



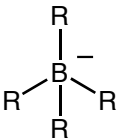
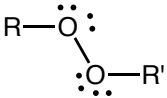
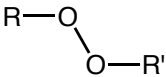
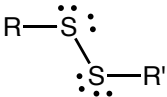
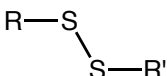
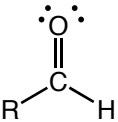
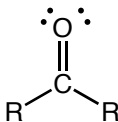
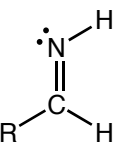
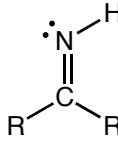
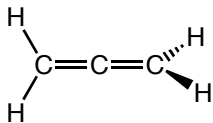
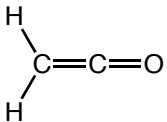


Class	Explicit	Abbreviated	Stick
<b>Alkane</b>	$  \begin{array}{c}  \text{H} \quad \text{H} \\    \quad   \\  \text{R}-\text{C}-\text{C}-\text{H} \\    \quad   \\  \text{H} \quad \text{H}  \end{array}  $	$\text{R}-\text{CH}_2-\text{CH}_3$	

### Simple Functional Groups

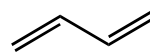
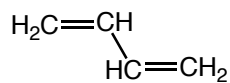
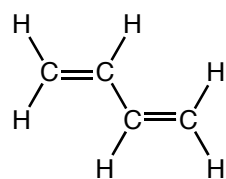
<b>Alkene</b>	$  \begin{array}{c}  \text{R} \quad \text{H} \\  \diagdown \quad / \\  \text{C}=\text{C} \\  / \quad \diagdown \\  \text{H} \quad \text{H}  \end{array}  $	$\text{R}-\text{CH}=\text{CH}_2$	
<b>Alkyne</b>	$\text{R}-\text{C}\equiv\text{C}-\text{H}$	$\text{RC}\equiv\text{CH}$	
<b>Cyclopropane</b>	$  \begin{array}{c}  \text{H} \quad \text{H} \\  \diagdown \quad / \\  \text{C} \\  / \quad \diagdown \\  \text{H} \quad \text{H} \\    \quad   \\  \text{H} \quad \text{H}  \end{array}  $	$  \begin{array}{c}  \text{CH}_2 \\  \diagdown \quad / \\  \text{H}_2\text{C}-\text{CH}_2  \end{array}  $	
<b>Alkyl Halide</b>	$  \text{R}-\overset{\cdot\cdot}{\underset{\cdot\cdot}{\text{X}}}  $	$\text{R}-\text{X}$	$\text{RX}$
	$\text{X} = \text{F}, \text{Cl}, \text{Br}, \text{I}$	$\text{X} = \text{F}, \text{Cl}, \text{Br}, \text{I}$	
<b>Alkyl Metal</b>	$\text{R}-\text{M}$	$\text{R}-\text{M}-\text{R}'$	$\text{RM}, \text{R}_2\text{M}$
	<i>e.g.</i> $\text{M} = \text{Li}$	<i>e.g.</i> $\text{M} = \text{Mg}$	
<b>Alcohol</b>	$  \begin{array}{c}  \cdot\cdot \\  \cdot\cdot \\  \text{R}-\text{O} \\    \\  \text{H}  \end{array}  $	$\text{R}-\text{OH}$	$\text{ROH}$

<b>Ether</b>	$\text{R}-\overset{\cdot\cdot}{\underset{\cdot\cdot}{\text{O}}}-\text{R}'$	$\text{R}-\text{O}-\text{R}'$	$\text{ROR}'$
<b>Amine</b>	$\text{R}-\overset{\cdot\cdot}{\underset{\cdot\cdot}{\text{N}}}-\text{H}$	$\text{R}-\text{NH}_2$	$\text{RNH}_2$
Oxonium	$\text{R}-\overset{+}{\underset{\cdot\cdot}{\text{O}}}-\text{R}$	$\text{R}-\overset{+}{\text{O}}-\text{R}$	$\text{R}_3\text{O}^+$
<b>Ammonium</b>	$\text{R}-\overset{+}{\underset{\cdot\cdot}{\text{N}}}-\text{R}$	$\text{R}-\overset{+}{\text{N}}-\text{R}$	$\text{R}_4\text{N}^+$
Thiol	$\text{R}-\overset{\cdot\cdot}{\underset{\cdot\cdot}{\text{S}}}-\text{H}$	$\text{R}-\text{S}-\text{H}$	$\text{RSH}$
Sulfide	$\text{R}-\overset{\cdot\cdot}{\underset{\cdot\cdot}{\text{S}}}-\text{R}'$	$\text{R}-\text{S}-\text{R}'$	$\text{RSR}'$
Sulfonium	$\text{R}-\overset{+}{\underset{\cdot\cdot}{\text{S}}}-\text{R}$	Same	$\text{R}_3\text{S}^+$
<b>Borane</b>	$\text{R}-\overset{\cdot\cdot}{\underset{\cdot\cdot}{\text{B}}}-\text{H}$	$\text{R}-\text{BH}_2$	$\text{RBH}_2$

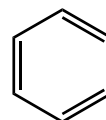
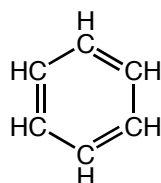
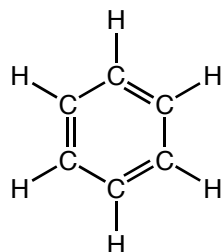
Borate		Same	$R_4B^-$
Peroxide			$ROOR'$
Disulfide			$RSSR'$
<b>Carbonyl</b>			$R_2C=O$
	Aldehyde	Ketone	
Imine			$HN=CHR$
	Aldimine	Ketimine	
Nitrile	$R-C\equiv N:$	$R-C\equiv N$	$R-CN$
Allene		$H_2C=C=CH_2$	Same
Ketene		$H_2C=C=O$	Same

## Conjugated Functional Groups

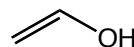
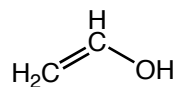
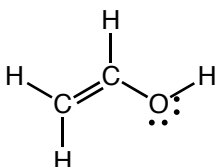
### Conjugated Diene



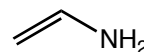
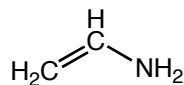
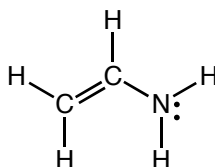
### Benzene (Aromatic)



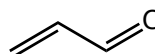
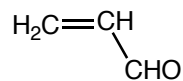
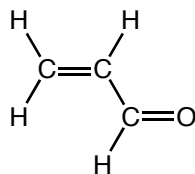
### Enol



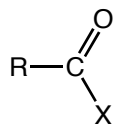
### Enamine



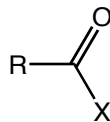
### $\alpha,\beta$ -Unsaturated Carbonyl



### Acid Halide



X = F, Cl, Br, I

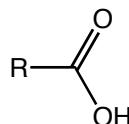
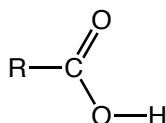


X = F, Cl, Br, I

R—COX

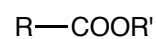
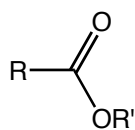
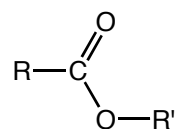
X = F, Cl, Br, I

### Carboxylic Acid

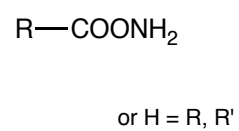
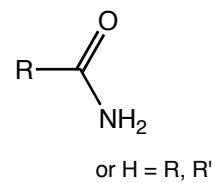
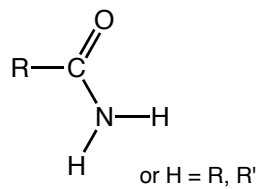


R—COOH

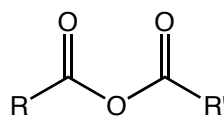
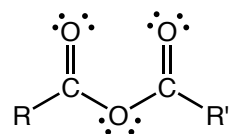
## Ester



## Amide



## Acid Anhydride



Same

## Other

### $\alpha$ -Amino Acid

