

IR Flow Chart for Identifying Liquids:

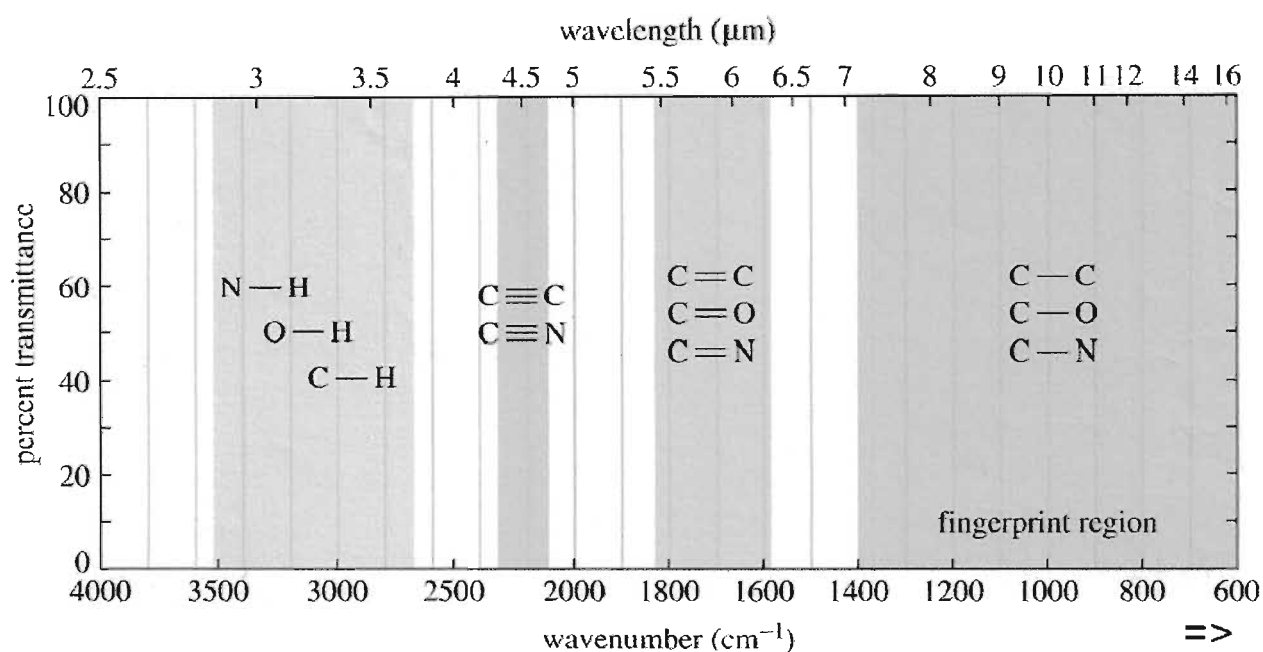
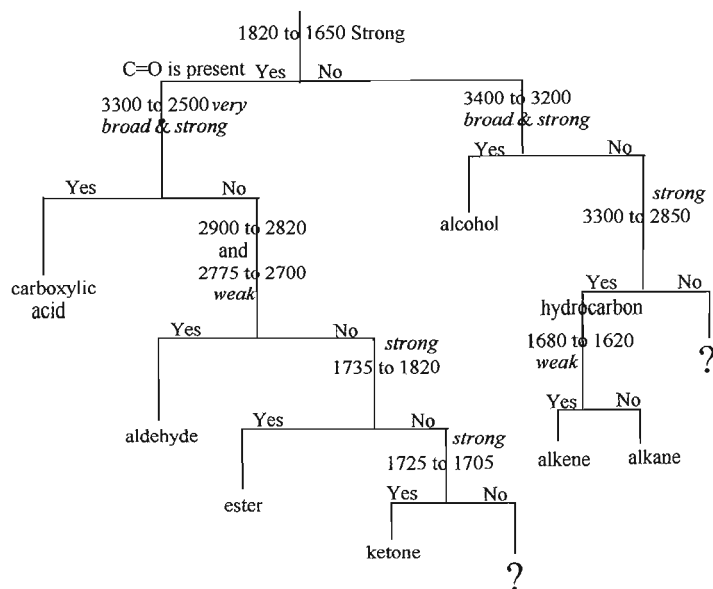
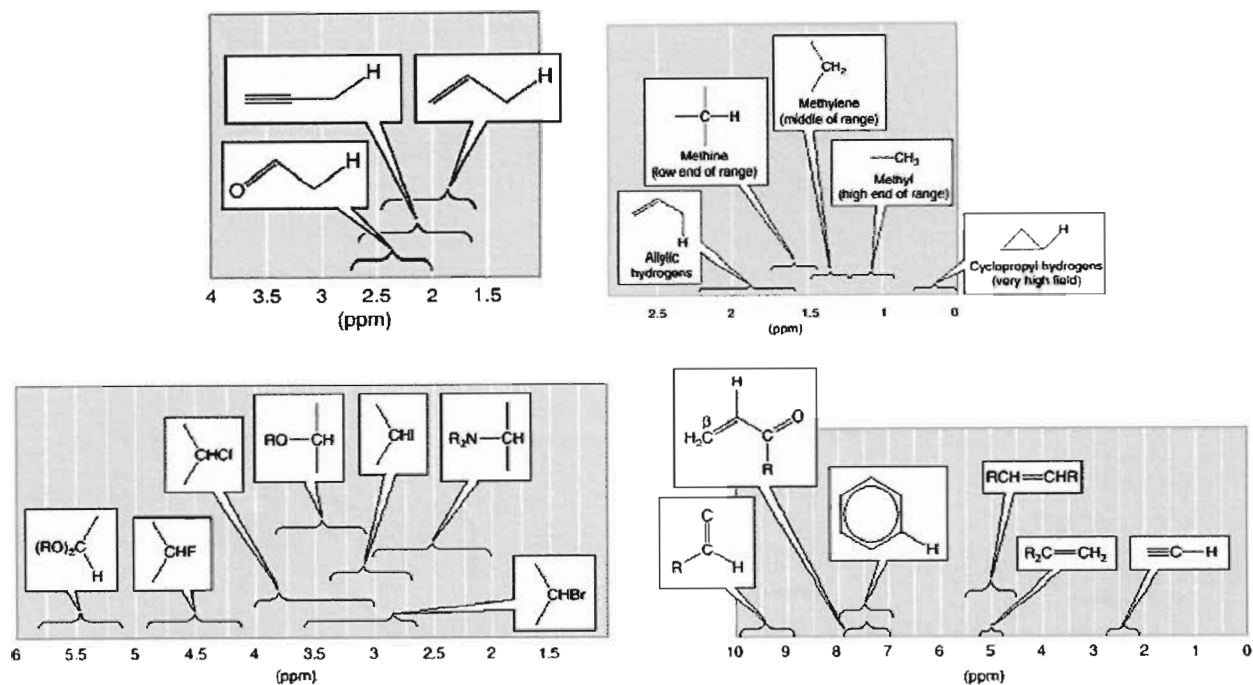


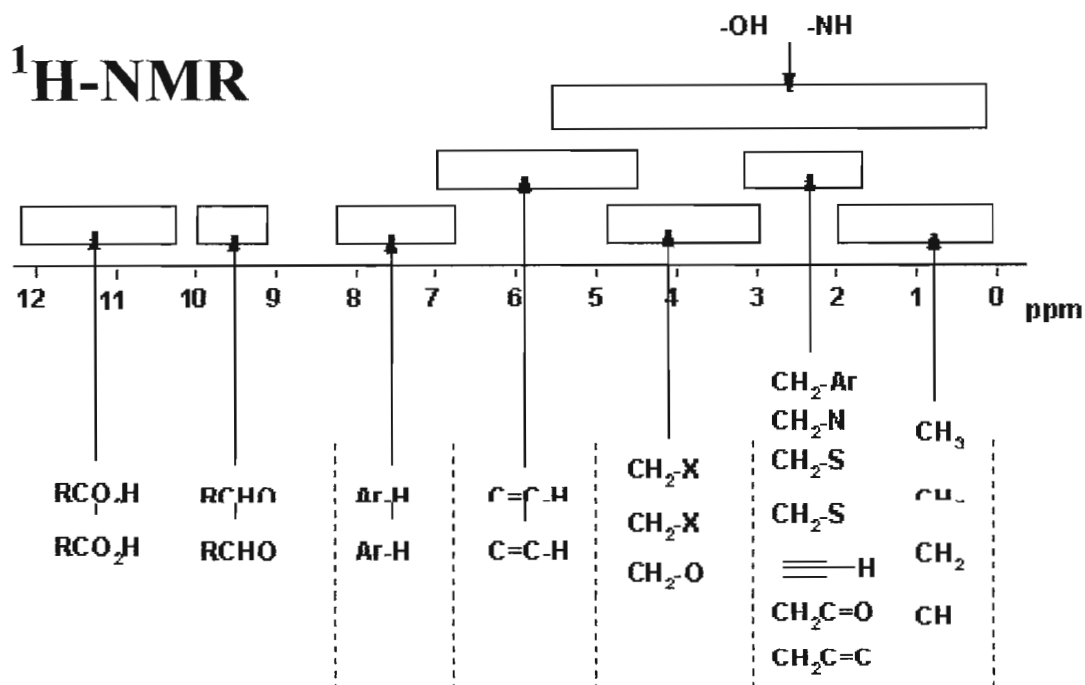
TABLE 12-4 Isotopic Composition of Some Common Elements

Element	M^+	$M+1$	$M+2$
hydrogen	^1H 100.0%		
carbon	^{12}C 98.9%	^{13}C 1.1%	
nitrogen	^{14}N 99.6%	^{15}N 0.4%	
oxygen	^{16}O 99.8%		^{18}O 0.2%
sulfur	^{32}S 95.0%	^{33}S 0.8%	^{34}S 4.2%
chlorine	^{35}Cl 75.5%		^{37}Cl 24.5%
bromine	^{79}Br 50.5%		^{81}Br 49.5%
iodine	^{127}I 100.0%		

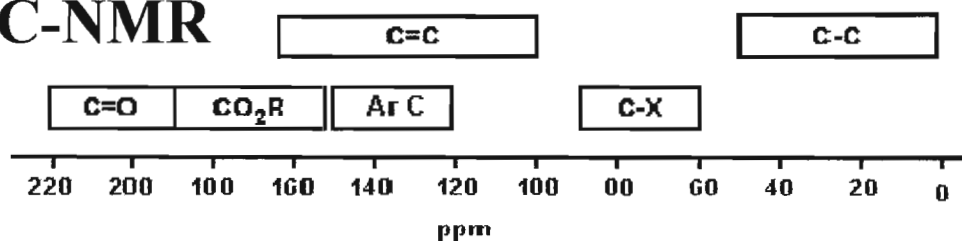
Hydrogen and Carbon Chemical Shifts



^1H -NMR



^{13}C -NMR



where X implies an electronegative heteroatom e.g. O