# Bohr and Lewis Compounds: Extra Practice (Science 10)

1. Draw the Bohr and Lewis diagrams for each of the following compounds.
   a) $Cl_2$ (covalent)
   b) HF (covalent)
   c) $CaF_2$ (ionic)
   d) $NF_3$ (covalent)

2. Draw these ionic compounds:
   a) MgO
   b) $Li_3N$
   c) Ionic compound between sodium and sulfur
   d) Ionic compound between beryllium and nitrogen

3. Complete the following table. Molecules are all covalently bonded.

| | Chemical Formula | Total Valence Electrons | Lewis Diagram | # Lone Pairs | # Bonding Pairs |
|---|---|---|---|---|---|
| a) | $CH_4$ | | | | |
| b) | $O_2$ | | | | |
| c) | $NH_3$ | | | | |
| d) | $SiH_4$ | | | | |
| e)* | $CN^-$ | | | | |
| f)* | $C_2H_4$ | | | | |
| g)* | $CO_3^{2-}$ | | | | |

*Challenge: optional

4. Explain why the diatomic elements (H, I, Br, O, N, Cl, F) exist in nature as covalently bonded molecules $H_2$, $I_2$, $Br_2$, $O_2$, $N_2$, $Cl_2$, $F_2$.