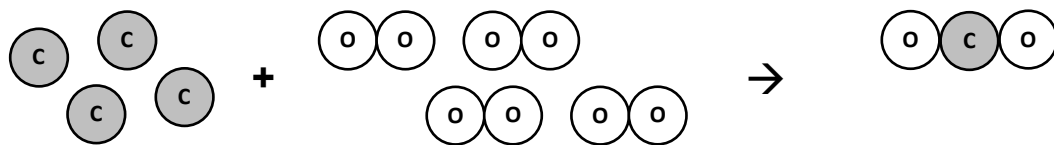


# Three Fundamental Chemical Laws Worksheet

## Law of Conservation of Mass

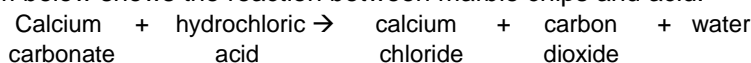
1. When carbon burns it combines with oxygen to form carbon dioxide. The diagram shows some carbon atoms reacting with some oxygen molecules.



- Finish the diagram by drawing the correct number of carbon dioxide molecules. One has been done for you already.
- Write "reactants" and "products" under the correct sides of the diagram.
- 12 grams of carbon reacted with 32 grams of oxygen. What mass of carbon dioxide was formed?

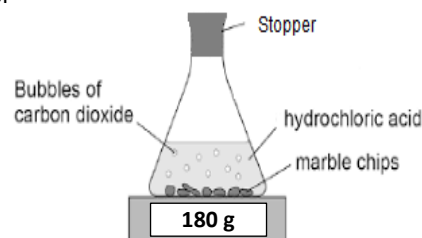
Circle the correct answer:      12 g      24 g      32 g      44 g      61 g

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



- Is carbon dioxide a solid, a liquid, or a gas? \_\_\_\_\_
- What would you expect the balance to read when the reaction is finished?

Circle the correct answer. 179 g    180 g    181 g



- Explain your answer to part b.

3. 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.

- Was this an open or closed system? \_\_\_\_\_
- 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

4. 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

5. Circle all that demonstrate the law of multiple proportions. For the ones that are NOT demonstrating this law, explain why.

MgO                  H<sub>2</sub>SO<sub>4</sub>                  LiO<sub>0.5</sub>                  C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>  
MgS                  H<sub>2</sub>SO<sub>3</sub>                  Li<sub>2</sub>O                  C<sub>2</sub>H<sub>6</sub>O