**Chapter 4: Chemical Reactions**

**8th Grade**

**Text Book Chapters:** Chapter 4: Chemical Reaction Pg.130

**Sections:**

1. Atoms, Bonding, and the Periodic Table 2. Ionic Bonds 3. Covalent Bonds

4. Observing Chemical Change 5. Describing Chemical Reactions

**State Standards:**

**8.1.7** Explain that chemical changes occur when substances react and form different products.

**8.1.8** Demonstrate that in a chemical change, the total numbers of each kind of atom in the product are the same as in the reactants and that the total mass of the reacting system is conserved.

**8.4.1** Understand how the strength of forces between particles helps explain physical properties.

**8.4.2** Rank the strength of attractions between particles

**8.4.3** Investigate the properties of natural materials

**8.NS.1** Make Predictions

**8.NS.2** Plan and carry out investigations

**8.NS.3** Collect quantitative data

**8.NS.4** Incorporate variables

**8.NS.5** Use the principles of accuracy and precision

**8.NS.6** Test predictions with multiple trials

**8.NS.7** Keep accurate records

**8.NS.8** Analyze data

**8.NS.9** Evaluate possible causes for differing results

**8.NS.10** Compare results with prediction

**8.NS.11** Communicate findings

**8.DP.1** Identify a need or problem to be solved

**Objectives:**

* Explain what determines an element’s chemistry (Section 1)
* Explain how ions form (Section 2)
* Explain how the formulas and names of ionic compounds are written (Section 2)
* Identify properties of ionic compounds (Section 2)
* Describe how atoms are held together in a covalent bond (Section 3)
* Identify properties of molecular compounds (Section 3)
* Explain how bonded atoms become partially charged (Section 3)
* Explain how changes in matter can be described (Section 4)
* Identify ways to tell that a chemical reaction has occurred (Section 4)
* Identify the information included in a chemical equation (Section 5)
* Explain how mass is conserved during a chemical reaction (Section 5)
* Identify three categories of chemical reactions (Section 5).

**Learning Activities**

1. Introduction to Chemical Reactions/Lecture
2. ISTEP Prep
3. Periodic Table Basics
4. Element Chemistry (Quick Lab)
5. How do Ions Form? (Inquiry Warm-up)
6. Bonding with a classmate
7. How Do You Write Ionic Names and Formulas (Quick Lab)
8. Teacher Demo: Ionic Compound
9. Covalent Bonds (Inquiry Warm-Up)
10. Sharing Electrons (Quick Lab)
11. Attraction between polar molecules (Quick Lab)
12. What Happens when Chemicals react (Inquiry Warm-Up)
13. Observing Change (Quick Lab)
14. Did You Lose Anything (Inquiry warm-up)
15. Information in a chemical equation (Quick Lab)
16. Is matter conserved? (Quick Lab)
17. Chapter 4 Summative Assessment