



## 7th Grade: Reacting to You

**Course description:** There are 5 different chemical reactions—combination, decomposition, single-replacement, double-replacement, and combustion. Students will learn all about four of these chemical reactions and how they occur. Students will have an interactive booklet to write down all their observations and collect data over the course of this unit. By the end of this unit, students will be chemical experts.

**Day 1:** A combination reaction is a reaction in which two reactants combine to form one product. Students will create and observe their own reactions to understand how they form a combination. We will write down the chemical equation on the board for students to visualize what is happening during their reaction.

**Demonstration:** It's slime time! Students will be making slime to demonstrate a combination reaction. We will combine different types of slime using varying materials we provide to observe how changing the combined reactants will alter the product of the reaction. At the end of this lesson, students will be dropping an egg in vinegar to prep for their lesson the next day on decomposition. Students will record observations on their egg and vinegar and predict what they think will happen (we will give them some hints of-course).

**Day 2:** A decomposition reaction occurs when one reactant breaks down into two or more products. Students will be observing and conducting their own decomposition reactions to understand how matter is broken down during this process.

**Demonstration:** When students arrive to their classroom for the day, they will be greeted with their eggs that have experienced a decomposition reaction. Students will take down observations about their eggs using all five senses. We will discuss what happened and whether the predictions students made were accurate. We will show students different insects that decompose organic matter and compare this to the reactions they conduct. Students will explore another decomposition reaction by adding acetone to Styrofoam watching the Styrofoam crumbling in front of their very eyes. We will discuss how matter can neither be created nor destroyed in all these reactions.

**Day 3:** A single replacement reaction, sometimes called a single displacement reaction, is a reaction in which one element is substituted for another element in a compound. Students will conduct a single replacement reaction that they will record data on and make observations. Prior to the experiment we will ask students to predict what they think will happen when conducting this experiment. After the experiment, students will record their findings and discuss the reaction as a class.

**Demonstration:** This demonstration will have students placing iron into a copper nitrate solution. Students will observe the different states of matter that each of these substances are in and incorporate this into their observations prior to the experiment. This reaction is an example of a single-replacement reaction. This lesson will help students further build on their understandings of chemical reactions and making observations.



A combustion reaction is a reaction between substances, usually including oxygen and usually accompanied by the generation of heat and light in the form of flame. Students will discuss the difference between exothermic and endothermic reactions and learn that a combustion reaction is exothermic.

*Demonstration:* Firenado! Sugar/carbon snake demo. Our educators will venture outside with students to create a giant fire tornado that will excite students to learn about combustion reactions. We will have students take out their booklets out with them to write down their observations. Students will then create a carbon snake to observe a combustion reaction in close range. We will bring in a snake for students to observe and further explore the concepts of exothermic and endothermic reactions by discussing how snakes are ectotherms.