

Lecture 11B: Balancing Equations

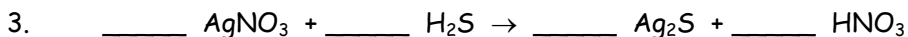
**** Remember ****

The atoms in a chemical reaction are neither created nor destroyed; they are just rearranged.
Therefore, **YOU MUST ACCOUNT FOR ALL ATOMS!**

Balancing equations is done by trial and error. However these rules might help:

1. Count the number of atoms of each element in the reactants and products.
 - It might be easier to keep polyatomic ions as a single unit when balancing.
 - ALWAYS write water as **H(OH)**.
2. Use coefficients in front of the formulas to balance equations.
NEVER change the subscripts!!
 - If no coefficient is written, it is assumed to be 1.
 - Begin by balancing the elements that only appear once on each side.
(usually the metal elements)
 - Save oxygen for next to last.
 - Save hydrogen for last.
3. Double check to make sure each atom is balanced.
4. Check to see if the coefficients are in the lowest ratio.

Examples: Rewrite each equation as a balanced equation





Balancing Equations - Reactant and Product Trees used for Counting Atoms:

1.

Reactants	Products

2.

Reactants	Products

3.

Reactants	Products

4.

Reactants	Products

5.

Reactants	Products