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*Molecule Shapes*

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# What shape is water?

- a. Tetrahedral
- b. Bent
- c. Trigonal planar
- d. Linear

Which of these molecules has a linear molecule geometry?

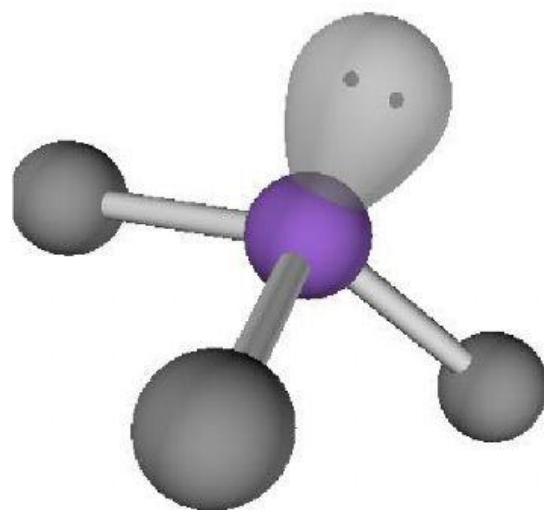
- a.  $\text{CO}_2$
- b.  $\text{O}_3$
- c. Both
- d. Neither

O<sub>3</sub> has 18 valence electrons:



The bonding in ozone is best represented as a blend of these two “resonance structures”.

Which molecule could be represented with this diagram?



- a.  $\text{BH}_3$
- b.  $\text{CH}_4$
- c.  $\text{NH}_3$

What is the molecular geometry of  $\text{H}_2\text{S}$ ?

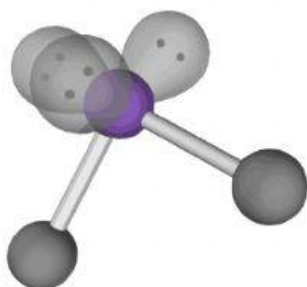
- a. Linear
- b. Tetrahedral
- c. Trigonal pyramidal
- d. Bent

What is the **molecule geometry** and **bond angle** for a molecule  $AX_2$  which has 3 lone pairs on the central atom?

**A**

**Bent**

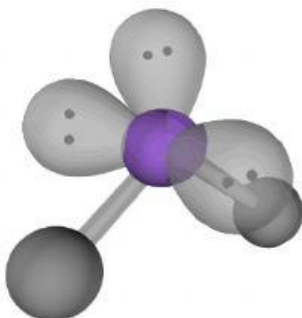
Bond angle  $\approx 90^\circ$



**B**

**Bent**

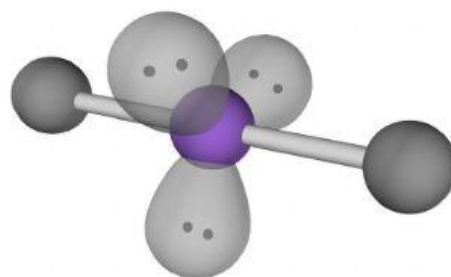
Bond angle  $\approx 120^\circ$



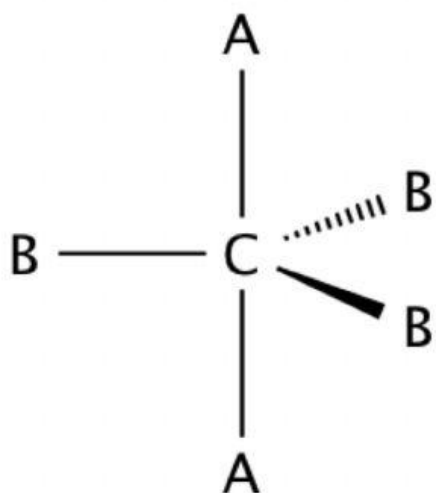
**C**

**Linear**

Bond angle  $\approx 180^\circ$



In a system with **4 atoms** and **1 lone pair**,  
predict the position of the lone pair.

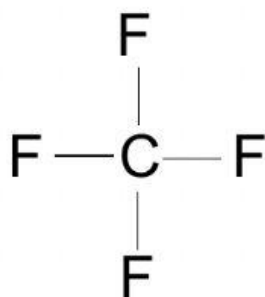


- A. One of the A locations
- B. One of the B locations

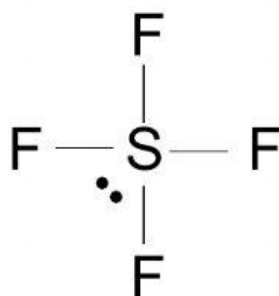


Which of these molecules would you expect to have *different bond angles in the real world* than are predicted by the model?

A



B



C

