* IR Stretching Frequencies

*C-H Stretching

sp^3 C-H	2900 cm^{-1}
sp^2 C-H	3100 cm^{-1}
sp C-H	3300 cm^{-1}

* O-H Stretching

ROH	3300-3500 cm^{-1}
RCOOH	2500-3500 cm^{-1}

* N-H Stretching

3° Amine	No Stretching	
2° Amine	1 Stretch	3300-3500 cm^{-1}
1° Amine	2 Stretches	3300-3500 cm^{-1}

*C-C Stretching

C=C		1640-1680 cm^{-1}
C=C Benzene	2 stretches	1500 & 1600 cm^{-1}
C≡C		2100-2250 cm^{-1}

* C≡N Stretch

2150 - 2250 cm^{-1}

* C=O Stretching

1630 - 1750 cm^{-1}

* Aldehyde Stretching

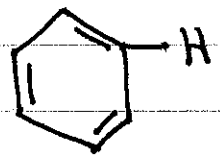
Pair of Stretches 2700 + 2800 cm^{-1}

* If your molecule is non-polar, some of your final groups may not show up

Ex: $CH_3C \equiv CCH_3$

Sp^3 C-H Stretching will be seen
but, C≡C Stretch will not be seen

* ^{1}H NMR Chemical Shifts

RCOOH	10-13 ppm
RCOH	9-10 ppm
	7-8 ppm Doublet of Doublets = para substituted
ROH	3.5-4.5 ppm
$RCOCH_3$	2.0-2.5 ppm
$RCH_2CH_2CH_3$	< 2.0 ppm

* ^{13}C NMR Chemical Shifts

C=O	150-220 ppm	
C=C	100-150 ppm	
C≡C or C-X	50-100 ppm	X = EN atom
C-C-C-C	< 50 ppm	