

How to Draw Lewis Structures

1

Count valence electrons

Add each atom's valence electrons. Add 1 per negative charge, subtract 1 per positive charge.

2

Pick the central atom

Usually the least electronegative atom. H and F are always on the outside.

3

Connect with single bonds

Join each outer atom to the center. Each bond uses 2 electrons.

4

Complete the outer octets

Add lone pairs to outer atoms until each has 8 electrons (H needs only 2).

5

Place the leftovers

Put any remaining electrons on the central atom as lone pairs.

6

Make multiple bonds if needed

If the center has fewer than 8, move outer lone pairs into double or triple bonds. Ions go in brackets.

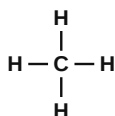
■ Usual bonding patterns

Hydrogen



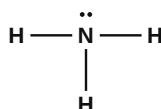
1 bond

Carbon



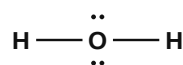
4 bonds

Nitrogen



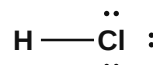
3 bonds, 1 lone pair

Oxygen



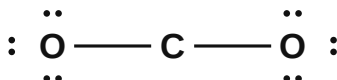
2 bonds, 2 lone pairs

Halogens

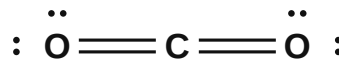


1 bond, 3 lone pairs

■ Worked example: CO₂ (16 valence electrons)



Single bonds + outer octets use all 16, but C has only 4



Move one lone pair from each O into a bond: every atom has 8

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The full unit, Lewis Structures & VSEPR Mastery, is available in the WorksheetGalaxy TPT store.

Part A: Draw It

Name _____ Date _____ Period _____

Write the total number of valence electrons, then draw the Lewis structure. Show every lone pair.

① CH_3Br

VALENCE e^- _____

② NBr_3

VALENCE e^- _____

③ SiHCl_3

VALENCE e^- _____

④ SBr_2

VALENCE e^- _____

⑤ HOBr

VALENCE e^- _____

⑥ CH_3OCH_3

VALENCE e^- _____

⑦ PI_3

VALENCE e^- _____

⑧ $\text{C}_2\text{H}_5\text{Cl}$

VALENCE e^- _____

Part B: Draw It

Name _____ Date _____ Period _____

These need double or triple bonds, or are ions. Use brackets and show the charge for ions.

9 N_2F_2

VALENCE e^- _____

10 $\text{C}_2\text{H}_3\text{F}$

VALENCE e^- _____

11 C_3H_6

VALENCE e^- _____

12 HS^-

VALENCE e^- _____

13 C_2^{2-}

VALENCE e^- _____

14 BCl_4^-

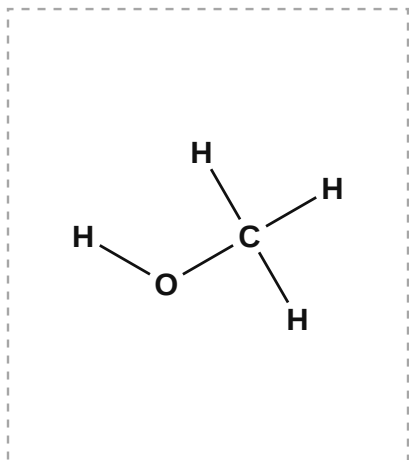
VALENCE e^- _____

Part C: Fix It

Name _____ Date _____ Period _____

Each structure below was drawn by a student and has one mistake. Explain what's wrong, then draw the correct structure.

① A student drew CH_3OH like this:

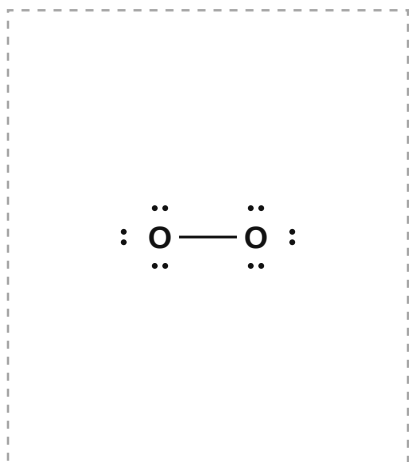


WHAT'S WRONG? _____

CORRECT STRUCTURE



② A student drew O_2 like this:

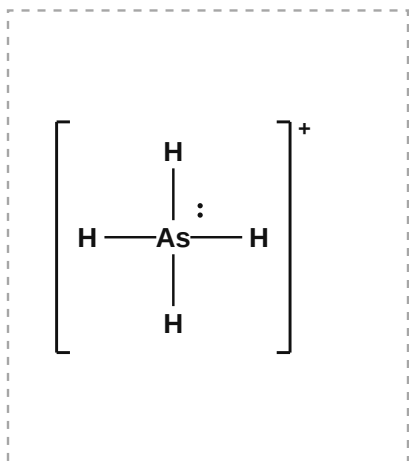


WHAT'S WRONG? _____

CORRECT STRUCTURE



③ A student drew AsH_4^+ like this:



WHAT'S WRONG? _____

CORRECT STRUCTURE

