

Determine how much sodium carbonate and how much vinegar (5% acetic acid) you will react in the balloon to create the greatest volume of carbon dioxide. Acetic acid ( $\text{CH}_3\text{COOH}$ ) reacts with sodium carbonate to produce sodium acetate, water, and carbon dioxide. You may only use 75¢ worth of materials. Sodium carbonate costs 10¢/g while vinegar costs 1¢/mL. Vinegar is 0.83 M (0.83 mole acetic acid per 1000 mL vinegar). The density of vinegar is 1.05 g/mL. You must determine the amount of each material you will use before you enter the lab. Be prepared to present your solution to the entire class along with the cost of each of your materials.