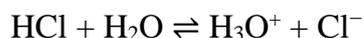
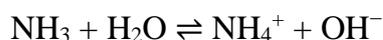


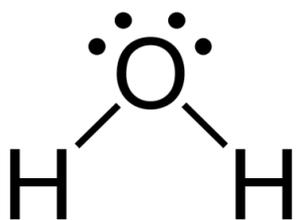
According to the Bronsted-Lowry system, an acid is defined as a species which donates a proton (an  $H^+$  ion) in a reaction, and a base as one which receives a proton. When reacting with a stronger acid, water acts as a base; when reacting with a stronger base, it acts as an acid. For instance, it receives an  $H^+$  ion from  $HCl$  in the equilibrium:



Here water is acting as a base, by receiving an  $H^+$  ion. In the reaction with ammonia,  $NH_3$ , water donates an  $H^+$  ion, and is thus acting as an acid:



So water is amphoteric, able to act as either an acid or a base.



Lewis' theory used electrons instead of proton transfer and specifically stated that an acid is a species that accepts an electron pair while a base donates an electron pair. Lewis Bases donate an electron pair. Lewis Bases are Nucleophilic meaning that they "attack" a positive charge with their lone pair. An atom, ion, or molecule with a lone-pair of electrons can thus be a Lewis base. Each of the following anions can "give up" their electrons to an acid. Water has lone-pair electrons, thus it is a Lewis Base.