Graphene Heat Transfer: Teacher Notes

Learning Objectives

- Understand and be able to describe how surface coatings impact thermal conductivity.
- Apply experimental design practices, like accurate measurement and control of variables.
- Interpret data using tables and graphs.

Prep Notes

- Ensure strips are identical in size and shape, with only graphene coating thickness varying.
- Confirm that the graphene coating is securely bonded to the surface for consistent results.
- Calibrate or check thermometers before students use them.
- Use heat-resistant mats or areas and caution students about the heat from lamps.

- Pre-Label or organize the strips by thickness for easier student set up

Assessment Options

- Summative: Grade completed lab reports, including hypothesis, data, graph, and conclusions.
- Extension: Ask students to calculate the approximate heat transfer rate (e.g., mm/s) if time and math skills allow.