Graphene Column Filtration Inquiry Lab: Teacher Notes

Learning Objectives:

- Explain the role of graphene in filtration.
- Compare the filtering ability of graphene-coated vs. uncoated plastic beads.
- Collect and analyze data on filtration time and water clarity.

Prep Notes:

- **Materials:** Clear plastic tubes, plastic beads (coated and uncoated), food coloring, Secchi tube, 250 mL of water.
- **Coating Graphene:** Spray clean, dry beads with coating of graphene spray and allow to dry for at least 24 hours before conducting the lab.

Procedure Notes:

- Use **125 mL of dyed water** per column (total 250 mL for both columns).
- Ensure students measure the time it takes for the water to filter through each column.
- Follow the **turbidity test** to measure water clarity after filtration.

Assessment Options:

- **Formative:** Observe students as they conduct the experiment and take notes on group discussions.
- **Summative:** Check data tables, graphs, and conclusions for accuracy and understanding.
- **Peer Review:** Have students review each other's results and conclusions.

Extensions:

- Test different levels of graphene coating.
- Compare graphene to other materials like activated carbon.
  Explore filtration of other substances, like oils or salts.