

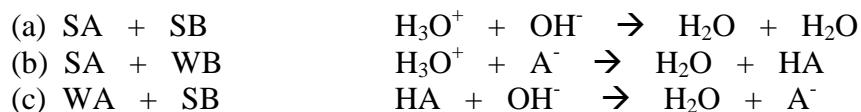
## Protocol for Predicting Simple Acid/Base and PPT Reactions

### I. List Major Species Present in Solution

- Ionic Compounds: write as “**Cation**”, “**Anion**” (these dissociate 100%)
- Molecular Compounds: write as “**Molecules**” (these do not dissociate)
- Strong Acids: write as “**H<sub>3</sub>O<sup>+</sup>**, **A<sup>-</sup>**” (these dissociate 100%)

### II. Look For Acid Base reactions

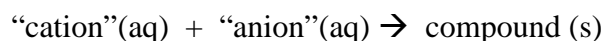
- Label major species as  
**SA (H<sub>3</sub>O<sup>+</sup>)**, **SB (OH<sup>-</sup>)**, **WA**, **WB**, **SI**
- Eliminate SI's (they don't react with acid or base)
- Look for the following combinations: (these all go 100%)



- At least one species must be strong
- Water is always a product (if using H<sub>3</sub>O<sup>+</sup>)
- H<sup>+</sup>** is always transferred from the **Acid** to the **Base**

### III. Look for Precipitation Reactions

- Eliminate ions that are “**Always Soluble**”
- Look for Cation / Anion combinations that are “**Insoluble**”
- Write:



- Must have cation + anion
- Can't use any of the original cation/anion combination

The resulting equations produced from the above reactions will be  
**Net Ionic Equation:**

Only species that are reacting appear in the balanced equation

To get **Complete Ionic Equation:**

- Add spectator ions to **both sides** of the equations
- all species remain written as majors species

To get **Full Molecular Equation:**

Write all species as compounds.