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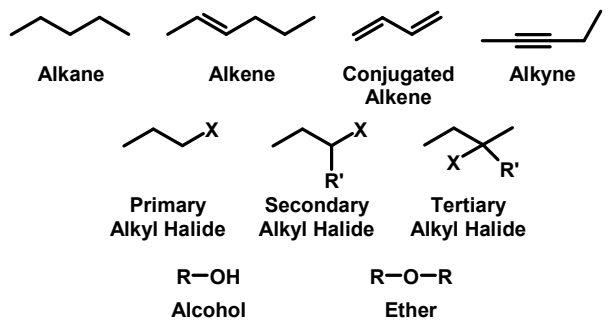
Basic Functional Groups



Which is it??	S_N1	E1	S_N2	E2
Reaction mechanism	2-step w/ a carbocation	2-step w/ a carbocation	Concerted	Concerted
Strength of nucleophile	Can be mediocre, must be non-basic	Can be mediocre, must be basic	Strong, non-basic, non-bulky	Strong AND basic
Leaving group ability	Must be great	Must be great	Can be mediocre	Can be mediocre
Solvent	Polar Protic	Polar Protic	Polar aprotic	Polar aprotic
Stereo-chemistry	gives (almost) totally racemic product,	Bulky groups will prefer opposite sides	Walden inversion	"H" must be able to go antiperiplanar

Nomenclature

1=Meth 2=Eth 3=Prop 4=But 5=Pent
6=Hex 7=Hept 8=Oct 9=Non 10=Dec

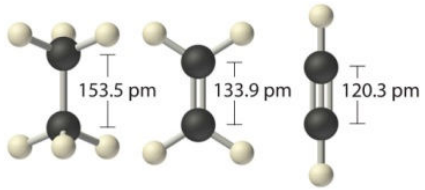
Nomenclature Steps(for alkanes):

1. Find the longest continuous carbon chain and name it.
2. Number the chain so that position # of the first substituent is smallest #.
3. Determine the name and position of each substituent.
4. Indicate the number of identical groups with a prefix
5. Place the position numbers and names of the substituents in alpha order before the chain name.

Natural state of atoms, when uncharged:

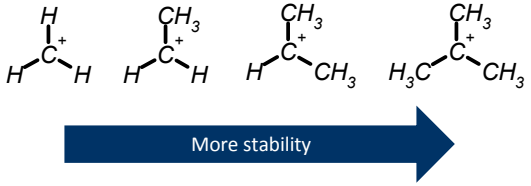
C = Carbon: four bonds, no lone pairs
N = Nitrogen: three bonds, one lone pair
O = Oxygen: two bonds, two lone pairs
X = Halogens: one bond, three lone pair
H = Hydrogen: one bond, no lone pair

The hybridized carbon

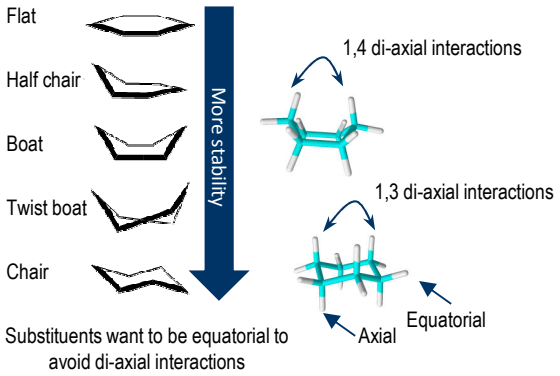


Carbon	sp3	sp2	sp
Bond	Single	Double	Triple
Geometry	Tetrahedral	Trigonal	Linear
Bond angle	109.5°	120°	180°

Carbocation stability:



Flat cyclohexane is not stable



Carbon Configuration (R/S)

1. Label each of the four different substituents 1-4 with 1 being heaviest MW and 4 having lightest.
2. Rotate the carbon so that #4 is pointing away from you.
3. Move around the carbon from 1 to 2 to 3.
4. If you moved clockwise around the carbon, it is (R). If you moved counterclockwise, it is (S).

Some Organic I Basics – Need to know information