

Changes in Matter - Sum of the Parts

A chemical reaction occurs when new kinds of matter are formed. The composition of the matter changes, and the new kinds of matter have different properties from the old matter. The mass remains the same before the reaction and after. A chemical reaction takes place when vinegar and baking soda are mixed. One new substance formed is carbon dioxide. If the carbon dioxide is contained, the mass of the substances will stay the same according to the law of conservation of mass/matter. If the gas is allowed to escape, the mass will be less.

Object	Mass
Balloon	
3 Tbsp. Baking Soda & Water bottle	
Graduated cylinder	
Graduated cylinder and 20 ml Vinegar	
20 ml Vinegar	
Water Bottle + Baking Soda + 20 ml Vinegar + Balloon	

Use the funnel to pour the vinegar into the balloon. Carefully stretch the opening of the balloon over the opening of the water bottle. DO NOT allow the vinegar to pour out of the balloon.

What will happen when the vinegar and baking soda mix?

Record your observations.

Measure the mass of the project now (water bottle, baking soda, vinegar, and balloon).

Pull the balloon off the bottle and allow the carbon dioxide to escape. Place the balloon back on the bottle and measure it again. Is there a difference in mass?

