

Model Reaction

How can the coefficients in a chemical equation be interpreted?

Why?

A balanced chemical equation can tell us the number of reactant and product particles (atoms, molecules, or formula units) that are necessary to conserve mass during a chemical reaction. Typically, when we balance the chemical equation we think in terms of individual particles. However, it can be the reaction represented by an equation occurs on a macroscopic number of atoms. When all writing very large numbers (10²³ or larger) in front of each chemical in the equation, how can we interpret balanced equations, whether they mean individually, represent what is happening on a molar level? In the activity you will explore the different ways a chemical reaction can be interpreted.

Model 1 – A Chemical Reaction



1. Consider the reaction in Model 1.
 - a. What are the coefficients for each of the following substances in the reaction?



- b. How particles would follow or illustrate the reaction in Model 1.

2. Consider each reaction below as a version of the reaction in Model 1.
 - a. Calculate the masses of reactants consumed and products made.
 - b. Record the ratio of H₂ to O₂ to H₂O. Relate the ratios to the mass ratio number-particle.

	H ₂ Consumed	O ₂ Consumed	H ₂ O Produced	Ratio: H ₂ : O ₂ : H ₂ O (particle)
For a single reaction, how many particles of each substance would be consumed or produced?				
If the reaction occurred on a large scale (mass), how many molecules would be consumed or produced?				
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