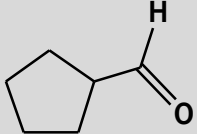
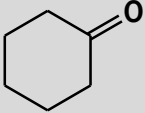
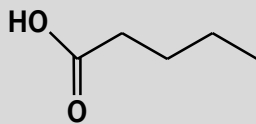
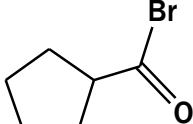
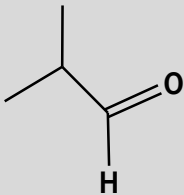
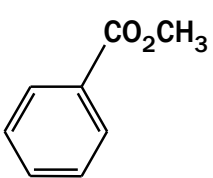
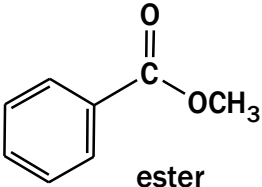
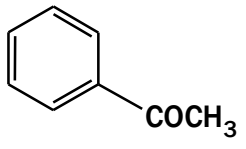
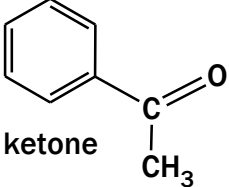
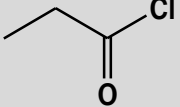
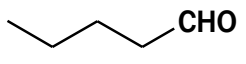
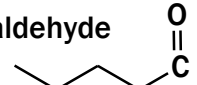
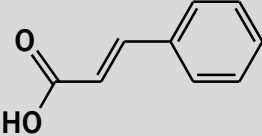
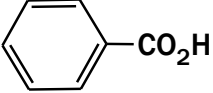
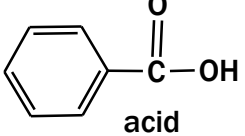
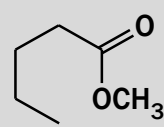
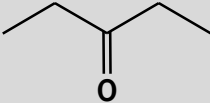
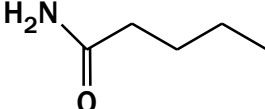
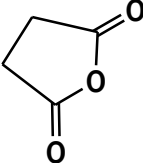
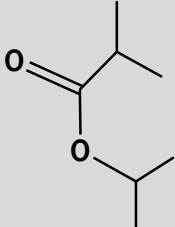
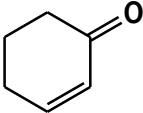
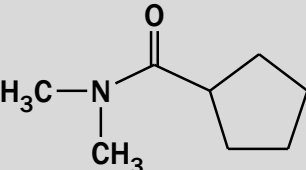
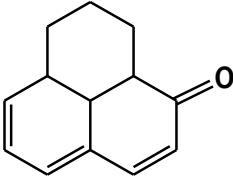
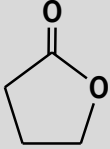
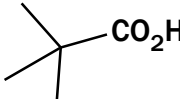
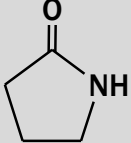
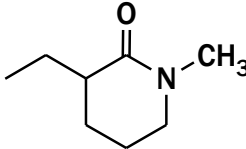


## Naming Carbonyl Functional Groups KEY

	Functional group name		Functional group name
$  \begin{array}{c}  \text{H} \quad \text{H} \\    \quad   \\  \text{H}-\text{C}-\text{C}-\text{C}-\text{OH} \\    \quad   \quad    \\  \text{H} \quad \text{H} \quad \text{O}  \end{array}  $	carboxylic acid	$  \begin{array}{c}  \text{H} \quad \text{H} \\    \quad   \\  \text{H}-\text{C}-\text{C}-\text{C}-\text{H} \\    \quad   \quad    \\  \text{H} \quad \text{H} \quad \text{O}  \end{array}  $	aldehyde
	aldehyde	$  \begin{array}{c}  \text{H} \quad \text{O} \quad \text{H} \quad \text{H} \\    \quad    \quad   \quad   \\  \text{H}-\text{C}-\text{C}-\text{C}-\text{C}-\text{H} \\    \quad   \quad   \\  \text{H} \quad \text{H} \quad \text{H}  \end{array}  $	ketone
	ketone	$  \begin{array}{c}  \text{H}_2\text{N} \\    \\  \text{C} \\     \\  \text{O}  \end{array}  $	1° amide
	acid		acid bromide
$  \begin{array}{c}  \text{OCH}_2\text{CH}_3 \\    \\  \text{O}=\text{C} \\    \\  \text{H}-\text{C}-\text{H} \\    \\  \text{H}-\text{C}-\text{H} \\    \\  \text{H}  \end{array}  $	carboxylic ester	$  \begin{array}{c}  \text{H}-\text{N}-\text{CH}_3 \\    \\  \text{O}=\text{C} \\    \\  \text{H}-\text{C}-\text{H} \\    \\  \text{H}-\text{C}-\text{H} \\    \\  \text{H}  \end{array}  $	2° amide (2° = two carbon groups on N atom)
	aldehyde		 ester
$  \begin{array}{c}  \text{H} \quad \text{O} \quad \text{H} \\    \quad    \quad   \\  \text{H}-\text{C}-\text{C}-\text{N}-\text{H} \\    \quad   \\  \text{H} \quad \text{H}  \end{array}  $	1° amide (1° = only one carbon attached to N atom)		 ketone
	acid chloride		 aldehyde
	acid		 acid
	ester	$  \begin{array}{c}  \text{CH}_2-\text{CH}_3 \quad \text{CH}_3 \\    \quad \quad   \\  \text{CH}_2-\text{O}-\text{C}-\text{CH}_2 \\     \\  \text{O}  \end{array}  $	ester

	Functional group name		Functional group name
	ketone		1° amide
$\text{H}_3\text{C}-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_3$	anhydride (acetic anhydride)		anhydride (maleic anhydride)
	ester		ketone (enone)
	3° amide		enone (trienone = ketone + three double bonds)
	ester (lactone)  (cyclic esters are called lactones)		acid
	2° amide (lactam)  (cyclic esters are called lactams)		3° lactam
	structure		structure
draw the structure of butanoic acid	$\text{HO}-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\text{CH}_2-\text{CH}_3$	draw the structure of ethyl acetate	$\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{OCH}_2\text{CH}_3$
draw the structure of methyl propanoate	$\text{CH}_3-\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{OCH}_3$	draw the structure of isopropyl acetate	$\text{CH}_3-\underset{\text{CH}_3}{\text{CH}}-\text{O}-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_3$
draw the structure of ethyl propanoate	$\text{CH}_3-\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{OCH}_2\text{CH}_3$	draw the structure of isopropyl propanoate	$\text{CH}_3-\text{CH}_2-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\underset{\text{CH}_3}{\text{CH}}-\text{CH}_3$
draw the structure of propanoic anhydride	$\text{C}_2\text{H}_5-\overset{\text{O}}{\parallel}{\text{C}}-\text{O}-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2\text{CH}_3$	draw the structure of 2-methylcyclohexanone	