

Bell Ringer #34:

**Socratic Room Name:
LEVEL70WARRIOR**

Molecular Mass Review

<http://drmoad.weebly.com/>

Agenda

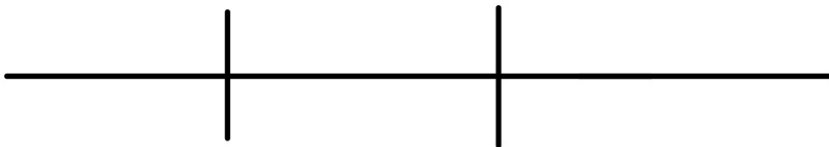
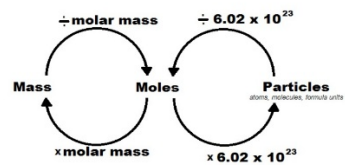
Bell Ringer

Conversions Practice Problems

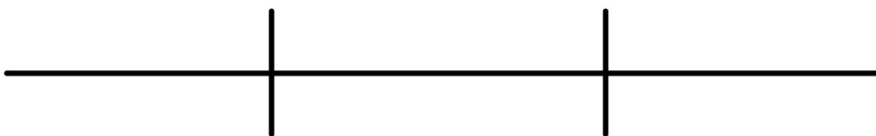
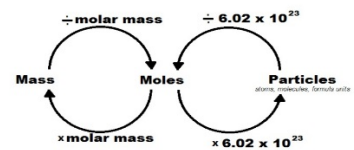
Formula of a Hydrate Lab

Exit Ticket

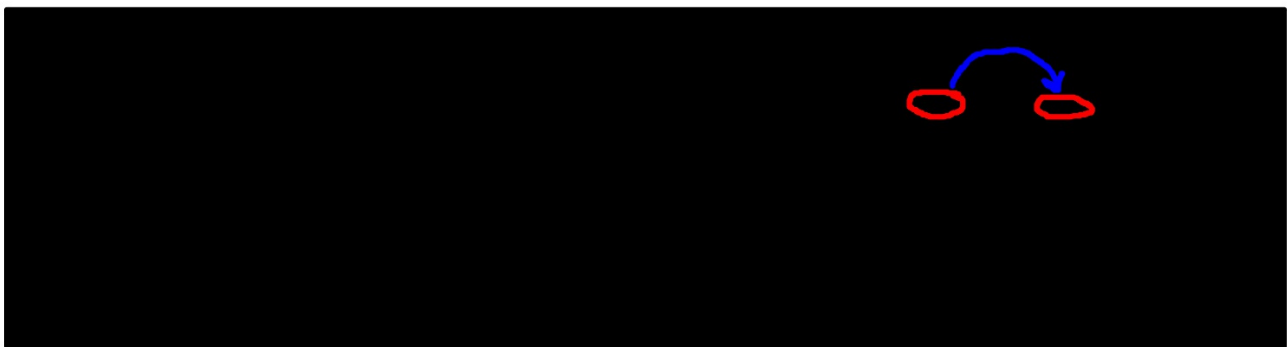
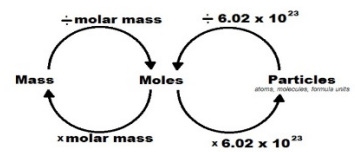
If John has 1.4 grams of Calcium Oxide how many moles of Calcium Oxide does he have?



Steve had 2.0×10^{24} molecules of Magnesium chlorite how many grams of Magnesium Chlorite does he have?



If Luke had 10 grams of Aluminum Phosphate, how many moles does he have?



Formula of a Hydrate

Introduction

A hydrate is a compound that has water molecules "trapped" in the structure of the crystal. The water molecules are not bonded to the main structure; rather they are surrounded by it. By changing the structure of the main molecule, the water molecules can be released. An easy way to accomplish this is to heat the hydrated (water-containing) compound. After the water is removed, the compound is said to be anhydrous. In this experiment, we will determine how many water molecules are trapped inside each molecule of copper (II) sulfate. Thus, we will determine the formula of hydrated copper (II) sulfate.

From the last lab, we know that when copper and sulfate combine, it forms the formula CuSO_4 . The 1:1 ratio of copper ions to sulfate ions is due to the relative charge of each ion. In this lab, we want to find the ratio of CuSO_4 to water, so we may complete the formula of the hydrate: $\text{CuSO}_4 \cdot ? \text{H}_2\text{O}$. In order to find the ratio of how many copper (II) sulfates to how many water molecules, we must use the concept of the mole. If we can find the moles of CuSO_4 , and the moles of H_2O , we can find the simplest, whole number ratio between the two. This will provide the coefficient to fill in the ? in the formula of the hydrate.

Crucible data table

mass of empty crucible	
mass of crucible and $\text{CuSO}_4 \cdot \text{? H}_2\text{O}$	
mass after 1st heating	
mass after 2nd heating	
mass after 3rd heating, if needed	
mass after final heating	

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