

Science Notebook Layout **DON'T COPY UNDERLINED TEXT**

Mrs. Aguirre's Webpage: <http://www.quia.com/profiles/caguirre>

Conservation of Mass

1. Mass of the baking soda	
2. 25 mL vinegar. mass	
3. total starting mass.	
4. observations.	
5. ending mass.	
6. mass difference	

Stop and think

a. Does this experiment agree with the law of conservation of mass? Look at the data that you just recorded. Use it to help you to explain why or why not.

b. Explain why you observed a difference in mass. Where did the missing mass go? Did it really disappear?

Data: (Observations: include temperature, smell, states of matter, visual observations)

Observations of reactants: Vinegar: Temp.: _____ pH.: _____ Other observations: _____ _____ Baking soda observations _____ _____	Observations during mixing: _____ _____ _____ _____	Observations of products: Temp.: _____ pH.: _____ Other observations: _____ _____ _____
--	---	---

c. Modeling the reaction

Scientists write chemical reactions like mathematical formulas. The reactions are on the left of the arrow and the products are on the right of the arrow. Look on page 203-204. Find the reactants and the products of this reaction

The Law of Conservation of Matter

1. What is meant by "conservation of mass?" (pg. 205 middle paragraph) The mass of the _____ equals the mass of the _____ because they are the same _____. They have just been rearranged into new _____.



A. Did you lose anything?

First Piles			Second Piles		
	Number of coins	Cash Value		Number of coins	Cash Value
Pennies			Stack 1		
Nickels			Stack 2		
Dimes			Stack 3		
Quarters			Stack 4		
TOTAL			TOTAL		

2. Did the total value of the coins change? _____
 Did the total number of the coins change? _____
 Did rearranging the coins change any one coin's value? _____
3. Do the kinds of atoms (elements) change in a chemical reaction? _____
 Did the total number of the atoms change in a chemical reaction? _____
 Does rearranging the atoms in a reaction change any individual atom? _____
4. If this was a model for a chemical change, what does each represent:
 - a. One coin _____
 - b. FIRST Groups of coins. _____
 - c. Rearranging of coins _____
 - d. SECOND piles of coins. _____
5. Which are conserved? Check those NOT changed in chemical reactions.
 atoms elements compounds molecules mass
6. Explain how the model of rearranging of coins shows the conservation of matter.

How does the model or rearranging the coins show conservation of matter?

- A. I agree with you and...
- B. I agree with you but...
- C. I disagree with you because....

Chemical Reactions

Reactants 203	↓	Products 204																				
<p>1. <u>Draw reactants and products of the vinegar and baking soda reaction using the pages above. Count the total number of atoms for the reactants and products and fill in the chart at the bottom of each side.</u></p> <p>2.</p> <p>3.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Atom</th> <th>No.</th> </tr> </thead> <tbody> <tr><td>Na</td><td></td></tr> <tr><td>C</td><td></td></tr> <tr><td>O</td><td></td></tr> <tr><td>H</td><td></td></tr> </tbody> </table>	Atom	No.	Na		C		O		H		↓	<p>1.</p> <p>2.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Atom</th> <th>No.</th> </tr> </thead> <tbody> <tr><td>Na</td><td></td></tr> <tr><td>C</td><td></td></tr> <tr><td>O</td><td></td></tr> <tr><td>H</td><td></td></tr> </tbody> </table>	Atom	No.	Na		C		O		H	
Atom	No.																					
Na																						
C																						
O																						
H																						
Atom	No.																					
Na																						
C																						
O																						
H																						

b. How do the numbers of atoms of each element compare on the reactant and product side of the equation? What does this imply for the law of conservation of mass?

c. What phase are each of the reactants (solid, liquid, or gas)?
What phase are each of the three products (solid, liquid, or gas)?

d. Suggest a way to do the experiment that could better demonstrate conservation of mass.