

## Chapter 6, Lesson 2 Activity Sheet Answers

1. When vinegar is added to baking soda, gas is produced. This is evidence of a chemical change because the gas is a new substance.
2. In the reaction between vinegar and baking soda, the reactants are vinegar (acetic acid) and baking soda (sodium bicarbonate).  
The products are sodium acetate, water, and carbon dioxide gas.

$C_2H_4O_2 + NaHCO_3 \rightarrow NaC_2H_3O_2 + H_2O + CO_2$		
Atom	Reactant Side	Product Side
Carbon	3	3
Hydrogen	5	5
Oxygen	5	5
Sodium	1	1

3. The statement “Mass is conserved in a chemical reaction” means that the same type and number of atoms are in the products of the reaction as are in the reactants. No atoms are created or destroyed.
4. Reducing the amount of vinegar will reduce the amount of carbon dioxide produced because there will be fewer molecules of acetic acid to react with the baking soda and produce the carbon dioxide. Reducing the amount of baking soda will reduce the amount of carbon dioxide gas produced because there will be fewer molecules of sodium bicarbonate to react with the acetic acid and produce the carbon dioxide gas.
5. To make more carbon dioxide, you could add either more acetic acid or more sodium bicarbonate or more of both.
6. To produce more carbon dioxide you could add more baking soda but there is a limit. Eventually, all the acetic acid molecules will have already reacted and no more carbon dioxide will be produced.
7. Placing an Alka-Seltzer tablet in water causes a chemical reaction because a gas is produced. The sodium bicarbonate reacts with the citric acid instead of acetic acid (vinegar) and produces carbon dioxide gas.