

## Molecular Geometry – Chem 30A - Fossum

# groups e- on central atom	Bond angle	# lone pairs on central atom	Shape	Sketch	Polarity IF outer atoms are identical (if outer atoms are not identical, it's polar) (If it only contains nonpolar bonds, it's nonpolar)
2	180°	0	Linear	$\ddot{\text{O}} = \text{C} = \ddot{\text{O}}$	<b>nonpolar</b> (shape is symmetric)
3	120°	0	Trigonal Planar	$\begin{array}{c} \text{:O:} \\ \parallel \\ \text{H} - \text{C} - \text{H} \end{array}$	<b>nonpolar</b> (shape is symmetric)
3	<120°	1	Bent	$\left[ \begin{array}{c} \text{:O:} \\ \parallel \\ \text{:O:} - \text{N} = \text{O:} \end{array} \right]^-$	<b>polar</b> (shape is not symmetric)
4	109.5°	0	Tetrahedral	$\begin{array}{c} \text{H} \\   \\ \text{H} - \text{C} - \text{H} \\   \\ \text{H} \end{array}$	<b>nonpolar</b> (shape is symmetric)
4	<109.5°	1	Trigonal Pyramid	$\begin{array}{c} \text{:N:} \\   \\ \text{H} - \text{C} - \text{H} \\   \\ \text{H} \end{array}$	<b>polar</b> (shape is not symmetric)
4	<109.5°	2	Bent	$\begin{array}{c} \text{:O:} \\   \\ \text{H} - \text{C} - \text{H} \\   \\ \text{H} \end{array}$	<b>polar</b> (shape is not symmetric)