

Density Worksheet

Density is a measurement of mass per unit of volume; in everyday terms, it refers to how light or heavy an object is. In other words, a golf ball has more mass per unit of volume than a ping pong ball does; that is, a golf ball has a higher density than a ping-pong ball. The standard unit for density is grams per cubic centimeter (g/cm^3) or grams per milliliter (g/mL). Density is calculated by dividing mass by volume:

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

Part One: Complete the following table, using the information in Part Two as necessary. All numbers must include the appropriate unit. Use the correct number of significant figures and round correctly.

MASS	VOLUME	DENSITY	SUBSTANCE
1. 12.42 g	6 mL		
2. 12.19 g	23 mL		
3. 11.766 g	5.3 mL		
4. 7.76 g	8.0 mL		
5. 0.783 g	0.45 mL		
6. 3.02 g	2.00 mL		
7. 13.95 g	9.00 mL		
8. 40.137 g	When placed in 25.0 mL of water, the water rises to 30.1 mL.		
9. 79.21 g	8.9 mL		
10.	5.05 mL	10.49 g/mL	
11. 36.49 g	5 cm^3		
12. 4.93 g			Iodine
13. 135.24 g		19.32 g/cm^3	
14. 67.75 g	5.01 cm^3		
15. 45.36 g	3.99 cm^3		
16. 37.4 g			Uranium
17. 6.435 g	0.3 cm^3		
18. 7.74 g	9 cm^3		
19. 2.699 g	1.0 cm^3		
20. 34.38 g	Rectangular block of this substance measures 2.00 cm x 1.00 cm x 3.00 cm.		

Part Two: Densities of Known Substances

NAME	DENSITY	NAME	DENSITY
Aluminum	2.699 g/mL	Magnesium	1.74 g/mL
Arsenic	5.73 g/mL	Mercury	13.55 g/cm^3
Calcium	1.55 g/cm^3	Nickel	8.9 g/mL
Carbon	2.22 g/mL	Platinum	21.45 g/cm^3
Chlorine	1.51 g/mL	Potassium	.86 g/mL
Gold	19.32 g/cm^3	Silver	10.49 g/mL
Iodine	4.93 g/mL	Sodium	.97 g/mL
Iron	7.87 g/mL	Sulfur	2.07 g/cm^3
Lead	11.34 g/cm^3	Tin	7.298 g/mL
Lithium	.53 g/mL	Uranium	18.7 g/mL

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Part Three: The table below lists some substances and their densities. Look at the table carefully. Arrange the substances, *by name*, in the order of their densities. Begin with the least dense and end with the most dense.

LIQUIDS	DENSITY (g/mL)
Carbon tetrachloride	1.595
Formalin	0.815
Methanol	0.796
Sulfuric Acid	1.63
Water	1.0
GASES	DENSITY (g/cm ³)
Air	0.0013
Carbon dioxide	0.0018
Helium	0.00018
Hydrogen	0.00009
Nitrogen	0.0012
SOLIDS	DENSITY (g/cm ³)
Ashwood	0.65
Balsawood	0.37
Glass	2.6
Oak wood	0.68
Tin	7.18

Liquids:

1. _____
2. _____
3. _____
4. _____
5. _____

Gases:

1. _____
2. _____
3. _____
4. _____
5. _____

Solids:

1. _____
2. _____
3. _____
4. _____
5. _____

Part Four: If the statement is true, write TRUE in the space provided. If the statement is not true, change the underlined word to make it a correct statement.

1. A block of ashwood will float in methanol.
2. Carbon tetrachloride will sink in sulfuric acid.
3. To float in air, a blimp would be filled with helium.
4. The same blimp might also be filled with carbon dioxide.

Part Five: These five balloons escaped from the balloon seller in the park. Each one is filled with one of the gases listed in Part Three. In the spaces below, write the name of the gas that each balloon contains.

Balloon 1: _____

Balloon 2: _____

Balloon 3: _____

Balloon 4: _____

Balloon 5: _____

