

GUIDELINES FOR WRITING LEWIS STRUCTURES

The following sequence is applicable in all cases, except when the central atom has an expanded octet !!

1. Count the total number of valence electrons available (**A**). If the species is a cation, subtract a number of electrons, equal to the charge value; if the species is an anion, add a number of electrons equal to the charge value.
2. Calculate the total number of necessary electrons (**B**), in order for each atom to achieve an octet (i.e. 8 electrons for the atom of any element besides hydrogen. Hydrogen needs only two electrons!!).
3. Subtract and divide: $(\mathbf{B} - \mathbf{A})/2 = \mathbf{number\ of\ bonds}$.
4. Construct a meaningful structure with the above calculated number of bonds.
5. Find out if any electrons remain: $\mathbf{A} - (2 \times \mathbf{number\ of\ bonds})$.
6. If electrons remain, first assign them (as pairs) to the terminal atoms, so each has a valence octet.
7. Assign the rest of electrons (if any) to the central atom, even if it gives that atom more than an octet.
8. Assign formal charges, if applicable;
Do not forget: Hydrogens are ALWAYS terminal!

FORMAL CHARGE

Formal Charge = group # - lone pair electrons - $\frac{1}{2}$ (shared electrons)