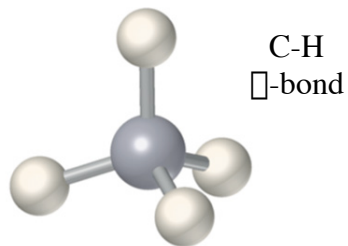
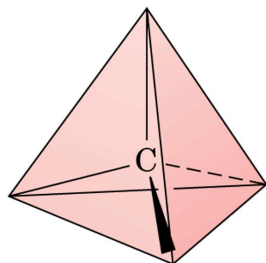
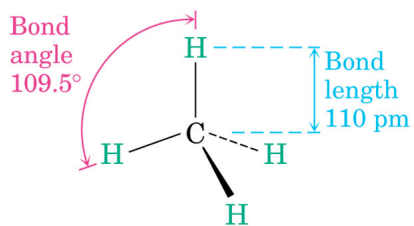
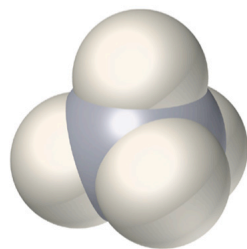


### Tetrahedral Carbon



©2001 Brooks/Cole - Thomson Learning

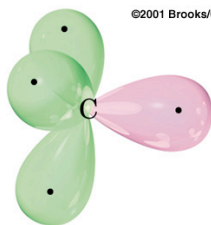


Methane-  $\text{CH}_4$

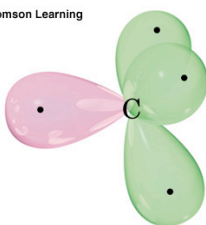
### Carbon-Carbon Bonds

#### Ethane- $\text{C}_2\text{H}_6$

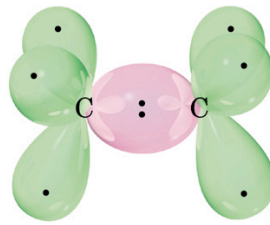
©2001 Brooks/Cole - Thomson Learning



$sp^3$  carbon

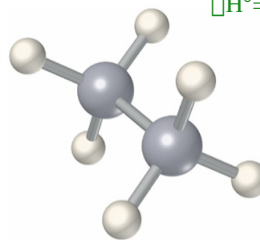
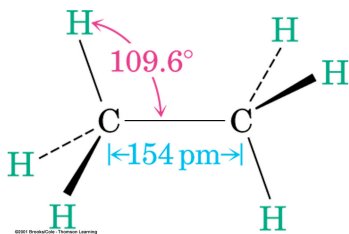


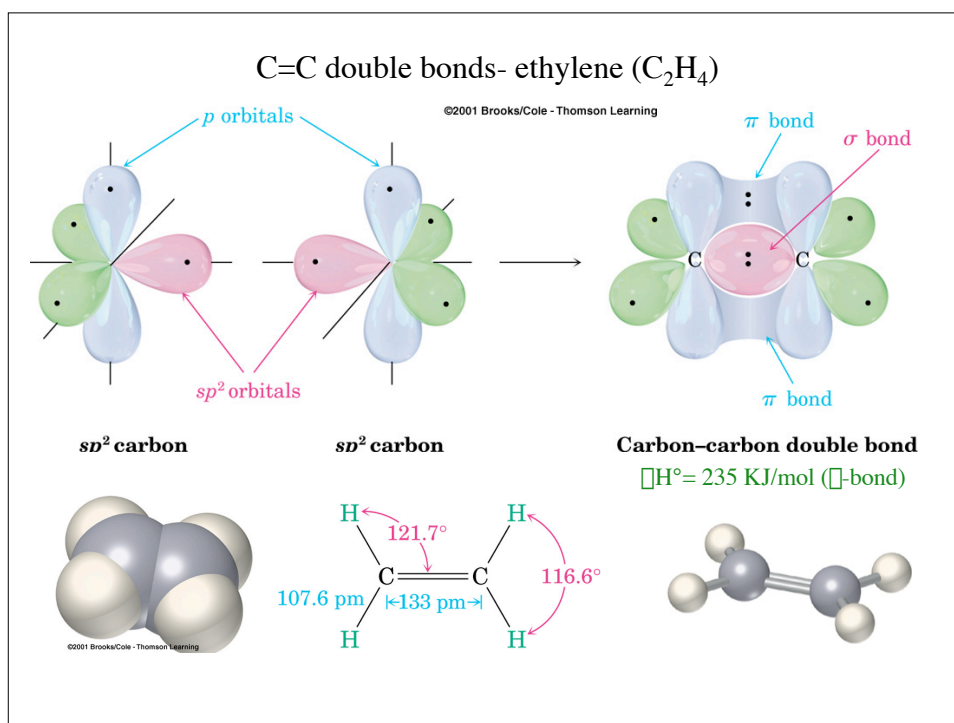
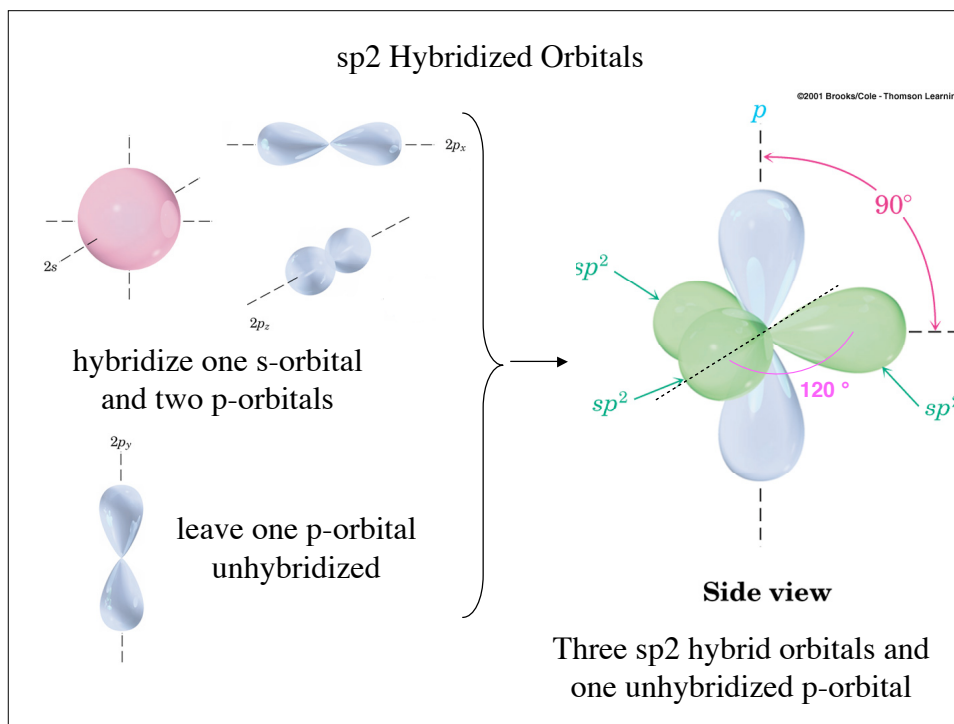
$sp^3$  carbon

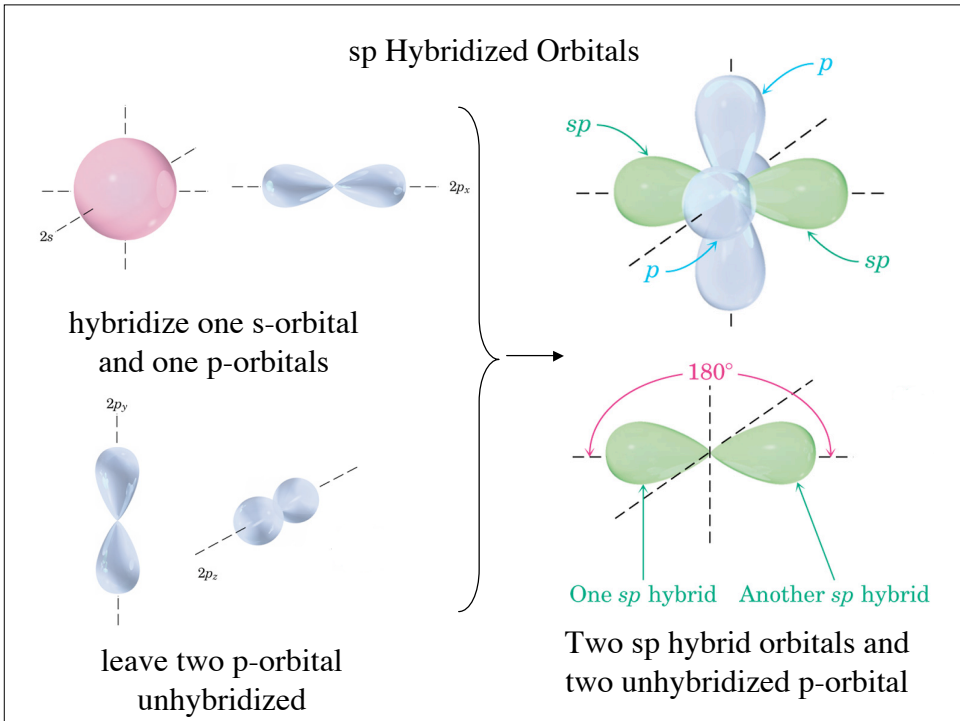
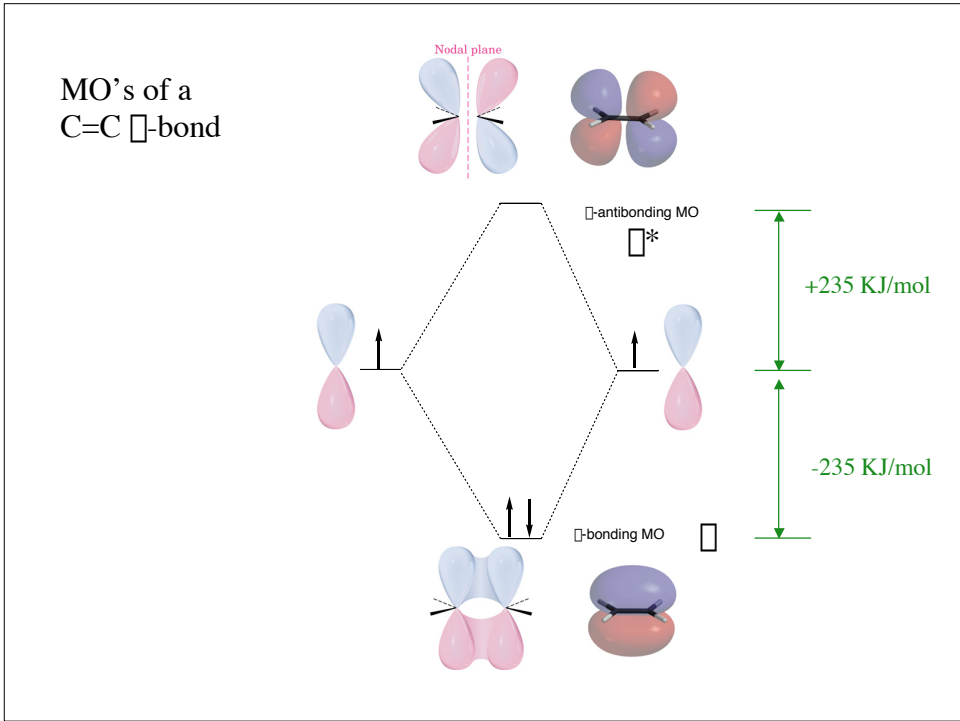


$sp^3-sp^3$   $\sigma$  bond

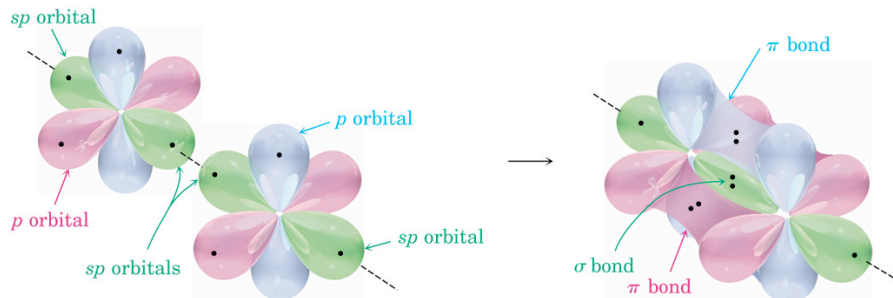
$\Delta H^\circ = 376 \text{ KJ/mol}$





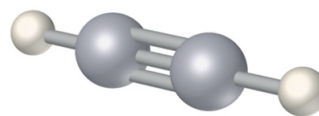
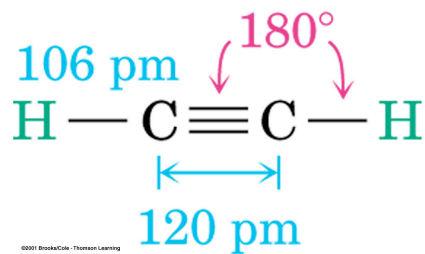


### C≡C triple bonds- acetylene (C<sub>2</sub>H<sub>2</sub>)



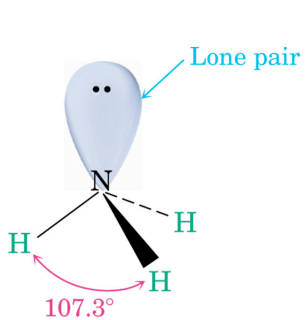
©2001 Brooks/Cole - Thomson Learning

Carbon-carbon triple bond

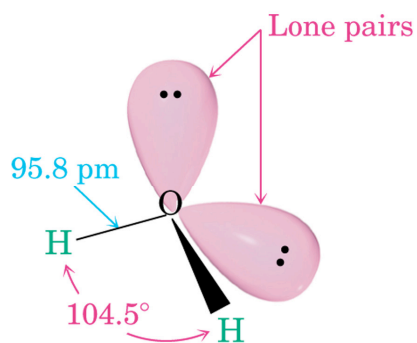
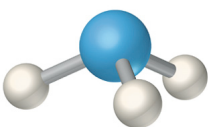


©2001 Brooks/Cole - Thomson Learning

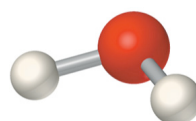
### Hybridization of Nitrogen and Oxygen



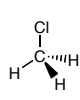
Ammonia



©2001 Brooks/Cole - Thomson Learning



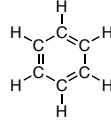
## Chemical Toxicity and Risk (page 26-7)



chloromethane  
(chloroform)

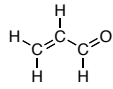


dichloromethane  
(methylene chloride)

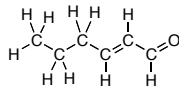


benzene

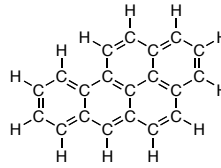
Paracelsus (1493-1541): All substances are poisons; there is none which is not a poison. The right dose differentiates a poison and a remedy



acrolein



hexenal



benzpyrene

**Aflatoxin**

**IQ**