

**PHYSICS LABORATORY: Investigating an Ice Cube****Prompt and Purpose**

The prompt for this design (planning) lab is:

***“Investigate an ice cube.”***

You can do whatever you wish, as long as it involves investigating an ice cube. You are encouraged to be as creative as possible. Note that you are required to work independently on this lab. Besides the topic, the only requirement is that you use technology for your data acquisition and analysis (probes, labquests, and computers). I will provide you with an ice cube to start with, but you may also use your own if you wish.

Refer to the Laboratory Report Guide for full details on what is expected of you. Here is a summary of the main points, to get you thinking:

**Design (D)**

- 1) Come up with a clearly stated research question.
- 2) Define your dependent, independent, and controlled variables.
- 3) Provide appropriate background information in your lab report; literature review is required.
- 4) Devise a methodology - completely unique to your research question, and up to you.
- 5) Prepare a detailed list of apparatus well beforehand in order for the lab assistant to procure them for you. You may use any equipment in the lab stores.

**Data processing and Collection (DCP)**

- 1) Collect appropriate raw data with uncertainties considered.
- 2) Process your raw data correctly, taking into account all uncertainties and a full error analysis.
- 3) Present your data in graphical format, and analyze your data through line of best fit analysis, max-min slope lines, etc.

**Conclusion and Evaluation (CE)**

- 1) Give a conclusion and a full explanation of your results.
- 2) Evaluate the above procedure (methodology) and apparatus used, including limitations and errors.
- 3) Identify any weaknesses and suggest ways of improving the investigation.
- 4) Propose questions for further research and discussion.
- 5) You must include a list of works cited (at least 3, in MLA format).

**Remember:**

1. Refer to the ‘Physics Lab Report Guide’ before submitting your report.
2. Attach the ‘Physics Lab Report Rubric’ as a cover page to your paper copy.

***You will be marked on Design (D) and Data Collection and Processing (DCP) for this lab.***