**ACP - Unit 2 – Chemical Reactions and Quantities – Learning Objectives**

**Unit Essential Questions**

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| * What do we call the tiny particles? * How do we count up the tiny particles in the stuff? * What happens to the tiny particles when stuff becomes other stuff? |

**Unit Spirals**

Compounds used in spiral over the unit to teach the essential questions.

H2O NH3 CH4 NaCl

Reactions used in spiral over the unit to teach the essential questions.

Candle Lab Reaction

C25H52(s) + 38 O2 (g)  26 H2O (g) + 25 CO2 (g)

Crystal Lab Reaction

KAl(SO4)212H2O (s)  K+ (aq) + Al3+ (aq) + SO42- (aq) + 12 H2O (l)

**Part 2**

Chapter 6 – Chemical Quantities

* You will be able to calculate and explain the concept of average atomic mass.
* You will understand the concept of the chemical quantity “the mole”.
* You will be able to relate and convert chemical quantities from the mole to the mass in grams and to the number of particles using single step and two step problems.
* You will understand and be able to explain the concept of percent composition.
* You will be able to use percent composition as a conversion factor to relate the quantity of atoms in a compound.
* You will understand the difference between an empirical and molecular formula.
* You will be able to calculate the empirical formula from given data and or the percent composition of elements in a compound.

Chapter 9 – Stoichiometry

* You will be able to relate the amount of each reactant and product in a chemical equation to each other.
* You will be able to perform mole-to-mole, mole to mass and mass-to-mass calculations related to a balanced equation.
* You will understand and be able to explain the concept of limiting reactant, excess reactant, theoretical yield, actual yield and percent yield.
* You will be able to calculate and solve problems for limiting reactant, excess reactant, theoretical yield, actual yield and percent yield.