CONCEPT: GAS EVOLUTION EQUATIONS

- A **Gas Evolution Equation** is a molecular equation that involves the creation of specific gases.
  - □ The gases of _____, _____, & _____ are formed once *median products* lose a water molecule.
  - □ **Median Product:** The form a product holds before it fully converts into its final product form.
    - Final Product = Median Product – _____.

Gas-Evolution

Reactant Ions	Median Product	Final Product
$OH^- + NH_4^+$		
$H^+ + HCO_3^-$		
$H^+ + CO_3^{2-}$		
$H^+ + SO_3^{2-}$		
$H^+ + S^{2-}$		

EXAMPLE: Predict whether a chemical reaction occurs and write the balanced molecular equation.

___ Na_2CO_3 (aq) + ___ HBr (aq) ⟶

STEP 1: Break up **Reactant 1** and **Reactant 2** into their ionic forms.

STEP 2: **Swap Ionic Partners** by remembering that opposite charges attract.

- □ Apply the rules for combining ions based on the numerical values of their charges.

STEP 3: Identify the *Median Product* or gas that forms from the gas evolution equation.

- □ Except for hydrogen sulfide, break it up into water and gas.

STEP 4: If necessary, balance your molecular equation by placing the correct coefficients in front of each molecule.

CONCEPT: GAS EVOLUTION EQUATIONS

PRACTICE: Predict the products formed from the following gas evolution equation.

___ CaS (aq) + ___ HNO_3 (aq) ⟶

PRACTICE: Predict the products formed from the following gas evolution equation.

___ NH_4Cl (aq) + ___ $NaOH$ (aq) ⟶

PRACTICE: Predict the products formed from the following gas evolution equation.

___ K_2SO_3 (aq) + ___ H_2SO_4 (aq) ⟶