Chemistry: Teacher Tips & Helpful Hints

N.C.S.S: PS.8.1 Understand the properties of matter and changes that occur when matter interacts in open and closed systems.

- The Student Activity Pack is broken up into three different activities:
  - **Activity 1: Physical and Chemical Changes** (PS.8.1.4)
  - **Activity 2: Build An Atom** (PS.8.1.2)
  - **Activity 3: Chemical Bond** (PS.8.1.1, PS.8.1.5)

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.
- There is a ***Physical and Chemical Change: Google Slide Deck*** available.

Activity 2: Build An Atom

- The materials needed for this lesson are located in the teacher bag.
- Teachers will want to prep the mystery atom bags for students to work on.
- There is a ***Build An Atom: Student Activity Sheet*** available.
- There is a ***Build An Atom: Google Slide Deck*** available.

Activity 3: Chemical Bonds

- Students will have 15 element cards.
- Some sample compounds students could create are:
  - HCl, CaO, HgO, NaBr, NaCl, $CaCl_2$, $CaCO_3$, NaOH, $NaHCO_3$
- **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.
- There is a ***Chemical Bonds: Google Slide Deck*** available

N.C.S.S Clarifying Objectives

- PS.8.1.1 Construct an explanation to classify matter as elements, compounds, or mixtures based on how the atoms are arranged in various substances.
- PS.8.1.2 Use models to illustrate the structure of atoms in terms of the protons, electrons, and neutrons (using the location, charges and comparative size of these subatomic particles), without consideration of isotopes, ions, and energy levels.

- PS.8.1.4 Construct an explanation to classify changes in matter as physical changes (including changes in size, shape, and state) or chemical changes that are the result of a chemical reaction (including changes in energy, color, formation of a gas or precipitate).
- PS.8.1.5 Use models to illustrate how atoms are rearranged during a chemical reaction so that balanced chemical equations support the Law of Conservation of Mass (in both open and closed systems).