IB/HL2 Chemistry **Name:** _____
Lewis Structures and Shapes **Date:** _____

Procedure for determining Lewis Structure

1. Determine the total number of valence electrons present in the species. In the case of anion, add or subtract appropriate number of electron.
2. Determine the central atom and assign single bonds between the central atom and the others.
3. Complete octets—assign the remaining electrons around each atom such that the valence shell contains 8 electrons in all.
4. Check that all electrons are accounted for.
    a. If electrons leftover, place on the central atom.
    b. If not all electrons accounted for, introduce double, triple or dative covalent bonds as appropriate.

1. Determine Lewis structures for diatomic elements: nitrogen, oxygen, and fluorine.

2. Determine Lewis structures for molecules of covalent hydrides of period 2 elements: LiH, BeH_2, BH_3, CH_4, NH_3, H_2O, HF.

3. Determine Lewis structures for polyatomic ionic species: SO_4^{2-}, BF_4^-, NO_3^-, NH_4^+

4. Determine Lewis structures for other molecules: CO, CO_2, CH_2CH_2, HNO_3

5. Determine Lewis structures of molecules of covalent hydrides and chlorides of period 3 elements.