Density Worksheet

Name_____

Class Period ____ Date _____

Define mass?

2. Define volume?

3. Define density <u>and</u> show the formula for calculating density.

4. Why does changing the shape of an object have no effect on the density of that object?

5. Aluminum is used to make airplanes. Cast iron is used to make weightlifting equipment. Explain why the densities of these metals make them useful for these purposes?

What is the density of water? Remember for water 1g=1ml=1cm^3

7. Why does an air bubble rise to the surface of a glass of water?

8. Calculate the densities of the following objects. **Remember to place units after each number.**

Object A length = 6cm width = 3cm height = 1cm mass = 36g

volume = _____ density = _____

Object B length = 10cm width = 5cm height = 2cm mass = 300g

volume = _____ density = _____

Object C Use the water displacement method to determine the density of object C (silly putty).
initial water level in graduated cylinder = 25ml
final water level after placing silly putty into graduated cylinder = 29ml
mass of silly putty=8g

volume = _____ density = _____

9. Which of the following materials will float on water (density 1 g/ml)?

air =	.001 g/cm^3
corn oil =	.93 g/cm^3
glycerine =	1.26 g/cm^3
corn syrup =	1.38 g/cm^3
wood =	.85 g/cm^3
steel =	7.81 g/cm^3
rubber =	1.34 g/cm^3
ice =	.92 g/cm^3
water =	1.00 g/cm^3

10. Assuming the materials don't mix, show how the materials would "stack up" in a graduated cylinder.

Name Period Date

CHAPTER 2 | PROPERTIES OF MATTER.

Math Practice

Calculating Density

EXERCISES

Calculate the density, using the information provided for various substances. Round off your answers to one decimal place. Be careful to give your answers in the correct units of measure.

1. $m = 100$ g, $V = 5$ cm^3

   $D =$ _____

2. $m = 500$ g, $V = 100$ mL (100 cm^3)

   $D =$ _____

3. $m = 600$ g, $V = 320$ cm3

   $D =$ _____

4. $m = 123$ g, $V = 24$ cm3

   $D =$ _____

Solve each problem. Express your answers in the correct units of measure. Round off your answers to one decimal place.

5. A bar of copper has a mass of 216 g and a volume of 24 cm^3. What is the density of copper?

   _____

6. What is the density of a plastic ball that has a volume of 6 cm^3 and weighs 12 g?

   _____

7. What is the density of a book that has a mass of 400 g and a volume of 600 cm^3?

   _____

8. The volume of a candy bar is 55 cm^3. The mass of the candy bar is 70 g. What is the density of the candy bar?

   _____

9. An ice cube has a volume of 36 cm^3. If the ice cube has a mass of 33.2 g, what is the density of the ice cube?

   _____

10. At 4°C, pure water has a density of 1 g/mL (1 g/cm^3). Suppose that you have 2 liters (2000 cm^3) of pure water at this temperature. What is the mass of this water?

   _____

Name _____

Period _____

Haven Middle School
Grade Eight Science
Worksheet # 2.1: Density and Rounding

DISCUSSION: Density is defined as the mass of 1 cm^3 of a substance and is a characteristic property. Since it is not always convenient to obtain a 1 cm^3 sample of a substance, we can calculate density by dividing the mass of a sample of a substance by its volume.

$D = M/V$ **Density is mass divided by volume**

- The unit of density is g/cm^3 (grams per cubic centimeter).

Rounding rule: Whenever multiplying or dividing with measured numbers, the answer can have only as many digits as the measurement with the **FEWEST** number of digits.

DIRECTIONS: Complete the table below by calculating the density of each sample of substance **to the correct number of digits.**

Sample	Mass (g)	Volume (cm^3)	Density (g/cm^3)
Aluminum bar	5.40	2.0	
10 copper pennies	31.20	3.5	
Iron pipe	156	20	
Gold coin	28.95	1.5	
Wooden block	4.00	5.0	
Stone	6.42	3.1	
Aluminum block	8.24	3.0	

Show your calculations or calculator read out in the space below.