



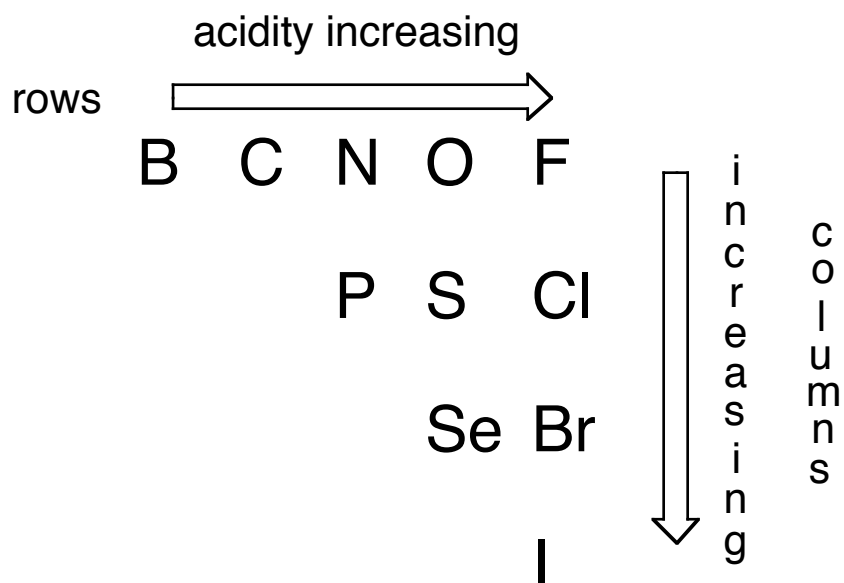
A Barebones Acidity Scale

acid		pKa		conjugate base
H-Cl	monumental	-8	miniscule	Cl ⁻
H ₃ O ⁺		-2		H ₂ O
RCO ₂ H		5		RCO ₂ ⁻
NH ₄ ⁺		9		NH ₃
H ₂ O		16		⁻ OH
NH ₃		35		⁻ NH ₂
CH ₄	miniscule	50	monumental	⁻ CH ₃

Measuring pKa's outside the -2 to 16 range requires special methods.

Acidity and basicity are *relative* descriptors. Notice that ammonia and water appear as both acids and bases.

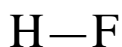
Acidity and the Periodic Table



Acidity in columns is determined by **bond strength**.

weaker bond = stronger acid

weaker acid

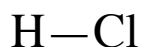


pka 3

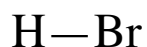
stronger base



localized charge



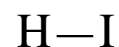
-8



-9



stronger acid



-10

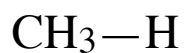
weaker base



diffuse charge

Acidity in rows is determined by **electronegativity**.

weaker acid

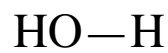


pka 50

stronger base



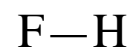
35



16



stronger acid



3

weaker base

