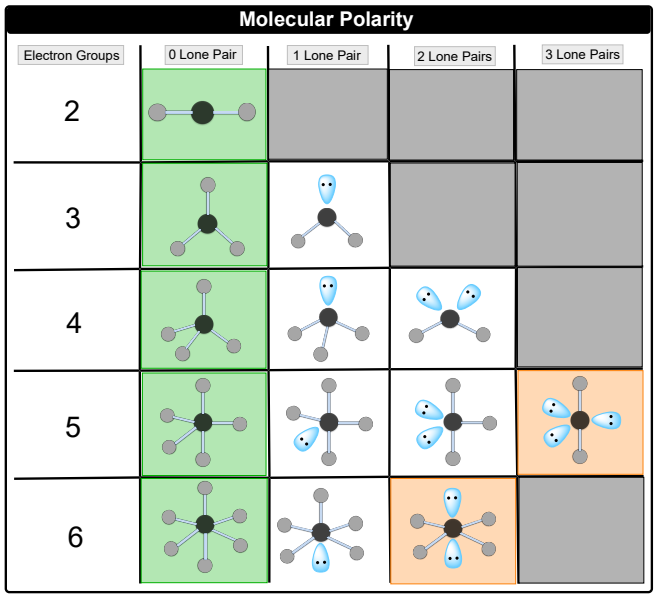
CONCEPT: MOLECULAR POLARITY

Molecular Polarity & Perfect Shapes

- Recall, polarity of chemical bonds arises from _____ sharing of electrons between atoms based on electronegativity.
  - □ **Molecular Polarity:** Polarity that arises for a(n) _____ molecule.
  - □ **Nonpolar Molecule:** Any hydrocarbon and any non-hydrocarbon with a symmetrical (*perfect) shape*.
    - **Perfect Shape I:** central element has _____ surrounding elements and has ____ lone pairs.
    - **Perfect Shape II:** central element has _____ surrounding elements and is _____ or _____.
  - □ **Polar Molecule:** Any Lewis Dot Structure that doesn't have a perfect shape.



EXAMPLE: Determine if carbon tetrachloride, CCl_4, is polar or nonpolar.

PRACTICE: Determine if the compound of BCl_2F is polar or nonpolar.

CONCEPT: MOLECULAR POLARITY

PRACTICE: Determine if phorphorus trihydride, PH_3, is polar or nonpolar.

a) Polar b) Nonpolar c) Cannot be determined

PRACTICE: Which of the following compounds is/are nonpolar?

I. COF_2 II. ICl_2^- III. XeF_4 IV. C_8H_{18}

a) I only b) II, IV c) I, III d) II, III, IV e) All of the above

PRACTICE: Determine if disulfur dichloride, S_2Cl_2, is polar or nonpolar.

a) Polar b) Nonpolar c) Cannot be determined