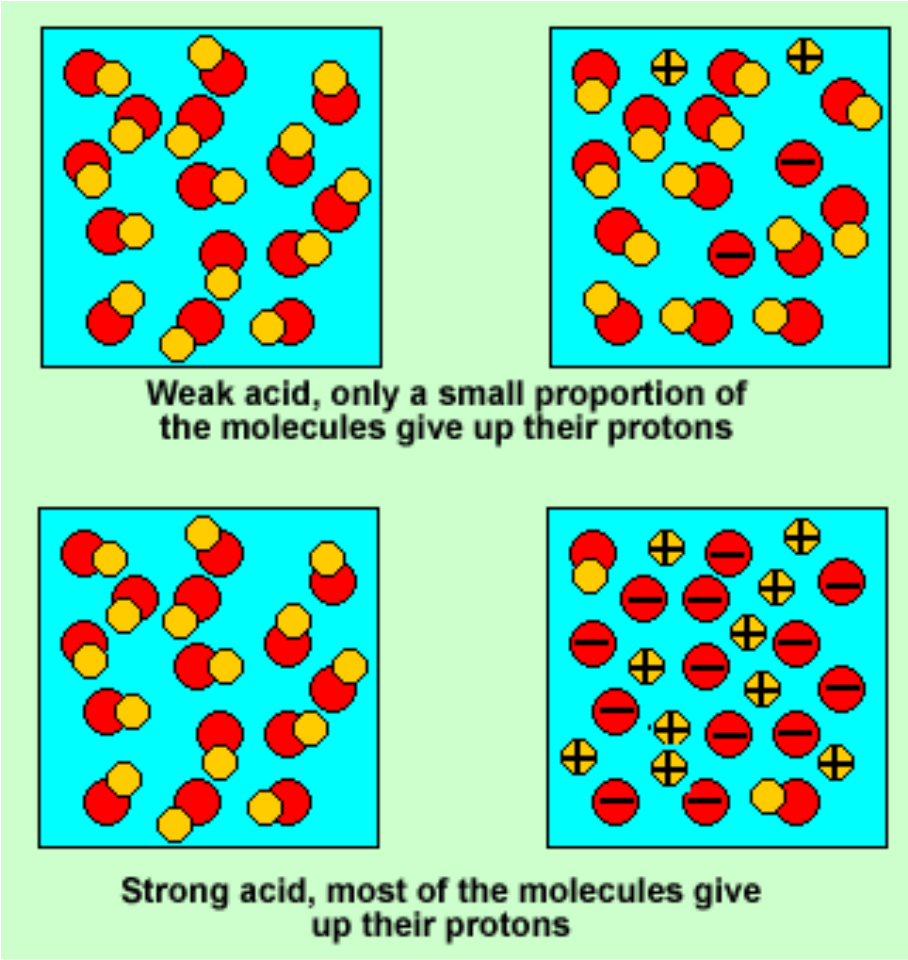
Concentration vs Strength

*Recall our dissociation equations.

See the images below and examine the dissociation. A weak acid will not have much dissociation. Giving up a proton means separating the H^+ from the metal or polyatomic ion. In other words it means the same thing as dissociation.

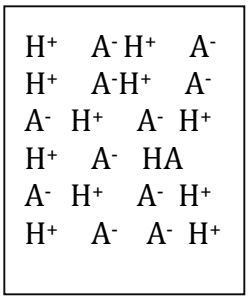
** Note that bases dissociate in the very same fashion but with an OH^-.



Carefully examine the images and see the difference between a weak (top) and a strong (bottom) acid. Note that the weak acid barely dissociates where as the strong acid mostly dissociates in water.

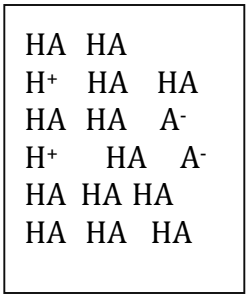
Let's take for example HA ➔ $H^+_{(aq)}$ + $A^-_{(aq)}$

1. **HA is a concentrated strong acid.**



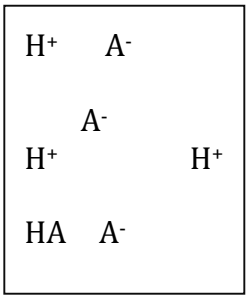
- most of the HA has dissociated (strength)
- a lot of H^+ and A^- (strength)
- a lot of chemical (concentration)

2. **HA is a concentrated weak acid.**



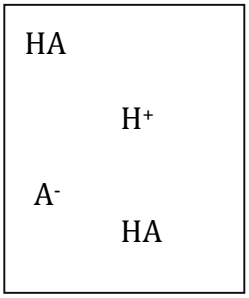
- most of the HA has <u>not</u> dissociated (strength)
- a lot of HA and not much H^+ and A^- (strength)
- a lot of chemical (concentration)

3. **HA is a dilute strong acid.**



- most of HA has dissociated (strength)
- mainly H^+ and A^- (strength)
- not much chemical (concentration)

4. **HA is a dilute weak acid.**



- most of HA has <u>not</u> dissociated (strength)
- mainly HA (strength)
- not much chemical (concentration)