Counting by Measuring Mass
Molar Mass Lab

Purpose: To determine the mass of several samples of chemical compounds and use the data to count atoms

Materials: H20(l) NaCl(s) CaCO3(s) plastic spoon
Watch glass small beaker balance paper
Pencil ruler weighing paper

Procedure: Measure the mass of one level teaspoon of sodium chloride, water, and calcium carbonate. Place your results in the table.

Analyze: Use your data to complete the following steps. Record your answers in the data table.

1. **Calculate the moles of NaCl contained in one level teaspoon. Use the periodic table to determine the molar mass of sodium chloride.**

2. **Repeat Step 1 for the other two compounds. Use the periodic table to calculate the molar mass of water and calcium carbonate.**

3. **Calculate the number of moles of each element present in a teaspoon sized sample of H2O. Use dimensional analysis. Repeat for the other two compounds.**

4. **Calculate the number of atoms of each element present in the teaspoon sized sample of H2O. Use Avogadro's number. Repeat for the other compounds in your table.**

5. **Which of the three teaspoon sized samples contains the greatest number of moles?_____**

6. **Which of the three compounds contains the most atoms?_____**

DATA TABLE:

	H2O(l)	NaCl(s)	CaCO3(s)
Mass(grams)			
Molar Mass(g/mol)			
Moles of each compound			
Moles of each element			
Atoms of each element			

All Calculations(show below):