

Lewis Dot Structure Practice Problems

Steps for Drawing a Reasonable Lewis Dot Structure:

1. Count up the number of valence electrons for all of the atoms in the formula.
 - a. Add electrons if the formula is negatively charged.
 - b. Subtract electrons if the formula is positively charged.
2. Place the least electronegative element in the center of the molecule, surrounded by the outer atoms.
3. Connect the central atom to the outer atoms with single bonds. Remember, each single bond represents the sharing of 2 electrons.
4. Fill the octet of each outer atom by adding lone pairs of electrons.
5. If additional electrons are still needed in the structure, add the remaining electrons to the central atom as lone pairs.
6. Check to make sure each atom (other than Hydrogen) has a complete octet. If the central atom has less than 8 electrons, form a double or triple bond between the outer atoms and central atom as necessary.
 - a. Remember that hydrogen can only form one bond, since its outer shell can hold a maximum of 2 electrons (duet).
 - b. Elements larger than Neon can accommodate more than 8 electrons (an expanded octet).

Write Lewis Dot Structures for each neutral molecule or polyatomic ion listed below.

- A. NH_3
- B. NH_4^{+1}
- C. CS_2
- D. CF_4
- E. ClO_3^{-1}
- F. ClO_2^{-1}
- G. H_2CS
- H. PO_3^{-3}