



Chemistry: Teacher Tips & Helpful Hints

N.C.S.S: 8.P.1 Understand the properties of matter and changes that occur when matter interacts in an open and closed container.

- The Student Activity Pack is broken up into three different activities:
 - **Activity 1: Physical and Chemical Changes** (8.P.1.3)
 - **Activity 2: Reaction Rates** (8.P.1.3)
 - **Activity 3: Chemical Bond** (8.P.1.2, 8.P.1.4)

Activity 1: Physical and Chemical Change

- Students will need water, vegetable oil, clear soda, and vinegar.
- Students should rinse out the graduated medicine cup between liquids.
- The chemical reactions can take a couple of days to be seen.
- Vegetable oil and steel wool does not create a chemical change.
- **Part 3** is an endothermic reaction.
- There is a *Physical and Chemical Change: Student Activity Sheet* available.

Activity 2: Reaction Rates

- Part 1: Exploration can be used as a comparison to the steel wool activity to show different reaction rates of different substances.
- This focuses on reaction rates being changed by temperature. This can be used in conjunction with the concept that as energy is added to a substance the atoms or molecules move faster.
- There is a *Reaction Rates: Student Activity Sheet* available.

Activity 3: Chemical Bonds

- Students will have 15 element cards.
- Some sample compounds students could create are:
 - HCl, CaO, HgO, NaBr, NaCl, CaCl₂, CaCO₃, NaOH, NaHCO₃
- **Part 2** focuses on the Law of Conservation of Matter. Each element card represents an atom of that element. Students will use the same cards to create both reactants and products.
- There is a *Chemical Bonds: Student Activity Sheet* available.

N.C.S.S Clarifying Objectives

- 8.P.1.2 Explain how the physical properties of elements and their reactivity have been used to produce the current model of the Periodic Table of elements.
- 8.P.1.3 Compare physical changes such as size, shape, and state to chemical changes that are the result of a chemical reaction to include changes in temperature, color, the formation of a gas or precipitate.
- 8.P.1.4 Explain how the idea of atoms and a balanced chemical equation support the law of conservation of mass.