EPS 100 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Working with the Density Formula

$Density= \frac{mass}{volume}$ or $D= \frac{m}{v}$

This type of formula has three variables (D, m, and v), and you can use a triangle to solve for any of the variables.

1. Insert the variables into the triangle.

Use the triangle to finish these equations…



2. D = 3. m = 4. v =

Use the triangle method to rearrange the pressure formula… $Pressure= \frac{Force}{Area}$ or $P= \frac{F}{A}$

5. P = 6. F = 7. A =

**Units for density** may be $\frac{g}{ml}$ or $\frac{g}{cm^{3}}$

**Water’s density** = 1$\frac{g}{ml}$ = 1 $\frac{g}{cm^{3}}$

Objects float in water if they have a density that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Object sink in water** if they have a density that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Density Calculations (D = m/v)**

8. Calculate the density of an object that has a mass of 40g and a volume of 5ml.

 m = \_\_\_\_\_\_\_\_ g V = \_\_\_\_\_\_\_\_ ml D = \_\_\_\_\_\_\_\_\_ g/ml

 Will it sink or float? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. Calculate the density of an object that has a mass of 2g and a volume of 100ml.

 m = \_\_\_\_\_\_\_\_ g V = \_\_\_\_\_\_\_\_ ml D = \_\_\_\_\_\_\_\_\_ g/ml

 Will it sink or float? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

10. Calculate the mass of an object with a density of 2g/ml and a volume of 6ml



 m = \_\_\_\_\_\_\_\_ g V = \_\_\_\_\_\_\_\_ ml D = \_\_\_\_\_\_\_\_\_ g/ml

 Will it sink or float? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. Calculate the mass of an object with a density of 0.5 g/ml and a volume of 10ml

 m = \_\_\_\_\_\_\_\_ g V = \_\_\_\_\_\_\_\_ ml D = \_\_\_\_\_\_\_\_\_ g/ml

 Will it sink or float? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. Calculate the volume of an object with a density of 2g/ml and a mass of 4g

 m = \_\_\_\_\_\_\_\_ g V = \_\_\_\_\_\_\_\_ ml D = \_\_\_\_\_\_\_\_\_ g/ml

 Will it sink or float? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. Calculate the volume of an object with a density of 0.5g/ml and a mass of 10g

 m = \_\_\_\_\_\_\_\_ g V = \_\_\_\_\_\_\_\_ ml D = \_\_\_\_\_\_\_\_\_ g/ml

 Will it sink or float? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**14. Low Density Box Challenge: Using one sheet of copier paper and scotch tape, create a box with the lowest possible density.**

1. Create your box.
2. Calculate the box’s volume by measuring its length, width, and height, in centimeters

L = \_\_\_\_\_\_\_\_\_ W = \_\_\_\_\_\_\_\_\_ H = \_\_\_\_\_\_\_\_\_\_\_\_

1. Find the box’s volume by using the formula Volume = Length X Width X Height

Volume = \_\_\_\_\_\_\_\_\_\_ cm3

1. Use an electronic balance to measure your box’s mass, in grams. Mass = \_\_\_\_\_\_\_\_\_ g
2. Calculate your box’s density, using the mass and volume from #4 and #3.

 Density = \_\_\_\_\_\_\_\_\_ g/cm3