**Acids as proton acceptors**

An acid will always donate a proton to water to give an oxonium ion (H3O+)

Complete the following equations to show how acids react with water

|  |  |
| --- | --- |
| Acid | Equation |
| HCl (hydrochloric acid) |  HCl + H2O 🡪 H3O+ + Cl- |
| HNO3 (nitric acid) |  HNO3 + H2O 🡪 H3O + + NO3- |
| H~~2~~SO4 (sulphuric acid) |  H2SO4 + H2O 🡪 H3O + + HSO4- |
| HF (hydrofluoric acid) |  HF + H2O 🡪 H3O + + F- |
| HClO3  (chloric acid) |  HClO3  + H2O 🡪 H3O + + ClO3- |

**Bases as proton acceptors**

An alkali will always accept a proton from water to give a hydroxide ion (OH-)

Complete the following equations to show how bases react with water

|  |  |
| --- | --- |
| Acid | Equation |
| NaOH (sodium hydroxide)\* |  NaOH + H2O 🡪 OH- + Na+ +H2O |
| NH4 (ammonia) |  NH4 + H2O 🡪 OH- + NH3 |
|  |  |
|  |  |
|  |  |

\*Not really a chemical reaction