# Lab 11: Density and Buoyancy

Experiment for Physics 211 Lab at CSUF

## What You Need To Know:

## What You Need To Do:

### Part 1 - The Floating Case

Part 1 – Sketch 1



If you place a block of wood that is the same size as the balsa block but is heavier, then what will happen to the buoyant force acting on it? Explain why.



Referring to **Question 1**, if the buoyant force must increase to compensate for the heavier block of wood then what else must change? (If you don’t know the answer then reread the introduction of this lab.)

Part 1 – Sketch 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Object** | **Mass (kg)** | **Weight** | **Buoyant Force** | **Vdis (cm3)** | **Vob (cm3)** |
| **Balsa** |  |  |  |  |  |
| **Bubinga** |  |  |  |  |  |
| **Aluminum** |  |  |  |  |  |

Table – Part 1 Data

Part 1 – Sketch 3



Why can’t the aluminum block float? (You must explain this in terms of volume, NOT density.) (HINT: The answer is in the table you made.)

### Part 2 - The Sinking Case

|  |  |
| --- | --- |
| **Method** | **Density** |
| **1** |  |
| **2** |  |
| **3** |  |
| **Aver.:** |  |
| **% diff.:** |  |

Table – Density Values

### Unknown Block

Now measure the “unknown” metal block and use what you’ve learned to find out what it is:

1. Use either Method 2 or Method 3 to find the density of the “unknown” metal box.
2. Use Figure 5 to determine what type of metal its made out of.

## Conclusion

Follow the lab report guide to write a conclusion on this lab.

Submit any excel or graphical analysis data your instructor requests along with your report.

Conclusion