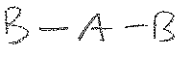
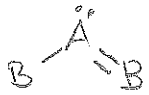
Lewis → 3D

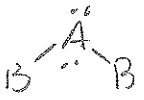
B–A–B linear 180°

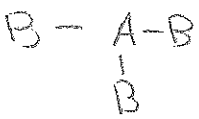


B–Ä=B bent at <120°

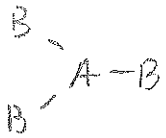


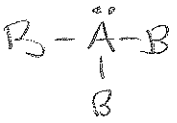
B–Ä–B bent at <109.5°





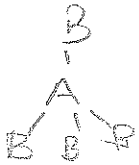
trig planar 120°





trig pyramidal <109.5°

tetrahedral 109.5°



sq. planar 90°

trig bipyr 90° 120°

octahedral ~~90°~~ 120°

Hybridization

2	180°	sp	linear
3	120°	sp^2	trig planar, bent @ 120°
4	109.5°	sp^3	tetra, trig pyr, bent @ 109.5°
5	90, 120	sp^3d	trig bipyr
6	90°	sp^3d^2	octahedral, sq planar

Polar Bonds Y or N?

Y if atoms aren't all same element

N if bonded atoms are same element (same electronegativity)

Symmetry Y or N?

If no lone pairs on central atom and all peripheral atoms are the same, it has symmetry.

✓ exception - sq planar

symmetric	assymetric
tetra	bent
linear	trig pyr
trig planar	seesaw
trig bipyr	T shaped } rarely relevant
octahedral	sq pyr
sq planar	

Polar Molecule

If it has polar bonds AND lacks sym → Yes, molecule is polar

Otherwise, molecule is nonpolar