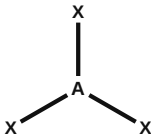
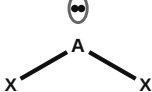
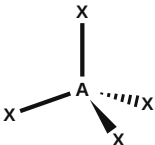
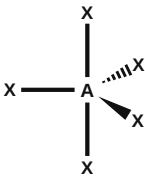
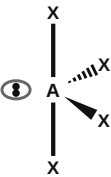
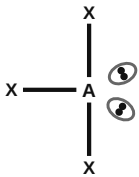
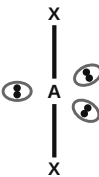
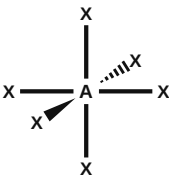
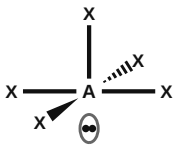
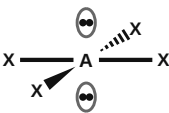


VSEPR Shapes Guide

- Draw the Lewis structure, then count electron domains on the central atom: each bonded atom = 1 (single, double or triple bond), each lone pair = 1.
- Domains spread out as far as possible (electron geometry). The molecular shape names only the positions of the atoms.
- Lone pairs repel more than bonds, so they squeeze bond angles and take equatorial spots in 5-domain shapes.

 linear AX_2 • 2 domains 180° e.g. CO_2	 trigonal planar AX_3 • 3 domains 120° e.g. BF_3	 bent AX_2E • 3 domains $<120^\circ$ e.g. NO_2^-
 tetrahedral AX_4 • 4 domains 109.5° e.g. CH_4	 trigonal pyramidal AX_3E • 4 domains $<109.5^\circ$ e.g. NH_3	 bent AX_2E_2 • 4 domains $<109.5^\circ$ e.g. H_2O
 trigonal bipyramidal AX_5 • 5 domains 90° and 120° e.g. PCl_5	 seesaw AX_4E • 5 domains $<90^\circ$ and $<120^\circ$ e.g. SF_4	 T-shaped AX_3E_2 • 5 domains $<90^\circ$ e.g. ClF_3
 linear AX_2E_3 • 5 domains 180° e.g. XeF_2	 octahedral AX_6 • 6 domains 90° e.g. SF_6	 square pyramidal AX_5E • 6 domains $<90^\circ$ e.g. BrF_5
 square planar AX_4E_2 • 6 domains 90° e.g. XeF_4		

More free chemistry worksheets at [worksheetgalaxy.com](https://www.worksheetgalaxy.com)

The full unit, Lewis Structures & VSEPR Mastery, is available in the WorksheetGalaxy TPT store.

Part A: Analyze It

Name _____ Date _____ Period _____

Draw the Lewis structure, then complete the row. Count lone pairs on the central atom only.

FORMULA	LEWIS STRUCTURE	DOMAINS	LONE PAIRS	ELECTRON GEOMETRY	MOLECULAR SHAPE	BOND ANGLE
① CHBr_3						
② SbCl_3						
③ TeBr_2						
④ AlI_3						
⑤ HNO						
⑥ CSe_2						
⑦ NF_2^-						
⑧ SiCl_2F_2						

Part B: Analyze It

Name _____ Date _____ Period _____

These central atoms have expanded octets. Remember: lone pairs go equatorial (5 domains) or opposite each other (6 domains).

FORMULA	LEWIS STRUCTURE	DOMAINS	LONE PAIRS	ELECTRON GEOMETRY	MOLECULAR SHAPE	BOND ANGLE
9) SeCl_4						
10) PBr_5						
11) IF_4^-						
12) SF_5^-						
13) BrF_2^-						
14) AsCl_6^-						

Part C: Sketch It and Fix It

Name _____ Date _____ Period _____

■ Sketch the 3D shape with wedges and dashes

15 SbCl_3 SHAPE _____	16 SeCl_4 SHAPE _____	17 IF_4^- SHAPE _____
--	--	--

■ Fix it: correct the statement and explain

18 <i>PBr₅ is square pyramidal because it has five bonded atoms.</i> CORRECTION _____ WHY? _____
19 <i>SbCl₃ is trigonal planar, just like AlI₃.</i> CORRECTION _____ WHY? _____
20 <i>TeBr₂ is linear (180°) because Te is bonded to two atoms.</i> CORRECTION _____ WHY? _____
21 <i>In IF₄⁻, the two lone pairs on I sit 90° apart.</i> CORRECTION _____ WHY? _____