

SHAPE ASSIGNMENT

CH₄

	✓✓✓	total # of e ⁻ pairs	4
		σ bonding pairs	4
		lone pairs	0
		π bonding pairs	0
		base shape	tetrahedral
		actual shape	tetrahedral
Oxidation State of Central Atom:	C ⁴⁻ ✓	approx. bond angles	109.5°

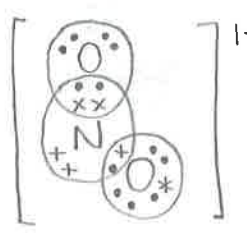
H₂O

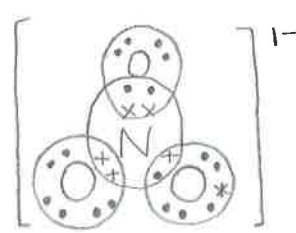
	✓✓✓	total # of e ⁻ pairs	4
		σ bonding pairs	2
		lone pairs	2
		π bonding pairs	0
		base shape	tetrahedral
		actual shape	angular
Oxidation State of Central Atom:	O ²⁻ ✓	approx. bond angles	<109.5°

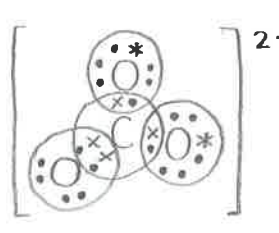
NH₄⁺

	✓✓✓✓	total # of e ⁻ pairs	4
		σ bonding pairs	4
		lone pairs	0
		π bonding pairs	0
		base shape	tetrahedral
		actual shape	tetrahedral
Oxidation State of Central Atom:	N ³⁻ ✓	approx. bond angles	109.5°

SHAPE ASSIGNMENT

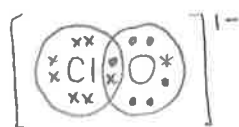
NO_2^- 	✓✓✓✓	total # of e ⁻ pairs	4	
		σ bonding pairs	2	✓
		lone pairs	1	
		π bonding pairs	1	
		base shape	trigonal planar	✓
		actual shape	angular	✓
Oxidation State of Central Atom: N^{3+} ✓		approx. bond angles	$< 120^\circ$	✓

NO_3^- 	✓✓✓✓	total # of e ⁻ pairs	4	
		σ bonding pairs	3	✓
		lone pairs	0	
		π bonding pairs	1	
		base shape	trigonal planar	✓
		actual shape	trigonal planar	* ✓
Oxidation State of Central Atom: N^{5+} ✓		approx. bond angles	120°	✓


CO_3^{2-} 	✓✓✓✓	total # of e ⁻ pairs	4	
		σ bonding pairs	3	✓
		lone pairs	0	
		π bonding pairs	1	
		base shape	trigonal planar	✓
		actual shape	trigonal planar	* ✓
Oxidation State of Central Atom: C^{4+} ✓		approx. bond angles	120°	✓

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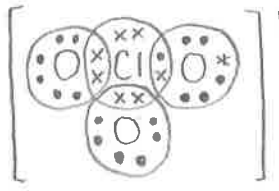
ClO^-

	✓✓✓✓	total # of e^- pairs	4	
		σ bonding pairs	1	
		lone pairs	3	✓
		π bonding pairs	0	
		base shape	tetrahedral	✓
		actual shape	linear	✓
Oxidation State of Central Atom:	Cl^{1+} ✓	approx. bond angles	NA	✓

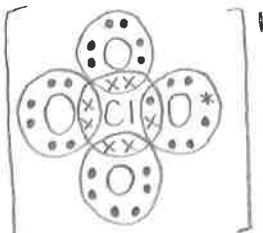
ClO_2^-

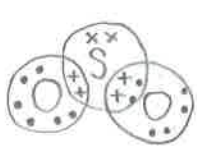
	✓✓✓✓	total # of e^- pairs	4	
		σ bonding pairs	2	
		lone pairs	2	✓
		π bonding pairs	0	
		base shape	tetrahedral	✓
		actual shape	angular	✓*
Oxidation State of Central Atom:	Cl^{3+} ✓	approx. bond angles	$< 109.5^\circ$	✓*


ClO_3^-

	✓✓✓✓	total # of e^- pairs	4	
		σ bonding pairs	3	
		lone pairs	1	✓
		π bonding pairs	0	
		base shape	tetrahedral	✓
		actual shape	pyramidal	✓
Oxidation State of Central Atom:	Cl^{5+} ✓	approx. bond angles	$< 109.5^\circ$	✓*

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ClO_4^- 	✓✓✓✓	total # of e^- pairs	4	
		σ bonding pairs	4	✓
		lone pairs	0	
		π bonding pairs	0	
		base shape	tetrahedral	✓
		actual shape	tetrahedral	✓
Oxidation State of Central Atom:	Cl^{7+} ✓	approx. bond angles	109.5°	✓

SO_2 	✓✓✓	total # of e^- pairs	4	
		σ bonding pairs	2	✓
		lone pairs	1	
		π bonding pairs	1	
		base shape	trigonal planar	✓
		actual shape	angular	✓
Oxidation State of Central Atom:	S^{4+} ✓	approx. bond angles	$< 120^\circ$	✓

SO_3^{2-} 	✓✓✓✓	total # of e^- pairs	4	
		σ bonding pairs	3	✓
		lone pairs	1	
		π bonding pairs	0	
		base shape	tetrahedral	✓
		actual shape	pyramidal	✓
Oxidation State of Central Atom:	S^{4+} ✓	approx. bond angles	$< 109.5^\circ$	✓

SHAPE ASSIGNMENT

SO₄²⁻

	total # of e ⁻ pairs	4	
	σ bonding pairs	4	✓
	lone pairs	0	
	π bonding pairs	0	
	base shape	tetrahedral	✓
	actual shape	tetrahedral	
Oxidation State of Central Atom: S ⁶⁺ ✓	approx. bond angles	109.5°	✓

SO₃

	total # of e ⁻ pairs	4	
	σ bonding pairs	3	✓
	lone pairs	0	
	π bonding pairs	1	
	base shape	trigonal planar	✓
	actual shape	trigonal planar	
Oxidation State of Central Atom: S ⁶⁺ ✓	approx. bond angles	120°	✓

SF₆

	total # of e ⁻ pairs	6	
	σ bonding pairs	6	✓
	lone pairs	0	
	π bonding pairs	0	
	base shape	octahedral	✓
	actual shape	octahedral	
Oxidation State of Central Atom: S ⁶⁺ ✓	approx. bond angles	90°	✓

SHAPE ASSIGNMENT

AsCl ₅		✓✓✓	total # of e ⁻ pairs	5	
		σ bonding pairs	5	✓	
		lone pairs	0		
		π bonding pairs	0		
		base shape	trigonal bipyramidal	✓	
		actual shape	trigonal bipyramidal		
	Oxidation State of Central Atom:	As ⁵⁺ ✓	approx. bond angles	120° & 90°	✓
IF ₅		✓✓✓	total # of e ⁻ pairs	6	
		σ bonding pairs	5	✓	
		lone pairs	1		
		π bonding pairs	0		
		base shape	octahedral	✓	
		actual shape	square-based pyramid		
	Oxidation State of Central Atom:	I ⁵⁺ ✓	approx. bond angles	<90°	✓
XeF ₄		✓✓✓	total # of e ⁻ pairs	6	
		σ bonding pairs	4	✓	
		lone pairs	2		
		π bonding pairs	0		
		base shape	octahedral	✓	
		actual shape	square planar	✓	
	Oxidation State of Central Atom:	Xe ⁴⁺ ✓	approx. bond angles	90°	✓