Lab 14th refraction for glass

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Lab activity: final practical (glass refraction)

Equipment: meter ruler stick, plain paper, coin, glasses (louver)

Introduction

This was a practical lab. We were to explore refraction for glass and determined the

mathematical relationship between the object depth and the image depth.

Procedure

A coin was placed on a plain sheet of paper. We started our measurement with no glass.

Thus, zero was recorded. Adding layers of glass one at a time, we measured and then

recorded our data. I held the meter stick stood in place and Georgie was the one
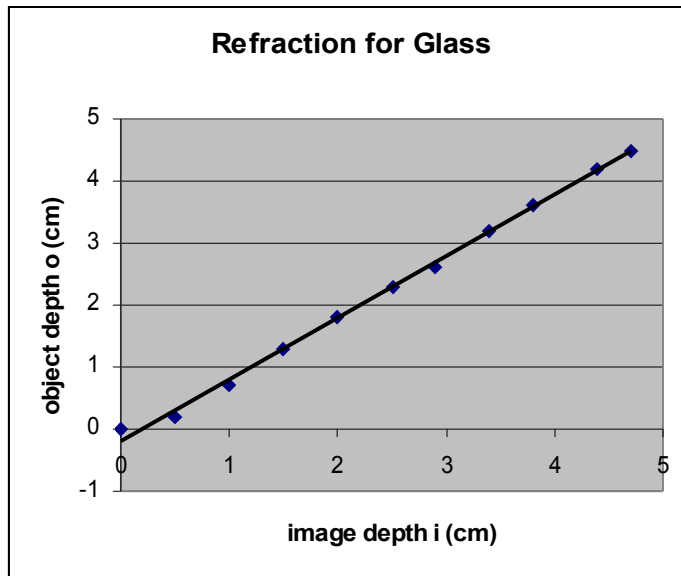
measuring the object depth o and the image object i. Below is a table showing our data.

Table

layer of glass (s)	object depth o (cm) [y]	image depth i (cm) [x]
0	0	0
1	0.5	0.2
2	1	0.7
3	1.5	1.3
4	2	1.8
5	2.5	2.3
6	2.9	2.6
7	3.4	3.2
8	3.8	3.6
9	4.4	4.2
10	4.7	4.5

slope:	1.07

Graph

Analysis

Several analyses were taken from the experiment.

- There was a mathematical relationship between the object depth and the image depth of the coin.

- The relationship was linear.

- The slope was 1.07.

- The y-intercept was zero.

- To find the slope, the LINEST FUNCTION was used.

- Slope was close to theoretical slope, 1.5.

- The percent difference was 43%.

Conclusion

There was a mathematical relationship between object depth o and image depth i. The relationship was linear. The slope calculated was 1.07 and the y-intercept was zero. The

experiment's result failed to reject the hypothetical data. According to Snell's Law about refraction, the theoretical slope for refraction of glass is 1.5. The measured slope was close to the theoretical slope. The percent difference was 43%.

Work Cited

Mind.net. "Ray Optics, Snell's Law." 28 Apr. 2009.

<http://id.mind.net/~zona/mstm/physics/light/rayOptics/refraction/snellsLaw/snellsLaw1.

html>.