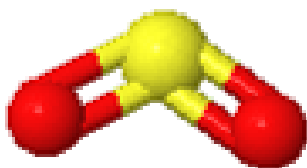


## 1.1- VSEPR- Multiple Bonds Answers

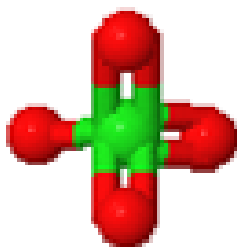
1.


 Refcode: *DADXOW*

 This molecule has  
a lone pair.

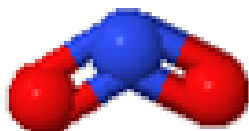
[SO <sub>2</sub> ]	
Central Atom	Sulphur (S)
Valence Shells	6
2 [O] atoms	4
No charge on [S]	0
Total	10
Divide by 2	5
-1 electron pair for each double bond	3
Electron Regions/Shape	<b>3=Trigonal Planar (Bent)</b>

2.


 Refcode: *CRAMCB10*

[ClO <sub>4</sub> ] <sup>-</sup>	
Central Atom	Chlorine (Cl)
Valence Shells	7
4 [O] atoms	7
Negative charge on [Cl] not central atom	0
Total	14
Divide by 2	7
-1 electron pair for each double bond	4
Electron Regions/Shape	<b>4=Tetrahedral</b>

3.

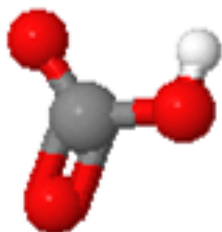

 Refcode: *VAJRIH*

 This molecule has  
a lone pair.

[NO <sub>2</sub> ]	
Central Atom	Nitrogen (N)
Valence Shells	5
2 [O] atoms	4
Negative charge on [N]	1
Total	10
Divide by 2	5
-1 electron pair for each double bond	3
Electron Regions/Shape	<b>3=Trigonal Planar including lone pair (Bent)</b>

4.

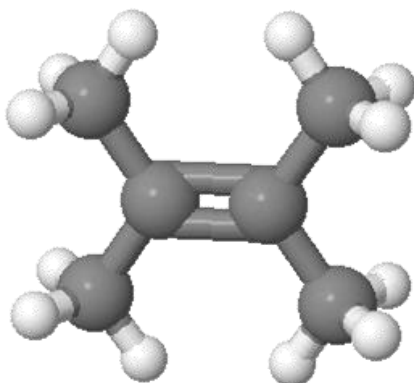
NB: the negative charge is on the Oxygen atom and not the Carbon atom so you don't include it when working out the VSEPR shape of the molecule.


 Refcode: *BASPAN*

[CO <sub>2</sub> (OH)] <sup>-</sup>	
Central Atom	Carbon (C)
Valence Shells	4
3 [O] atoms	4
No charge on [C]	0
Total	8
Divide by 2	4
-1 electron pair for each double bond	3
Electron Regions/Shape	<b>3=Trigonal Planar</b>

5.

NB: when working out the VSEPR shape of this molecule, choose 1 of the carbons from the double bond as the central atom and work out the VSEPR shape. You will still get the same shape despite which carbon you use from the double bond.

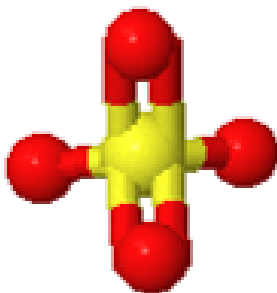


Refcode: *PAPVAD*

$[C_2(CH_3)_4]$	
Central Atom	Carbon (C)
Valence Shells	4
3 [C] atoms	4
No charge on [C]	0
Total	8
Divide by 2	4
-1 electron pair for each double bond	3
Electron Regions/Shape	<b>3=Trigonal Planar</b>

6.

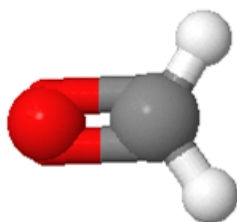
NB: the negative charge is on the Oxygen atoms and not the Sulphur atom so you don't include it when working out the VSEPR shape of the molecule.



Refcode: *ABIZER*

$[SO_4]^{2-}$	
Central Atom	Sulphur (S)
Valence Shells	6
4 [O] atoms	6
No charge on [S]	0
Total	12
Divide by 2	6
-1 electron pair for each double bond	4
Electron regions/Shape	<b>4=Tetrahedral</b>

7.

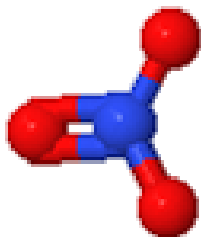


Refcode: *GURNEN*

$[CH_2O]$	
Central Atom	Carbon (C)
Valence Shells	4
1 [O] & 2 [H] atoms	4
No charge on [C]	0
Total	8
Divide by 2	4
-1 electron pair for each double bond	3
Electron Pairs	<b>3=Trigonal Planar</b>

8.

NB: the negative charge is on the Oxygen atom and the Nitrogen atom has a positive charge so you only include the positive charge when working out the VSEPR shape of the molecule.



Refcode: *AEUNIC*

$[NO_2]^+$	
Central Atom	Nitrogen (N)
Valence Shells	5
3 [O] atoms	4
Positive charge on [N]	-1
Total	8
Divide by 2	4
-1 electron pair for each double bond	3
Electron regions/Shape	<b>3=Trigonal Planar</b>