- Explain why the acidity of hydrogen halides *increases* with increasing halogen size (*i.e.*, K_a (HCl) < K_a (HBr) < K_a (HI)), while the acidity of hypohalous acids *decreases* with increasing halogen size (*i.e.*, K_a (HOCl) > K_a (HOBr) > K_a (HOI)).

For the hydrogen halides, the length of the H-X bond increases and hence gets weaker as the halogen gets bigger,. The weaker the bond, the more easily the H$^+$ dissociates.

For the hypohalous acids, as the electronegativity of the halide increases, the more electron density it pulls from the O-H bond towards itself. This results in the O-H bond becoming more polar and increasing the ease with which the H$^+$ will be lost.