Three Fundamental Chemical Laws Worksheet

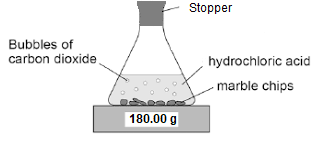
Law of Conservation of Mass

1. When carbon burns it combines with oxygen to form carbon dioxide. The diagram shows some carbon atoms reacting with some oxygen molecules.

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* 1. Finish the diagram by drawing the correct number of carbon dioxide molecules. One has been done for you already.
  2. Write “reactants” and “products” under the correct sides of the diagram.
  3. 12 grams of carbon reacted with 32 grams of oxygen. What mass of carbon dioxide was formed?   
       
      Circle the correct answer: 12 g 24 g 32 g 44 g 61 g

1. This diagram below shows the reaction between marble chips and acid.

 Calcium + hydrochloric 🡪 calcium + carbon + water  
 carbonate acid chloride dioxide

* 1. Is carbon dioxide a solid, a liquid, or a gas? \_\_\_\_\_\_\_\_\_\_\_\_\_
  2. What would you expect the balance to read when the reaction is finished?   
       
      Circle the correct answer. 179 g 180 g 181 g

**180 g**

* 1. Explain your answer to part b.

1. Magnesium metal is placed in sulfuric acid inside a beaker. A chemical reaction occurs and the solution begins to bubble. The remaining liquid is a solution. The mass of the chemicals before the reaction was 10 grams, and the mass of the chemicals after the chemical reaction was 7 grams.   
   1. Was this an open or closed system? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. After the chemical reaction the mass was less. What happened to the missing mass? Was the law of conservation of mass broken? Explain.

Law of Definite Proportions

1. Carbon dioxide has a ratio of 12 g C : 32 g O. Which of these experiments below produced carbon dioxide? Provide mathematical evidence to back up your answer.   
    *Experiment #1: 30 g C and 88 g O Experiment #2: 36 g C and 90 g O Experiment #3: 36g C and 96*

Law of Multiple Proportions

1. Circle all that demonstrate the law of multiple proportions. For the ones that are NOT demonstrating this law, explain why.   
     
   MgO H2SO4 LiO0.5 C6H12O6  
   MgS H2SO3 Li2O C2H6O