Physics IA

RESEARCH QUESTION: How does the sugar concentration of a sample of water affect its refractive index?

MODE OF INQUIRY: Experimentation.

MATERIALS REQUIRED:

- Four Glass Slides
- Water
- Sugar
- Pins
- Ruler
- Protractor

METHODS:

Preparation:

1) Create rectangular container out of glass slides using waterproof glue.
2) Create water samples with varying amounts of sugar.

Experiment:

1) Place container with water on a sheet of paper and put two pins at an angle of 60º from a normal coming out of the edge of the container.
2) On the other side of the container, put two pins in view line of the former from under the water.
3) Remove container and draw lines connecting the four dots left behind from the pins. Measure the angle of refraction inside the rectangle.
4) Using the equation $n = \frac{sini}{sinr}$, find refractive index.
5) Repeat with other water samples with varying amounts of sugar.