Penny Barge Worksheet. Name Period

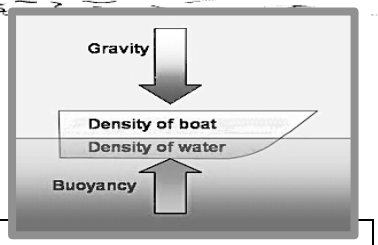
__1) Construct a **rectangular barge** using one 10X10 cm square and one 5X5 cm square of aluminum foil to carry as may pennies as possible across the "lake". 10 pennies meet the requirements.

__2) Use mathematical formulas (without water) to calculate the volume and density of your **Barge** to determine if it will float…**<u>You may not use water</u>.**

__3) An external force or "tug boat" will be used to push or pull your barge across the lake.

__4) Record at least **3 complete set of calculations** of the density of your empty and then full barge to determine if it will float. **Only barges with calculations that show they will float will be tested.**

__5) Consider **stability**. Is your **Barge** balanced? If it tips and takes on water, it will be have too much density to float.



Barge #	# of Pennies	Show your measurements in centimeters (cm) to calculate Volume. Length X width X height → l x w x h = V	V Volume in cm^3	m Mass in g (grams) **	**D** **Density = m/v** **(Mass is first!!)**	**Labeled Drawings:** Notes:
1	0 (zero)	____ x ____ x ____ = ___ →	V =	m =	**D=**	
2						
3						

__5) Choose your best Barge Solution and write the data for it here:

Your Solution						

__6) **Water test! ASK!! Solution Data including a calculated Density of less than 1 (<1) is REQUIRED. Your Barge should float, move across the "lake" (with help) and stay afloat for the decided on time limit.**

More Pennies…..More Points! _____