Balancing Chemical Equations – Tips & Tricks

1. Remember, when trying to balance equations, you can only change the value of the coefficient in front of the compound or element, <u>not</u> the subscripts. **coefficient** → **3H**₂**0 t subscript**

2. Balance polyatomic ions as a whole. Eg: SO4 should be balanced instead of balancing Sulfur and Oxygen separately.

3. Balance the element, other than hydrogen and oxygen, that has the greatest number of atoms in any reactant or product.

4. Balance other elements, other than hydrogen and oxygen.

5. Balance oxygen or hydrogen, whichever one is present in the combined state. Leave until last whichever one is present in the uncombined state.

6. Check that the equation is balanced by counting the number of atoms of each element on each side of the equation.

7. When the equation is balanced, the coefficients should be in their <u>lowest</u> terms. For example, the balanced equation for the reaction between hydrogen and oxygen is:

<u>2</u>H₂ + O₂ ---> <u>2</u>H₂O <u>NOT</u> <u>4</u>H₂ + <u>2</u>O₂ ---> <u>4</u>H₂O

Eg: Write a balanced chemical equation for the following reactions.

1. ____NaCl + ____BeF₂ \rightarrow ____NaF + ____BeCl₂ 2. ____FeCl₃ + ____Be₃(PO₄)₂ \rightarrow ____BeCl₂ + ____FePO₄ 3. ____AgNO₃ + ____LiOH \rightarrow ____AgOH + ____LiNO₃ 4. ___CH₄ + ___O₂ \rightarrow ___CO₂ + ____H₂O 5. ____Mg + ____Mn₂O₃ \rightarrow ____MgO + ____Mn