

Unit: Chapter 6- Atomic and Molecular Structure

Lesson: Chemical Reactions: PhET Simulation-Reactions and Rates

Learning Objectives:

1. Students will understand that matter is made of parts which can be broken down or combined in set proportions.
2. Students will understand that when two or more elements are combined a compound is formed which is made up of molecules

Essential Questions:

1. What happens to atoms and molecules during a chemical reaction?

Guided Inquiry Strategies Used:

This lesson connects and builds on student's prior knowledge and understanding of set ratios and chemical reactions as seen in Lab. 6.4: The Synthesis of Zinc Chloride, IPS. In addition, this lesson requires reasoning and sense making in words and diagrams.

Performance Assessment:

Students will show their understanding by creating an atomic model for a simple chemical reaction from a given chemical equation.

Learning Activity:

(Connection to Lab 6.4: Synthesis of Zinc Chloride) Ask students the question, "Why did some lab groups have zinc left over when other lab groups didn't?"

Have a brief group discussion about compounds forming in set proportions.

Using the PhET website: Reactions and Rates Simulation (Rate Experiments Tab) have students come up with an explanation why compounds form in set proportions. Let students explore and come up with ideas of what is happening on the simulation. (10 minutes)

Have students explore the relationship between number of reactants to products by setting parameters on the simulation. Students will change the amounts of reactants to see what happens.