MAE 3127 - Fluid Mechanics Laboratory
Tin Foil Boats

(Total points = 100)

_____,_____

Last Name   First Name

_____

Date

According to GWU Code of Academic Integrity, I pledge that I have neither given nor received unauthorized assistance on this work.

_____,_____

Student's Signature   Date

Objectives

To create a boat from a square of tin foil (15 cm × 15 cm) that can hold as much mass as possible without sinking.

Supplies

1. A square of tin foil that measures 15 cm × 15 cm. Use standard thickness aluminum foil (0.16 mm thickness), **not** the heavy-duty type.
2. A vessel of water significantly larger and deeper than the boat. This could be as simple as filling the bathroom sink or a mixing bowl.
3. As many pennies as you can find. If you don't have a lot of pennies on hand, use other coins, paper clips, or rice. Anything that has a relatively small mass per unit can be added a little at a time.

Process

1. Make a boat from your square of tin foil.
2. Take a picture of your boat.
3. Measure the mass of your boat (Hint: It is the mass of the Tinfoil)
4. Measure the mass of one penny.
5. Place your boat in the water. Fill it with pennies (or whatever you have) until it sinks.
6. Record the number of pennies and the total mass that caused it to sink.
7. Empty the boat of its cargo and measure the volume of the boat's interior.

Thoughts

1. Will the tin foil float? What is its density ?
2. How can we measure the volume of the boat?

Action Items

☐ Dicuss the questions presented under "Thoughts" with your TA
☐ Enter your data into a Python program that your Teaching Assistants will have on their computer. You will need to measure the mass (in grams) that sinks your boat, and the volume of the boat (in mL).
☐ Work with your TA to visualize your data in a Python program provided to you.

 For this lab, you do not need to write a report. The only deliverable is:

☐ The picture of your boat through the assignment link on Blackboard.