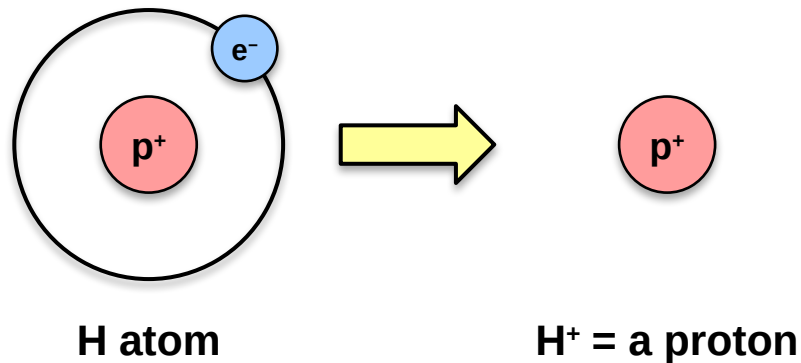


Essential Question

What makes something an acid or a base?

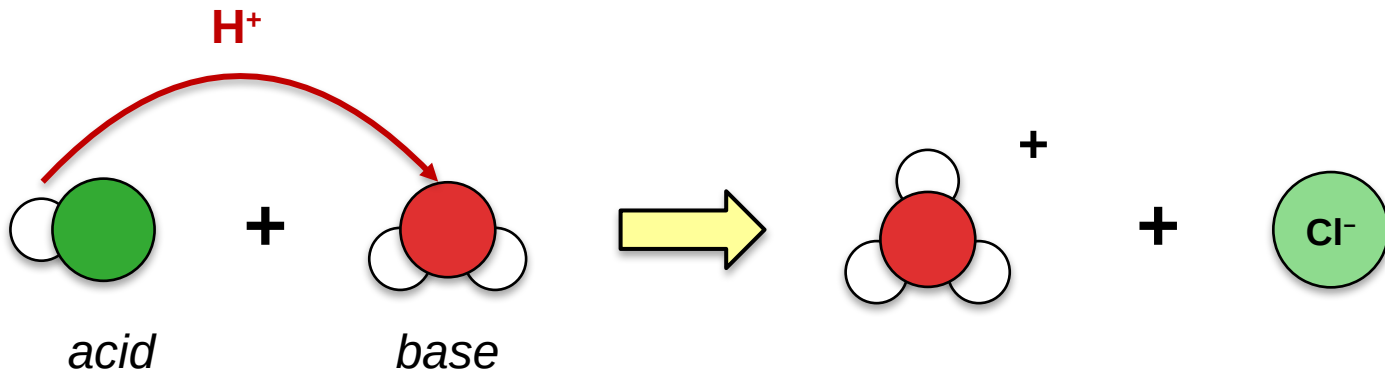
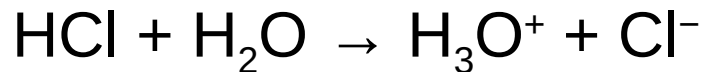
Brønsted-Lowry Acids and Bases

- Acid: proton (H^+) donor
- Base: proton (H^+) acceptor
- H^+ is just a proton



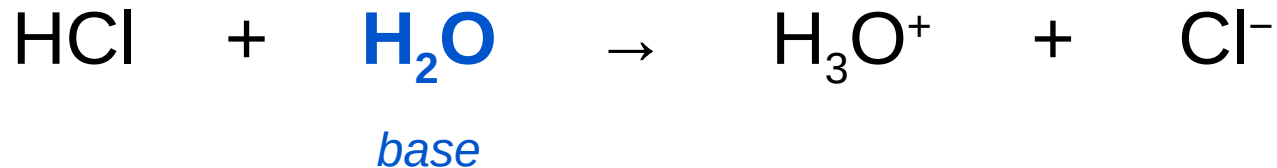
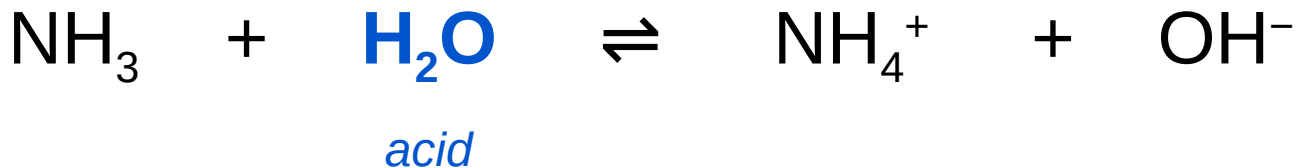
Proton Transfer

- HCl donates H^+ , so it is the acid
- H_2O accepts H^+ , so it is the base



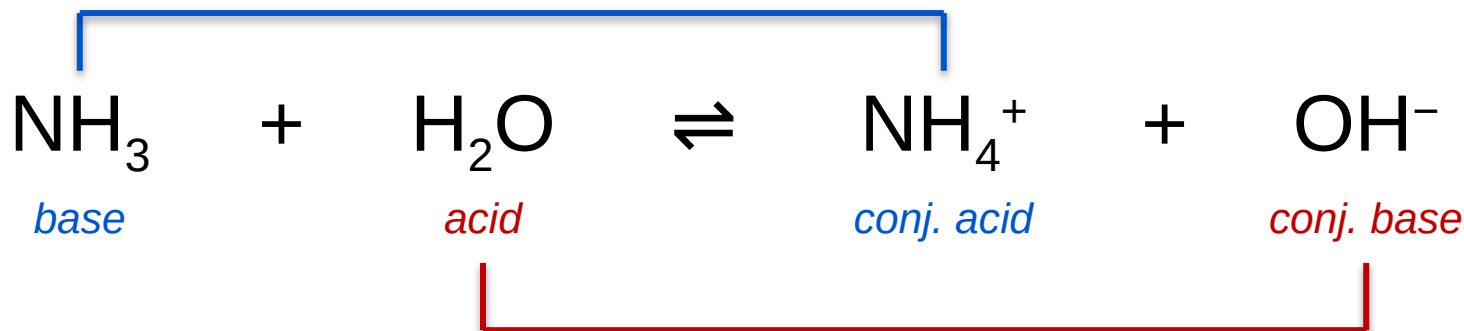
Water Can Act as Either

- Amphoteric: can act as an acid or a base



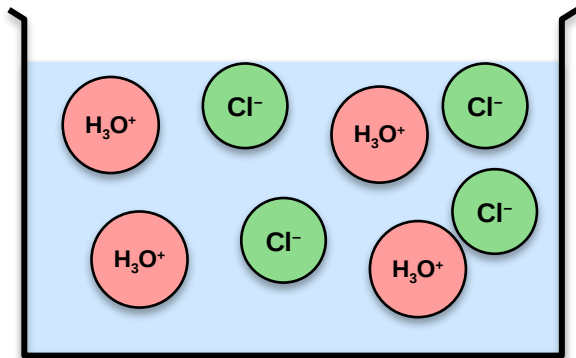
Conjugate Acid-Base Pairs

- Pairs differ by one H^+
- Acid loses H^+ $\rightarrow$ conjugate base
- Base gains H^+ $\rightarrow$ conjugate acid

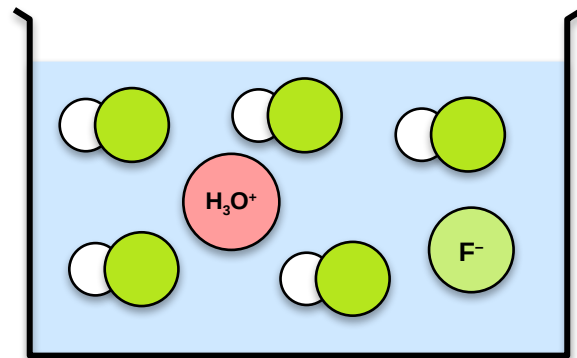


Strong vs. Weak Acids

- Strong acids ionize completely
- Weak acids ionize only a little



HCl: strong

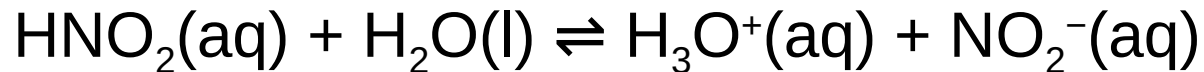


HF: weak

Strong acids: HCl , HBr , HI , HNO_3 , H_2SO_4 , HClO_4

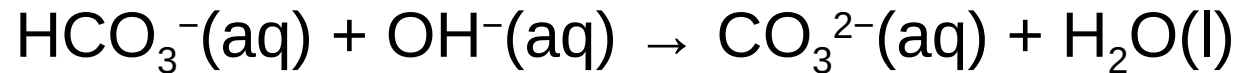
Example: Label the Species

Identify the acid, base, conjugate acid, and conjugate base.



Example: Conjugate Pairs

Identify the two conjugate acid-base pairs.



Example: Write the Formula

Write the formula for each species.

(a) the conjugate base of H_2SO_4

(b) the conjugate acid of NH_3

(c) the conjugate base of H_2O

(d) the conjugate acid of H_2O

Big Ideas

- Acid donates H^+ ; base accepts H^+
- Water is amphoteric
- Conjugate pairs differ by one H^+
- Strong acids ionize completely

