Chemistry 090
Unit 6 – Outcomes

The student will be able to:

1) Given any one of the following for a substance whose formula is known, calculate the other two:
- **a)** mass
- **b)** number of moles
- **c)** number of formula units

2) Define the term percentage.

3) Calculate the percentage composition of any compound whose formula is known or given.

4) Calculate the percentage composition of a compound, given its formula, or laboratory data indicating the number of grams of each element which reacted to form the compound.

5) For any compound whose formula is known, given the mass of the sample, calculate the mass of any element in the sample.

6) For any compound whose formula is known, given the mass of any element in the sample, calculate the mass of the sample or of any other element in the sample.

7) Define the term "empirical formula."

8) Calculate the empirical formula of a compound given its percentage composition, or the number of grams of each element in its composition.

9) Convert fractional ratios of moles obtained in an empirical formula problem to whole numbers by multiplying by an appropriate factor.

10) Define the terms and symbols connected with chemical equations:

Reactant	"→"	(s)
Product	"+"	(l)
"Coefficient"	(aq)	(g)

11) Locate or identify the reactants and products in a given chemical equation.

12) Translate an English sentence into a chemical equation and vice versa.

13) Differentiate balanced and unbalanced chemical equations.

14) Calculate the total number of atoms of an element in a reactant or product, given its chemical formula and coefficient in a chemical equation.

15) Given an unbalanced chemical equation, balance it by inspection.

16) Identify the following types of reactions:

Combination	Oxidation – Reduction (Single Replacement)
Decomposition	Complete Oxidation or Burning (Organic Compounds)
Precipitation (Double Replacement)	Neutralization (Double Replacement)