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

**Defining Density (SPI.9.7)**

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| ***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?!** |  |

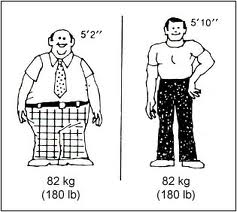
**“I Own This” (Independent Practice):**

1. What is the formula for density? Density =

2. 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

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| --- | --- | --- | --- |
| 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?