Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Homeroom:\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_ **3.3**

**Defining Density (SPI.9.7)**

|  |  |
| --- | --- |
| ***Key Point*** | ***Notes*** |
| **Dividing Without a Calculator** |  |
| **Mass and Volume** | **Mass** is how much \_\_\_\_\_\_\_\_\_ is in something.* Mass is measured using:
	1. A triple-beam \_\_\_\_\_\_\_\_\_\_\_
* The units for mass:
	1. Grams (g) or kilograms (kg)

**Volume** is how much \_\_\_\_\_\_\_ something takes up.* You can measure the volume of regularly shaped objects (like a cube) using a ruler.

 Guided example:* Here volume =
* Volume = 8 cm × 5 cm × 5 cm = 200 cm3
* To measure the volume of a liquid or an irregularly shaped object, you can use a \_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_.
* The units for volume are:
* Cubic centimeters (cm3) or cubic meters (m3)
* Milliliters (mL) or liters (L)
 |
| **Density** | **Density** is the measure of the “\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_” of a material* 1. “Compactness” is determined by the \_\_\_\_\_\_\_\_\_/\_\_\_\_\_\_\_\_\_\_ of like atoms or molecules
	2. More than just the “heaviness” of a substance, density includes how much space an object takes up! Density is how heavy something is for its size
	3. \_\_\_\_ substances have density including liquids, solids, and gases

**Density** depends on:* \_\_\_\_\_\_\_\_\_\_
* \_\_\_\_\_\_\_\_\_\_

**Density =***ALWAYS REMEMBER YOUR UNITS!*Guided examples: |
| **Sink or Float?** | * Objects that are \_\_\_\_\_\_ dense \_\_\_\_\_\_\_\_\_
* Objects that are more dense \_\_\_\_\_\_
 |
| **So What?!** |  |

 **“I Own This” (Independent Practice):**

1. What is the formula for density? Density =
2.

2. If the man on the left has a volume of 82,000 cm3, what is his density?

3. If the man on the right has a volume of 41,000 cm3, what is his density?

4. Who is more dense?

1. A block of wood has a mass of 2 grams and a volume of 4 cm3.

Show work here:

1. Density = \_\_\_\_\_\_\_\_
2. Will it float or sink in water (which has a density of 1 g/cm3)? Circle one.
3. A shoe has a mass of 2,000 grams and a volume of 250 cm3. \_\_\_\_\_\_\_\_\_\_

Show work here:

* 1. Density = \_\_\_\_\_\_\_\_
	2. Will it float or sink in water (which has a density of 1 g/cm3)? Circle one.
1. A book has a mass of 1500 grams and a volume of 522 cm3.

Show work here:

* 1. Density = \_\_\_\_\_\_\_\_
	2. Will it float or sink in water (which has a density of 1 g/cm3)? Circle one.

 8. A test tube contains three substances: lead, water and wood. The wood floats on top of the water, the water settles in the middle, and the lead sinks to the bottom. This means

|  |  |  |  |
| --- | --- | --- | --- |
| a. | lead is the least dense substance. | c. | water is the least dense substance. |
| b. | wood is the most dense substance. | d. | lead is the most dense substance. |

1. Mercury is a liquid that has a density of 13.6 g/cm3. Michael decides to throw a rock that has a density of 1.8 g/cm3 into a sink full of mercury. What will likely happen?