

# Bronsted-Lowry Theory

**Introduction:** Bronsted-Lowry theory states that an acid is a proton donor and a base is a proton acceptor.

**Bronsted-Lowry theory**

Expands the Arrhenius theory

**Acid** Proton donor  
- adds  $H^+$  to solvent

**Base** Proton acceptor  
- removes  $H^+$  from solvent

This definition explains how things like ammonia can act as bases.

$NH_3 + H_2O \longrightarrow NH_4^+ + OH^-$

Accepted  $H^+$

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## Relative Strength of Acids & Bases

Strong acids are better  $H^+$  donors than weak acids.  
Strong bases are better  $H^+$  acceptors than weak bases.

- Strong acids have weak conjugate bases.
- Weak acids have strong conjugate bases.

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Strong acid +  $H_2O \longrightarrow H_3O^+$  + weak conjugate base  
Fully ionized, reverse reaction essentially does not occur.  
The conjugate base is weak.

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Weak acid +  $H_2O \rightleftharpoons H_3O^+$  + strong conjugate base  
Weakly ionized, reverse reaction readily occurs.  
The conjugate base is strong.

[https://www.youtube.com/watch?v=ZiokqP0aZ1E&feature=emb\\_logo](https://www.youtube.com/watch?v=ZiokqP0aZ1E&feature=emb_logo)

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