

## Moles Activity

- 1) Fill the paper cup at your lab station about  $\frac{3}{4}$ ths full of tap water and carefully weigh and record the mass of the cup. WEIGHT1 = \_\_\_\_\_ Take a swallow of water from the cup and reweigh and record the mass of the remaining water. WEIGHT2 = \_\_\_\_\_
  - a. How many grams of water did you drink from the cup?
  - b. How many water molecules did you drink?
  
- 2) Weigh and record the mass of a package of alka seltzer. WEIGHT1 = \_\_\_\_\_ Then open the package of alka seltzer and drop the tablets into the water from activity 1 above. Reweigh and record the mass of the empty package of alka seltzer. WEIGHT2 = \_\_\_\_\_ Stir the reaction periodically. When all of the alka seltzer is reacted and there is no more gas being formed – reweigh the cup of water. WEIGHT3 = \_\_\_\_\_
  - a. How much did the alka seltzer tablets weigh?
  - b. How much should the alka seltzer plus the water weigh?
  - c. How much gas in grams escaped as the tablets dissolved?
  - d. How many moles of gas escaped if the gas was Carbon Dioxide ( $\text{CO}_2$ )?
  - e. How many molecules of gas escaped?
  
- 3) Weigh and record the mass of a packet of sugar on the balance. WEIGHT1= \_\_\_\_\_ Carefully open the packet of sugar and empty the contents into a beaker. Reweigh and record the mass of the empty packet. WEIGHT2 = \_\_\_\_\_
  - a. What mass of sugar was in you packet?
  - b. The formula for table sugar is  $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ . How many molecules of sugar were in your package of sugar?
  
- 4) If you have  $6.02 \times 10^{23}$  dollars. If you spend this money at the rate of one billion ( $1 \times 10^9$ ) dollars per second, how long in years, will it last?
  
- 5) How much money, in dollars, would each person in the United States have if  $6.02 \times 10^{23}$  pennies are divided among them? (250 million people)