

**Science 9****Chapter 1 Exercise: Density Word Problems**

1. Calculate the density of a block of aluminum occupies a volume of 15 mL and has a mass of 40.5 g.
2. 306 g of mercury liquid has a volume of 22.5 mL. Use this information to find the density of mercury.
3. What is the mass of 200 mL of ethanol, if its density is 0.789 g/mL?
4. A rectangular block of copper metal has a mass of 1896 g. The dimensions of the block are 8.4 cm by 5.5 cm by 4.6 cm. Use this information to find the density of copper. (Hint: You must first show the formula and calculate the volume of the block – show work properly.)
5. Sally says she was at a science museum and held a block of silver worth about \$250. If the block had a mass of 2500 g, and the density of silver is 10.5 g/cm<sup>3</sup>, what was the volume of the block of silver?
6. Jester has 3 different small blocks of wood, all with the same dimensions of 2.5 cm x 5 cm x 10 cm. He measures the mass of each block and records them as follows:  
Block A = 56.25 g      Block B = 94.38 g      Block C = 47.50 g  
He does a search on the internet and finds the following density table that follows. Show your work properly to calculate the volume of the blocks (all the same size). Then calculate the density of each of the 3 blocks. Finally, use the density table to identify each of the 3 blocks of wood.

Type of wood	Density
ash	0.67 g/cm <sup>3</sup>
aspen (poplar)	0.42 g/cm <sup>3</sup>
birch	0.67 g/cm <sup>3</sup>
cedar	0.38 g/cm <sup>3</sup>
maple	0.755 g/cm <sup>3</sup>
oak	0.62 g/cm <sup>3</sup>
spruce	0.45 g/cm <sup>3</sup>

7. Draw a diagram of each of the 3 blocks from the previous question sitting in water. (Hint: If it floats, pay close attention to the amount of block above and below the surface of water.)
8. If a canoe were made from each of the 3 kinds of wood in the previous questions, which one could be used to carry the most people and supplies? Explain your answer.
9. Painhog measured out 500 mL of gasoline, and found its mass to be 375 g. Calculate the density of gasoline. Draw a diagram of a beaker of water with the gasoline in it. (Hint: The gasoline is a liquid, so it can spread out and change its shape. Will it sink any?)
10. Machoman brags that he can lift a 25 kg piece of styrofoam over his head. If the density of styrofoam is 0.1 kg/L, how big would the chunk of styrofoam be? (What volume?)