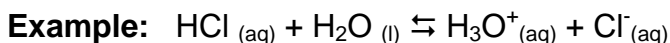


## Section 15.1: Brønsted-Lowry Acids and Bases

According to Brønsted-Lowry, an **acid** is a proton donor and a **base** is a proton acceptor. Therefore, in an **acid-base** reaction, a proton ( $\text{H}^+$ ) is transferred from an **acid** to a **base**.



In this reaction:

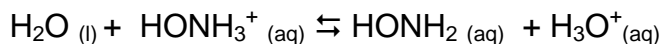
- HCl is an **acid**
- $\text{H}_2\text{O}$  is a **base**
- $\text{H}_3\text{O}^+$  is the conjugate **acid**
- $\text{Cl}^-$  is the conjugate **base**

**Conjugate acid:** The species formed when a proton is added to a **base** is called the conjugate **acid**.

**Conjugate base:** The species formed when a proton is removed from an **acid** is called the conjugate **base**.

The conjugate **acid-base** pair consists of the two substances related to each other by the donation and acceptance of a single proton.

**Example:** In the following aqueous reaction, identify the **acid**, the **base**, the conjugate **acid** and the conjugate **base**.



Looking at the equation, one can conclude that  $\text{H}_2\text{O}$  has accepted a proton from  $\text{HONH}_3^+$  to form  $\text{H}_3\text{O}^+$ .

Thus,  $\text{HONH}_3^+$  is a proton donor (the **acid**).

$\text{H}_2\text{O}$  is the proton acceptor (the **base**).

$\text{H}_3\text{O}^+$  is the species formed when the proton is added to the **base** (the conjugate **acid**).

$\text{HONH}_2$  is the species formed when a proton is removed from the **acid** (the conjugate **base**).