

Chemistry: Lewis Structures Notes

1) In a molecule or ion, **count** the number of **valence electrons**.

A) In a molecule,

Ex: H_2O # of valence e^- =

Ex: C_2H_4 # of valence e^- =

B) In a polyatomic cation,

Ex: NH_4^+ # of valence e^- =

C) In a polyatomic anion,

Ex: ClO^- # of valence e^- =

2) Select the **central atom**.

A) Central atom =

Ex: H_2O =

Ex: NH_4^+ =

Ex: C_2H_4 =

Ex: ClO^- =

3) Write the **central atom** and draw a **skeleton structure**.

Ex: H_2O =

Ex: C_2H_4 =

Ex: NH_4^+ =

Ex: ClO^- =

4) For **each bond** in a molecule or ion, **subtract 2 e^-** from the total # of valence electrons.

Ex: H_2O =

Ex: C_2H_4 =

Ex: NH_4^+ =

Ex: ClO^- =

5) Determine the # of e^- **needed** to complete the **octet rule** around each atom. (*Exception- Hydrogen is filled with 2 e^-*)

Ex: H_2O =

Ex: C_2H_4 =

Ex: NH_4^+ =

Ex: ClO^- =

6) If the number of e^- available from step 4 is **NOT** enough to provide all atoms with octets, there must be one or more **multiple bonds!!!** (*See back-side for rules*).

Ex: H_2O =

Ex: C_2H_4 =

Ex: NH_4^+ =

Ex: ClO^- =

7) If the number of e^- available is 2 short of the e^- needed than _____.

If the number of e^- available is 4 short of the e^- needed than _____.

If this is not possible than _____.