

# Volume Measurement Lab

Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_ Group \_\_\_

**Problem:** Which object, the sphere, the long slab, or the short slab, has the greater volume ?

**Hypothesis :** \_\_\_\_\_

**Variables:** By the time you finish this experiment ,you will need to identify the different types of variables present in this investigation. Consult your notes for definitions of the types of variables.

**Independent Variables:** \_\_\_\_\_

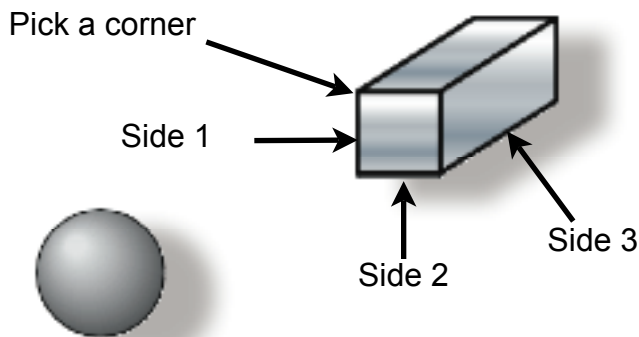
**Dependent Variables:** \_\_\_\_\_

**Controlled Variables:** \_\_\_\_\_

**Procedures:** In this activity, you will gain practice in taking the measurements needed to determine the volumes of some solid objects. Along the way, you'll also be measuring the volumes of some liquids with a graduated cylinder. Check your notes for how to calculate the volumes.

1-Measure the lengths of each of the three sides that meet at any corner of the rectangular solids as shown below. Then record these measurements in the chart and calculate their volumes.

**Materials:** Short and long slabs, sphere, graduated cylinder



	Lengths of sides to 0.01 cm	
	Short Slab	Long Slab
Side 1		
Side 2		
Side 3		
Volume to 0.01 cm <sup>3</sup>		

2-Use the technique of liquid displacement to determine the volume of the sphere. Record your measurements and calculate the volume of the sphere in the chart below. Remember not to let any water splash out of the cylinder when you place it in.

Volume of water in graduated cylinder to the nearest 0.1 ml (1 ml = 1 cm <sup>3</sup> )	Volume of water plus sphere in graduated cylinder to the nearest 0.1 ml (1 ml = 1 cm <sup>3</sup> )	Volume of just the sphere to the nearest 0.1 ml (1 ml = 1 cm <sup>3</sup> )

**Question 1-** Which object has the largest volume of the three objects you measured ?

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**Question 2-** Explain why is it important to not let any water splash out of the graduated cylinder when you place the sphere into it ?

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**Question 3-** Would you have gotten the same volume for the long slab if you had calculated its volume using liquid displacement as you did when you multiplied the lengths of it's sides? Explain your answer.

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**Overall Conclusion:** State if your original hypothesis was correct or incorrect using specific references from the lab to support your answer.

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**Sources of Error :** Identify **two** things that people may have done incorrectly that would have caused them to get totally different answers from the rest of the class. These errors must be unique, in other words they have not been applicable in previous labs. They must be **new** sources of error. Be **specific** about what might have been done.

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