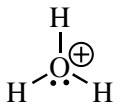
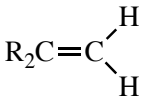
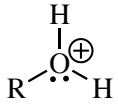
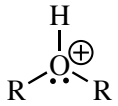
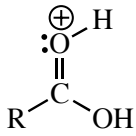
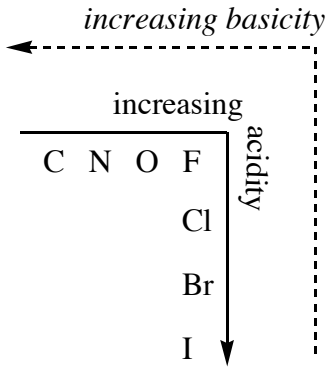
Approximate pK_a values *(rounded to nearest 5)*

< 0	5	10	15	25	35	45	50
			ROH	RC≡CH			CH_4
			H_2O				RCH_3
							
							

Element effect periodic trend (when acidic hydrogen is bonded to a different element):



This means that H_2O will be a stronger acid than NH_3 which will be a stronger acid than CH_4. *Be careful when comparing acids and bases using this periodic trend to make sure that they have the same charge and hybridization!*

Example 1: You can't compare NH_4^+ and H_2O and say that H_2O is a stronger acid. You *can* compare NH_4^+ and H_3O^+ and say that H_3O^+ is a stronger acid.

Example 2: You can't compare OH- and NH_3 and say that NH_3 is a stronger base because of the periodic trend. You *can* compare H_2O and NH_3 and say that NH_3 is a stronger base, and you *can* compare OH^- and NH_2^- and say that NH_2^- is a stronger base.

Example 3: You can't compare $CH_3C{\equiv}CH$ and NH_3 and say that NH_3 is a stronger acid based on periodic trends. Hybridization changes things dramatically. This is why it is good to know a handful of pK_a's rounded to the nearest 5 (the ones on the chart above). It makes it much easier to analyze examples like these where charge or hybridization is different.