Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Density Simulation Worksheet**

Formulas**: Density =** mass OR **Density** = mass ÷ volume

 volume

1. What physical properties do you need to know to find the density of an object? How will you use the simulation to find these properties?

2. Fill in the following information about the Mystery boxes. Remember to include units!

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Container** | **Mass (kg)** | **Volume (L)** | **Density (kg/L)** | **Float or sink in water?** | **Contents (see table)** |
| **A** |  |  |  |  |  |
| **B** |  |  |  |  |  |
| **C** |  |  |  |  |  |
| **D** |  |  |  |  |  |
| **E** |  |  |  |  |  |

3. Order the mystery packages from lowest density to highest density:

(Lowest) \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_ (Highest)

4. In question 3 above put a SQUARE around the letters for the mystery packages that were able to float in water (or that you had to push down in order to calculate the volume – use your data!).

5. In question 3 above put a CIRCLE around the letters for the mystery packages that had a density less than 1 kg/L.

6. What do you notice about what you have squared and circled in question 3? Are they the same? Different?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Show Off What You Know!**

1. You discover a mystery package at your front doorstep and want to figure out what’s inside of it without opening it (after all, it could be dangerous!). Luckily, you remember to use the physical property of density to help you identify the contents of the box.

You find the mass of the box to be 120 kg and the volume to be 30L. What is the object’s density? Show your calculations below.

2. Make a prediction – Will this mystery package sink or float in water that has a density of 1 kg/L? Based on what you know about density, explain your choice.