Relative Density: Why Matter "Sinks" or "Floats" with PheT Density Simulation
http:// phet.colorado.edu/en/simulation/density

Student Guide for Density Simulation: Name: _____

(note: "sink" means stays on the bottom)

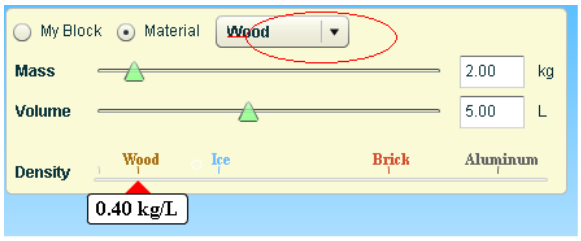
Start: 1. Google: Phet Density sim

2. Click on the first link

3. Click on the Run Now! button

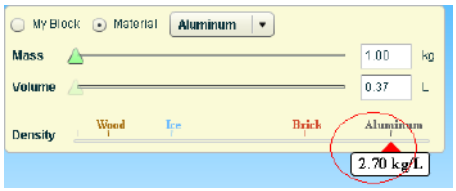
4. Experiment with choosing a material:

material	S=sinker F=Floater	Density given



Put the ***materials*** in the correct boxes

5. Try to get aluminum to **float**. Talk with your partner about this possibility- can you change the mass of the aluminum block without changing the volume of the aluminum block?
6. What do you and your partner notice about the **density triangle** at the bottom of the box? Why do you think this does or does not move?



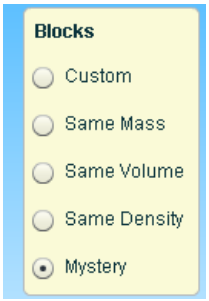
7. How does the density of aluminum (2.70 kg/L) help explain what you see?

_____

Frame: The aluminum will _____ in the water because the density of the aluminum is _____kg/L_____ and the density of water is _____kg/L. We have learned that Density is _____

8. Density = $\frac{\text{\_\_\_\_\_}}{\text{\_\_\_\_\_}}$ "_____ over _____ equals _____"

In the "Blocks" box, click on **Mystery:**



Test the boxes in the water- just drag and drop!!!

When you have determined which ones sink and float, **fill in the data table** for each box.

Sample	Starting volume of water (A)	volume of water and block (B)	Volume of block alone (difference B-A)	Mass (kg)	Density (kg/L)	What is it most likely made of? (hint: use **Show Table** for help)
A	100-L					
B	100-L					
C	100-L					
D	100-L					
E	100-L					

9. Look closely at yellow box A and red box D and discuss your observations.

List three observations you made while comparing the two boxes.

1st observation	2nd observation	3rd observation

10. Dear Students,

I am going to build a boat. My partner says I cannot put a refrigerator and a television in my boat because that would make it too heavy-and the boat might sink. Then we would be swimming with the sharks!!!!

What would you advise me to tell my friend? Is she right or wrong? Be sure to give me some evidence based on what you learned from the **boxes** or other places in this activity.

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