

**Assignment 1:** You just bought a cargo of salvaged wood without any markings or ideas of what the wood is. You can get a lot more money if you properly identify the wood before reselling it. Using the internet you found this list of densities for different types of wood.

Type of wood	Density grams/cm <sup>3</sup>
Balsa	0.10 to 0.20 g/cm <sup>3</sup>
Pine	0.35 to 0.45 g/cm <sup>3</sup>
Fir	0.4 to 0.5 g/cm <sup>3</sup>
Oak	0.6 to 0.7 g/cm <sup>3</sup>
Black Iron wood	1.1 to 1.3 g/cm <sup>3</sup>

***Procedure and materials***

On the lines below describe each step of how you would go about identifying this unknown sample of wood. *Be sure to include what equipment is needed, what you are doing, and why you are doing it.* (Worth 25 pts) **Then perform your steps in the Laboratory.**

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***Data Table (25 points)***

***Block Id:*** \_\_\_\_\_

	Tester Initials	Length Units:	Height Units:	Width Units:	Mass Units:
<b>Trial 1</b>					
<b>Trial 2</b>					
<b>Trial 3</b>					
<b>Trial 4</b>					
<b>Average</b>	--				

**Calculations: (25 points) Remember to round all values to correct significant digits**

The volume formula is \_\_\_\_\_

The average volume of Block# \_\_\_\_\_ is \_\_\_\_\_

The average mass of Block # \_\_\_\_\_ is \_\_\_\_\_

The density formula is \_\_\_\_\_

The average density of Block # \_\_\_\_\_ is \_\_\_\_\_

**Conclusions: (25 points)**

Based on \_\_\_\_ trials we have determined the density of Block # \_\_\_\_\_ to be \_\_\_\_\_. Comparing this value to the chart at the top of this lab we would conclude that Block \_\_\_\_\_ is probably \_\_\_\_\_.

\_\_\_\_\_  
\_\_\_\_\_

Error: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Additional Tests \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
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Additional Comments \_\_\_\_\_

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**Assignment 2:** You are a forensic metallurgist that has been brought it to determine the identity of some samples of rare metal taken from smugglers. Whether they are thrown in prison as gold smugglers, or let free as junk dealers depends on your identification of the metals.

Metal	Color	Reactivity	Density
Sodium	White or silver	Explosive with water	0.97 g/cm <sup>3</sup>
Calcium	White or silver	Rapid with water	1.5 g/cm <sup>3</sup>
Aluminum	White or silver	Non-reactive	2.7 g/cm <sup>3</sup>
Tin	White or silver	Non-reactive	7.3 g/cm <sup>3</sup>
Iron	Grayish silver	Rusts in days	7.9 g/cm <sup>3</sup>
Brass	Yellowish	Slowly tarnishes	8.4 to 8.7 g/cm <sup>3</sup>
Copper	Reddish brown	Slowly tarnishes blue green	8.9 g/cm <sup>3</sup>
Gold	Shiny yellow	Non-reactive	19.3 g/cm <sup>3</sup>

***Procedure and materials 25pts***

On the lines below describe each step of how you would go about identifying this unknown sample of metal that has an irregular shape *Be sure to include what equipment is needed, what you are doing, and why you are doing it. (Worth 20 pts)* **Then perform your steps in the Laboratory.**

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***Data Table (25 points)***

***Cylinder # \_\_\_\_\_***

	Tester Initials	Ending Volume. Units:	Start Volume Units:	Net Volume Units:	Mass Units:
<b>Trial 1</b>					
<b>Trial 2</b>					
<b>Trial 3</b>					
<b>Trial 4</b>					
<b>Average</b>	--	--	--		

**Calculations: (25 points) Remember to round all values to correct significant digits**

The net volume formula is \_\_\_\_\_

The average volume of Cylinder# \_\_\_\_\_ is \_\_\_\_\_

The average mass of Cylinder# \_\_\_\_\_ is \_\_\_\_\_

The density formula is \_\_\_\_\_

The average density of Cylinder # \_\_\_\_\_ is \_\_\_\_\_

**Conclusions: (25 points)**

Results: \_\_\_\_\_

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Error: \_\_\_\_\_

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Additional Tests \_\_\_\_\_

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Recommendation to court: \_\_\_\_\_

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