Foil Boat Design

Objective: In this activity, you will participate in the steps of the scientific method by designing an aluminum foil boat that will successfully float the most pennies possible.

Supplies: Lab Sheet, 10 cm x 10 cm piece of aluminum foil, cup, pennies, tub for water

Procedure:

1) State the Problem:

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2) Develop a hypothesis explaining how the structure of your boat will work for the problem?

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3) Make a rough sketch of what your boat will look like after construction.

4) Submit your proposed information so far to the harbor master (Mr. Thompson) to obtain a building inspection permit.

5) Construct your boat from the aluminum foil provided.

6) Obtain a cup of pennies and weigh them using the balance. How much did your full cup of pennies weigh? _____

6) Obtain a tub of water and begin to fill your boat with pennies until the boat sinks. Weigh the remaining cup and pennies using the balance. How much did your remaining pennies & cup weigh? _____

7) Determine the total weight of the pennies you floated? _____

8) What conclusions did you come to about your design after completing the experiment.

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9) Having come to some conclusions from the first experiment, repeat the process using any new ideas from your conclusions.

10) Develop a NEW hypothesis explaining how the structure of your boat will work for the problem?

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11) Make a rough sketch of what your new boat will look like after construction.

12) Submit your proposed information so far to the harbor master (Mr. Thompson) to obtain a building inspection permit.

13) Construct your boat from the aluminum foil provided.

14) Obtain a cup of pennies and weigh them using the balance. How much did your full cup of pennies weigh? _____

15) Obtain a tub of water and begin to fill your boat with pennies until the boat sinks. Weigh the remaining cup and pennies using the balance. How much did your remaining pennies & cup weigh? _____

16) Determine the total weight of the pennies you floated? _____

17) What conclusions did you come to about your design after completing the experiment.

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18) Compare the shape of your boat to that of your neighbors. What conclusions can you make about the shape of boats.

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19) What are some possible theories about floating objects? (HINT: think of tanker ships)

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