted points on the graph. There exists a mathematical relationship for this lab. According to my lab, each additional glass pane increases the image depth and the object depth. The greater the image depth, the greater the object depth, but the image depth is always greater than the object depth. The trendline also concludes that it is linear because the points are lined up on and near the line.