

Mass and Volume: Study Guide

Objectives	Your explanations or diagrams
1. What is a major mark on a graduated cylinder? Explain how to determine the value of a minor mark.	
2. What is a minor mark on a graduated cylinder? Explain how to determine the value of a minor mark.	
3. Explain how to determine the uncertainty (estimation) for a graduated cylinder?	
4. Explain water displacement?	
5. Explain how to use water displacement to find volume.	
6. Define density. What is meant by one substance is denser than another substance?	
7. Explain how density a characteristic property of matter?	
8. How can density be used to identify unknown substances?	
9. Given a graph of mass vs. volume of a substance, write the mathematical model (equation) of the line from a mass vs. volume graph in the form of $y = mx + b$	
10. Given a graph of mass vs. volume of a substance, state the physical meaning of the slope (stating rise over run is incorrect).	
11. Given a graph of mass vs. volume of a substance, state the physical meaning of the y intercept.	
12. Define negligible in terms of significant or insignificant.	
13. What value or can be assigned to the y-intercept if the experimental value is negligible?	
14. Draw a mass-volume graph and explain or show how to determine the volume or mass of a sample of a substance using the graph.	

15. Calculate density of a substance, given the mass & volume. Show the formula.	
16. Calculate mass of a substance, given the density & volume. Show the formula.	
17. Calculate volume of a substance, given the density & mass. Show the formula.	
18. List the three states (phases) of matter normally found on Earth and define each state (phase) in terms of shape and volume.	Solid: Liquid: Gas:
19. Draw a particle diagram of a solid with the proper spacing.	
20. Draw a particle diagram of a liquid with the proper spacing.	
21. Draw a particle diagram of a gas with the proper spacing. How is the particle spacing different than liquids and solids.	
22. Compare the densities of a solids and a gas from your lab work. Include the units. What conclusion can you reach about the particle spacing from these three densities? Be specific.	Density of a solid _____ Density of a liquid _____ Density of gas _____ Conclusion: _____ _____ _____
23. Calculate percent error for some data and explain how percent error shows if data is accurate. Show the formula	
24. Calculate the percent range for some data and explain the percent range shows if the data is precise. Show the formula	
25. Experimental Value	
26. Accepted Value	
27. cm^3	A unit of volume. $1 \text{ mL} = 1\text{cm}^3$