

# Evaluation & Enhancement Worksheet

## Answers

### How accurate was your prediction?

You've done the experiments, observed the reaction, and collected the data. But did you predict the correct amount of carbon dioxide? If conservation of mass holds true, then the mass of your system after the reaction is complete and should equal the sum of the masses of your reactants, your balloon and your bottle. Use the following equations to determine the error in your experiment.

$$\% \text{ Error} = \frac{|m_{\text{calculated}} - m_{\text{exp}}|}{m_{\text{calculated}}}$$

$$m_{\text{total}} = m_{\text{Baking Soda}} + m_{\text{Vinegar}} + m_{\text{Bottle}} + m_{\text{Balloon}}$$

### How can you improve?

1. What caused the error in your measurements?

**When the reaction begins, gas escapes as soon as the vinegar and baking soda react until the balloon is secured on the bottle neck.**

2. How can you modify the reactor and experimental setup to minimize these deviations from your calculated values?

**Students' answers should focus on ways to solve the gas escape problem.**