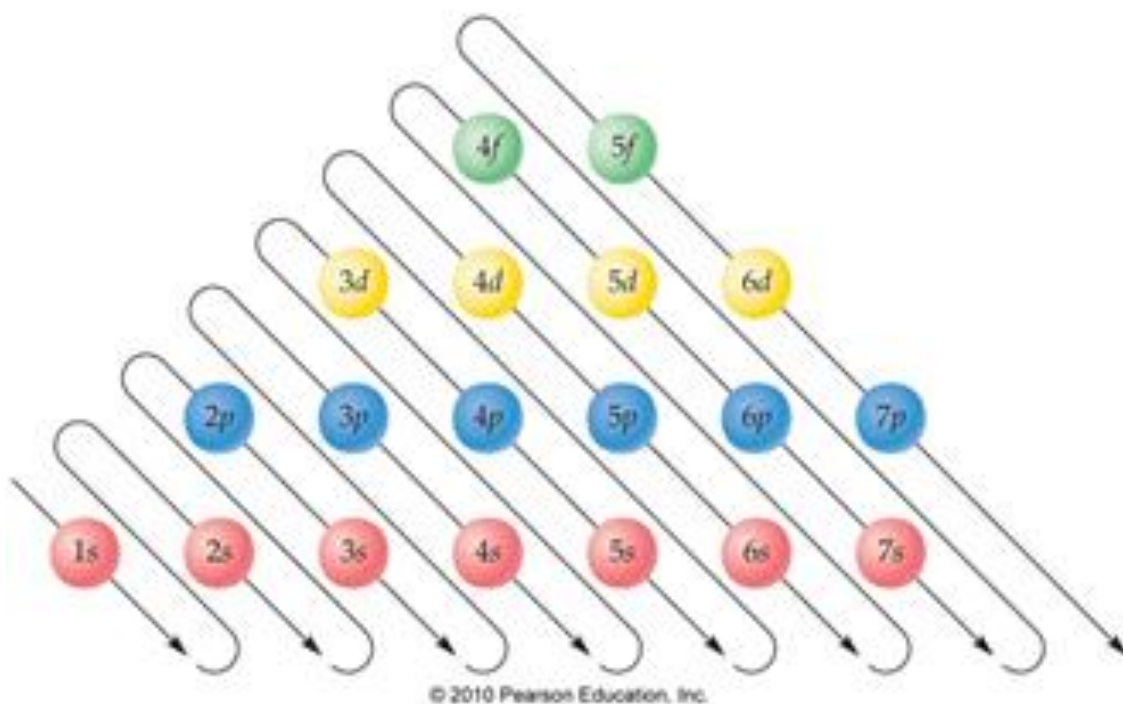


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Electron and Molecular Geometries

# "things attached to central atom"	Electron geometry	# atoms attached to central atom	# unshared pairs attached to central atom	Molecular geometry
2	linear	2	0	linear
3	trigonal planar	3	0	Trigonal planar
3	trigonal planar	2	1	Bent
4	tetrahedral	4	0	Tetrahedral
4	tetrahedral	3	1	Trigonal pyramidal
4	tetrahedral	2	2	bent



Please write legibly! If I can't read it, I can't grade it!
Use appropriate units and significant figures for results of calculations!

JBA 2025 – Content Check #2

Name: _____ Score _____

1. When beryllium forms an ion, what charge will the ion have? (2 points)

- a. +1
b. -1

- c. +2
d. -2

Answer c

2. Which of these bonds do you expect to be the **most** polar? (2 points)

- a. F-F
b. O-F

- c. N-F
d. C-F

Answer d

3. The Lewis structure for carbon dioxide is shown below. Carbon dioxide IS NOT a polar molecule because (2 points)

- a. carbon has a filled valence shell.
b. there are no covalent bonds in CO₂.
c. a C=O bond is not polar.
d. the C=O bond dipoles cancel out.

Answer d

4. Match the term with its definition. (4 points)

<u> C </u> electronegativity	A. a generalization that in most stable molecules, many atoms will share in eight outer electrons to fill their valence shell.
<u> B </u> compound	B. a pure substance made up of two or more elements in a fixed characteristic chemical combination and composition
<u> F </u> bond dipole	C. the tendency for an atom to attract electrons toward itself in a bond.
<u> A </u> octet rule	D. a chemical bond created when a cation and an anion interact..
	E. a chemical bond created when two atoms share electrons.
	F. results from unequal sharing of electrons in a covalent bonds.

5. Complete the table below: (hint: look for a metal) (8 points)

Formula	Name
N ₂ O ₅	dinitrogen pentoxide
PF ₆	phosphorous hexafluoride
Na ₂ O	sodium oxide
Mg ₃ N ₂	magnesium nitride

Please write legibly! If I can't read it, I can't grade it!
Use appropriate units and significant figures for results of calculations!

6. Draw Lewis structures for the following compounds and determine their shape and polarity.
(12 pts)

Species	Draw the Lewis Structure	<u>Molecular Shape</u> Circle the correct shape. (You may build a model)	Polar Molecule? Circle yes or no.
NH ₃	$\begin{array}{c} \text{H}-\ddot{\text{N}}-\text{H} \\ \\ \text{H} \end{array}$	Linear Bent Trigonal Planar Trigonal Pyramidal Tetrahedral	Yes No
CH ₂ O	$\begin{array}{c} \text{:O:} \\ \\ \text{H}-\text{C}-\text{H} \end{array}$	Linear Bent Trigonal Planar Trigonal Pyramidal Tetrahedral	Yes No
CS ₂	$\ddot{\text{S}}=\text{C}=\ddot{\text{S}}$	Linear Bent Trigonal Planar Trigonal Pyramidal Tetrahedral	Yes No

What has been the most fun thing you've done so far this summer, either before or during JBA?