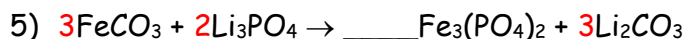
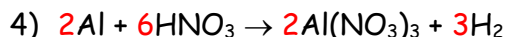
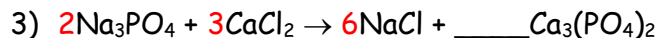
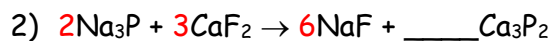
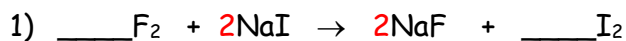


Balancing Chemical Equations

- We balance equations with coefficients to following the Law of Conservation of Mass.
- Remember that you choose an element on left side of the equation. Ask yourself, "How many of that element are on the right side of the equation." Then use a coefficient to "balance" them to be the same number.
- You might have to use the least common multiple.
- Keep polyatomic ions together as a unit. For example, "How many phosphates do I have on the left side? How many phosphates do I have on the right side?"



Identifying, Writing, & Balancing Chemical Reactions

Step 1: Write the formulas for the reactants.

Step 2: Identify the type of reaction.

- Synthesis: $A + B \rightarrow AB$
- Decomposition: $AB \rightarrow A + B$
- Single Replacement: $A + BC \rightarrow AC + B$ (always pair cation & anion!)
- Double Replacement: $AB + CD \rightarrow AD + CB$

Step 3: Write the formulas for the reactants.

- ❖ Cross charges where elements are bonded.
- ❖ When an element is alone, check to see if it is diatomic: Br I N Cl H O F
 - If it is, put a subscript of 2

Step 4: Balance the equation.

Reaction type?	Complete the reaction and balance.
1) Synthesis	Sodium + chlorine → $2\text{Na} + \text{Cl}_2 \rightarrow 2\text{NaCl}$
2) Double replacement	Calcium fluoride + iron II hydroxide → $\text{CaF}_2 + \text{Fe}(\text{OH})_2 \rightarrow \text{Ca}(\text{OH})_2 + \text{FeF}_2$ **it's already balanced!
3) Decomposition	Strontium nitride → $\text{Sr}_3\text{N}_2 \rightarrow 3\text{Sr} + \text{N}_2$
4) Single replacement **PreIB: the activity series is not on the SOL Test	Magnesium chloride + potassium → $\text{MgCl}_2 + 2\text{K} \rightarrow 2\text{KCl} + \text{Mg}$