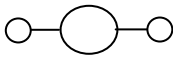
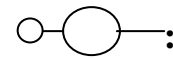
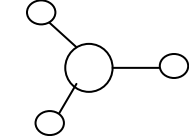
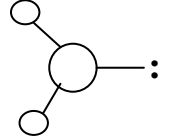
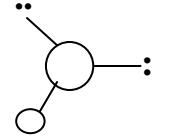
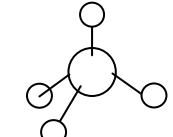
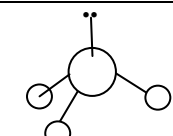
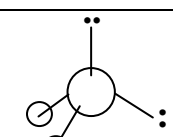
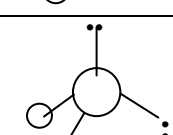


Relationship of the Number of Charge Clouds to Molecular Geometry

# of charge clouds	# atoms + #lone pair (lp) on central atom	Sketch	Molecular Geometry & approx. Bond Angle*	Example
2	2 atoms		linear bond angle = 180°	H-C≡N:
2	1 atom + 1 lp		linear bond angle = N/A*	⁻ :C≡N:
3	3 atoms		trigonal planar bond angle = 120°	$\left[\begin{array}{c} \text{:}\ddot{\text{O}}\text{:} \\ \text{:}\ddot{\text{O}}=\text{C}-\ddot{\text{O}}\text{:} \end{array} \right]^{2-}$
3	2 atoms + 1 lp		bent (or angular) bond angle = 120°	$\left[\text{:}\ddot{\text{O}}=\ddot{\text{N}}-\ddot{\text{O}}\text{:} \right]^{-}$
3	1 atom + 2 lp		linear bond angle = N/A*	$\ddot{\text{O}}=\ddot{\text{O}}\text{:}$
4	4 atoms		tetrahedral bond angle = 109.5°	$\begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{H} \\ \\ \text{H} \end{array}$
4	3 atoms + 1 lp		trigonal pyramidal bond angle = 109.5°	$\begin{array}{c} \text{H} \\ \\ \text{H}-\text{N}-\text{H} \\ \\ \text{H} \end{array}$
4	2 atoms + 2 lp		bent or angular bond angle = 109.5°	$\text{H}-\ddot{\text{O}}-\text{H}$
4	1 atom + 3 lp		linear bond angle = N/A*	$\left[\text{H}-\ddot{\text{O}}\text{:} \right]^{-}$

*A bond angle is the angle between two bonds. A species with only one bond cannot have a bond angle by definition. In this table it is marked as N/A for "not applicable."