

Name:

Date:

Period:

5.1 Tracked Assignment (Objective 1)

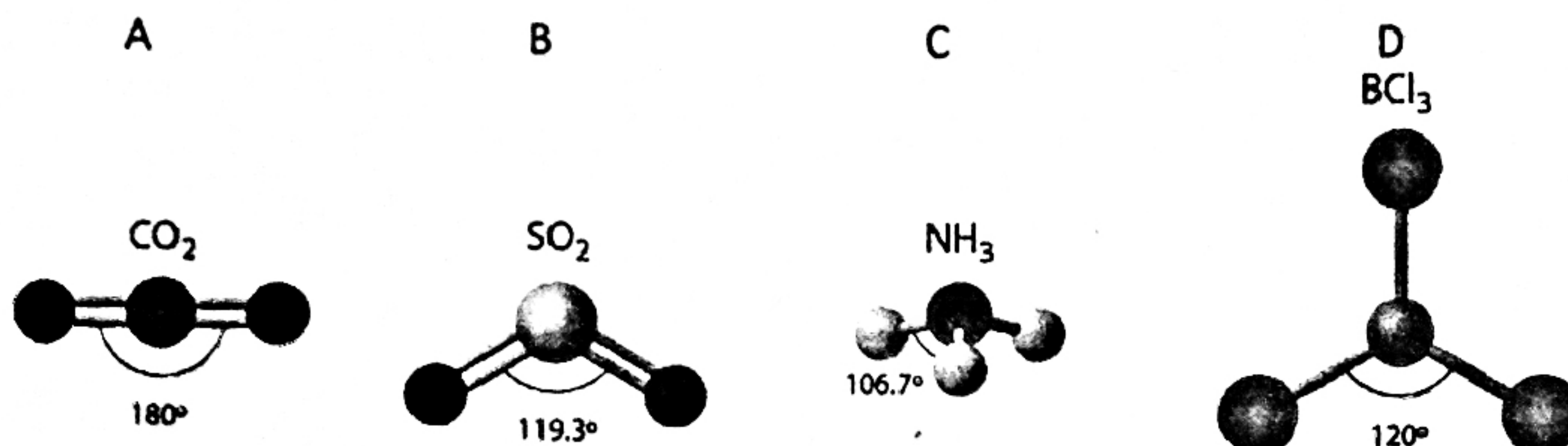
1. Describe VSEPR.

electrons repel causing the molecule to change shape to keep electrons as far apart as possible

2. Using VSEPR explain why a molecule would take on a bent shape instead of a linear shape.

the lone pairs on the bent molecule repel the bonds down from linear to bent

3. Answer the following questions using the picture below.



a. Which molecule(s) have no lone pairs on the central atom?

A & D

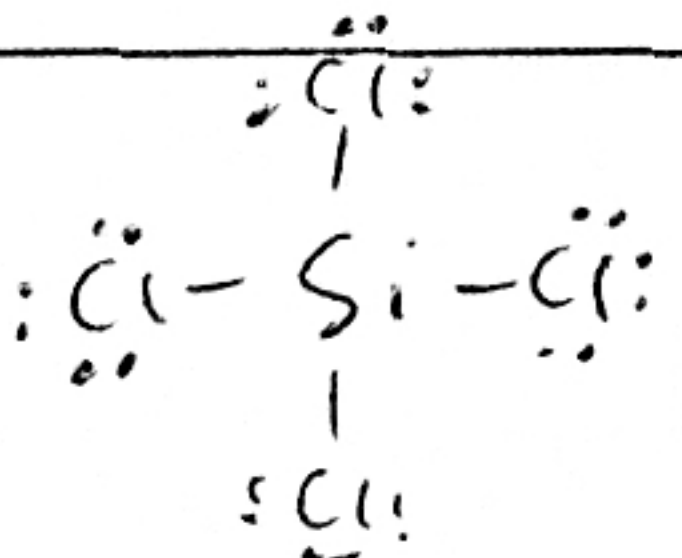
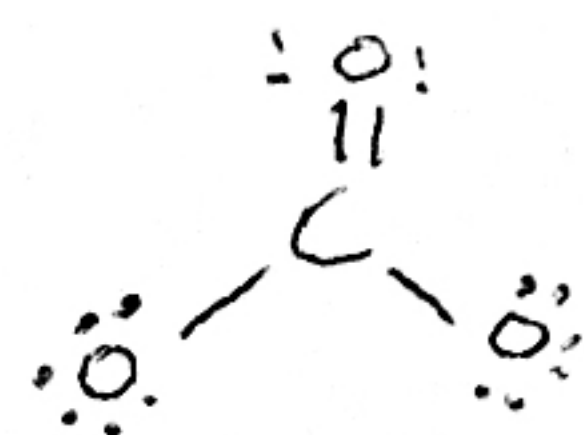
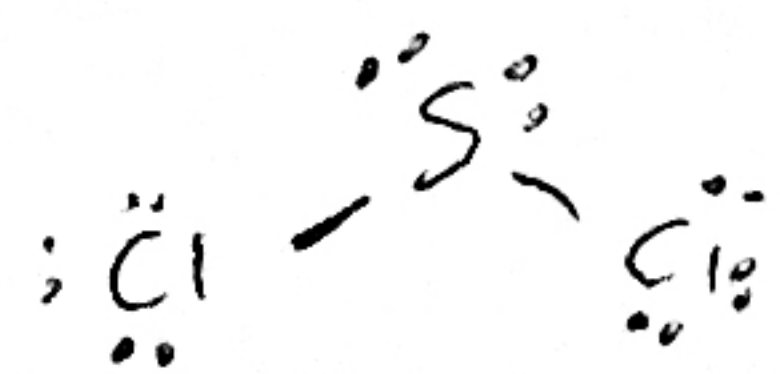
b. Which molecule is trigonal planar?

D

4. What type of shape consists of 2 atoms bonded to the central atom with 2 lone pairs?

bent

5. Fill in the following chart

Molecule	Lewis Structure	Molecular geometry (Shape)
SiCl ₄ (Cl is chlorine)		tetrahedral
CO ₃ ²⁻ 1C x 4 = 4 3O x 6 = 18 <hr/> 22 + 2 = 24		trigonal planar
SCl ₂ (Cl is chlorine)		bent

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Molecule	Lewis Structure	Molecular geometry (Shape)
CO ₂	$\ddot{O} = C = \ddot{O}$	linear
CO	$:C \equiv O:$	Hint: What is the only shape it could look like? linear
H ₂ Se	$H - \ddot{Se} - H$	bent
SeO ₃	$\begin{array}{c} \ddot{O} \\ \\ \ddot{O} - Se - \ddot{O} \\ \\ \ddot{O} \end{array}$	trigonal planar
H ₃ O ⁺ 3H x 1 = 3 1O x 6 = 6 <u>9</u> -1 <u>8</u>	$\left[\begin{array}{c} H - \ddot{O} - H \\ \\ H \end{array} \right]^+$	trigonal pyramidal
PBr ₅	$\begin{array}{c} \ddot{Br} \\ \\ \ddot{Br} - P - \ddot{Br} \\ \\ \ddot{Br} \end{array}$	trigonal bipyramidal
RnF ₄ 1Rn x 8 = 8 4F x 7 = 28 <u>36</u>	$\begin{array}{c} \ddot{F} \quad \ddot{F} \\ \diagdown \quad / \\ \ddot{F} - Rn - \ddot{F} \\ \diagup \quad \diagdown \\ \ddot{F} \quad \ddot{F} \end{array}$	square planar
TeF ₆	$\begin{array}{c} \ddot{F} \\ \\ \ddot{F} - Te - \ddot{F} \\ / \quad \backslash \\ \ddot{F} \quad \ddot{F} \\ \\ \ddot{F} \end{array}$	octahedral