## Arrhenius Theory

Acids → H (CH4)

Bases → OH (CH3OH)

## Revised Arrhenius Theory

Acids → $H^+$

Bases → $OH^-$ ($NH_3$)

## Bronsted-Lowry Theory

Acids → proton donors ($H^+$)

Bases → proton acceptor ($H^+$)

# Conjugate Acid-Base Pairs

$CH_3COOH_{(aq)} + H_2O_{(l)} \qquad CH_3COO^-_{(aq)} + H_3O^+_{(aq)}$

## Acid-Base reactions are at equilibrium !

*(Look at forward reaction and reverse reaction)*

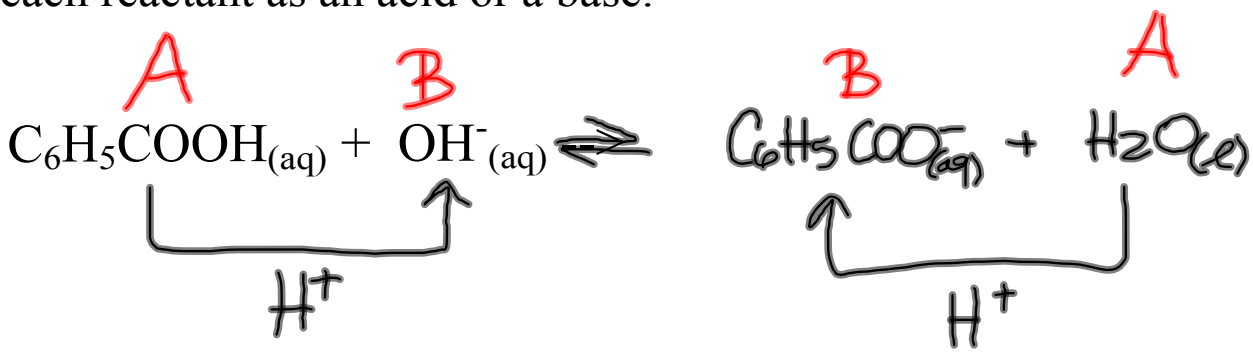
- Every acid-base reaction at equilibrium has two acids and two bases.
- Acid on 'product' side is formed by addition of proton to base on 'reactant' side
- Base on 'product' side is formed by removal of a proton from acid on 'reactant' side

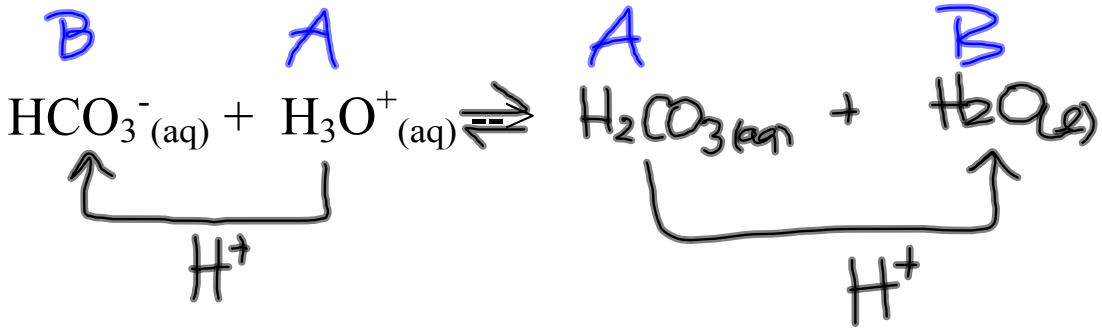
**Conjugate acid-base pair**
A pair of substances that differ by only a proton

Ex. $H_2O_{(l)}/H_3O^+_{(aq)}$ $CH_3COOH_{(aq)}/CH_3COO^-_{(aq)}$

See Appendix F, p. 611

Predict the products for the following reaction, and identify each reactant as an acid or a base.



# Worksheet