Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

**Name That Cube**

***Background:*** Density is the ratio of mass to volume. Another way of saying this is that density equals mass divided by volume or d=m/v. Density is a physical property of matter. You can identify materials by finding their density. In this lab, you will identify blocks by finding their densities.

***Procedure:***

1. Observe each numbered cube. Write your observations in the table below.
2. Use a ruler and calculator to calculate the volume of the block in cm3. Remember that the volume of a cube is length x width x height.
3. Use the triple beam balance to measure the mass of the mystery cube. Remember to zero out the balance before each measurement! **Use a correction factor if needed.**
4. Calculate the density of the cube (d=m/v)
5. Use the table of known densities to identify your cube.
6. When you have identified the numbered cubes, use steps 1-5 to find the density of your mystery cube. Use this density to identify what your mystery cube is made of.

**Cube Data Table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Block Number** | **Observations**  Write one thing that is unique to that cube | **Mass**  (g) | **Volume**  (cm3) | **Density**  (g/ cm3) |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |
| **5** |  |  |  |  |
| **6** |  |  |  |  |
| **7** |  |  |  |  |
| **8** |  |  |  |  |
| **9** |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Material** | **Density (g/cm3)** | **Material** | **Density (g/cm3)** |
| Steel | 7.9 – 8.1 | Nylon | 1.4 |
| Copper | 9.1 – 9.0 | Pine | 0.40 |
| Brass | 8.9 – 9.0 | Acrylic | 1.1 - 1.2 |
| Aluminum | 2.7 | Oak | 0.7 |
| PVC | 0.9 – 1.0 |  |  |

Use the Density Table at the bottom of the page and your Cube Data Table to identify cubes 1-9. There will be one box that is left blank. Write the number of the cube in the grid that it matches the material:

|  |  |  |  |
| --- | --- | --- | --- |
| Aluminum | Steel | Brass | Copper |
| Oak | Acrylic | Nylon | PVC |
|  | Poplar | Pine |  |

**Density Table**