Unit 1 – Matter: Study Guide

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| **Objectives** | **Your explanations** (look at the Bell Works’) |
| 1. Define the relationship between mass and particles |  |
| 1. Define solvent |  |
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| 1. Define concentration. |  |
| 1. What does percent concentration mean? How do you make a 10% concentration of sugar water (water is the solvent). |  |
| 1. Contrast random and systematic errors. |  |
| 1. Represent class data using a histogram; use the histogram to interpret trends in the data. Sketch samples at right. |  |
| 1. State the law of conservation of mass (COM) and use COM to solve simple problems such as does a nail   Gain or lose mass when it rusts? |  |
| 1. Relate the volume of a container (in cm3) to the volume of liquid it contains (in mL). |  |
| 1. Recognize that instruments have a limit to their precision; relate the data recorded to the uncertainty of the measurement. |  |
| 1. Determine the uncertainty of a measurement and / or the uncertainty (precision) of the instrument used to obtain the measurement |  |
| 1. Given a graph of mass vs. volume of a substance, write the equation of the line (linear equation) and state the meaning of the slope and state the meaning of the y intercept. |  |
| 1. Use the 5% rule to determine if the y-intercept of a line is negligible. |  |
| 1. Recognize that density is a characteristic property of matter. How can density be used to identify unknown substances? |  |
| 1. Use density as a conversion factor between mass and volume; show examples of converting mass to volume and vice-versa (solve density problems). |  |
| 1. Use particle diagrams to represent solids, liquids and gases in a way that is consistent with their densities. |  |
| 1. Calculate percent error, absolute deviation and average deviation |  |
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