

Al-Mustaqbal University College

Department of Medical Physics

First Class

General Chemistry

Lec 10

Lewis rules

M.S.C.Dooda.Nassr

Drawing Lewis Structures with Many Atoms

1. Gather information.

- Draw a Lewis structure for each atom in the compound. When placing valence electrons around an atom, place one electron on each side before pairing any electrons.
- Determine the total number of valence electrons in the compound

2. Arrange the atoms.

- Arrange the Lewis structure to show how the atoms bond in the molecule.
- Halogen and hydrogen atoms *often* bind to only one other atom and are *usually* at an end of the molecule.
- Carbon is often placed in the center of the molecule.
- You will find that, with the exception of carbon, the atom with the lowest electronegativity is often the central atom.

3. Distribute the dots.

- Distribute the electron dots so that each atom, except for hydrogen, beryllium, and boron, satisfies the octet rule.

4. Draw the bonds.

- Change each pair of dots that represents a shared pair of electrons to a long dash.

5. Verify the structure.

- Count the number of electrons surrounding each atom. Except for hydrogen, beryllium, and boron, all atoms must satisfy the octet rule. Check that the number of valence electrons is still the same number you determined in step 1.

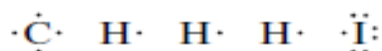
SAMPLE PROBLEM A

Drawing Lewis Structures with Single Bonds

Draw a Lewis structure for CH_3I .

1 Gather information.

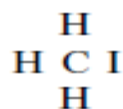
Draw each atom's Lewis structure, and count the total number of valence electrons.



number of dots: 14

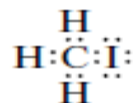
2 Arrange the atoms.

Arrange the Lewis structure so that carbon is the central atom.



3 Distribute the dots.

Distribute one bonding pair of electrons between each of the bonded atoms. Then, distribute the remaining electrons, in pairs, around the remaining atoms to form an octet for each atom.



4 Draw the bonds.

Change each pair of dots that represents a shared pair of electrons to a long dash.