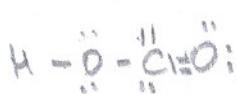
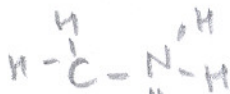
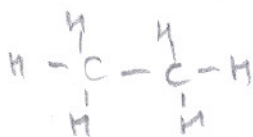
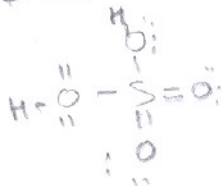
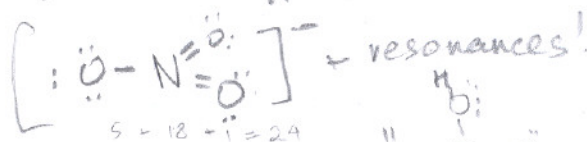
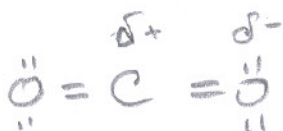


Lewis Structures

Methodology for drawing Lewis Structures

1. Make a symmetrical skeleton structure with the least electronegative element central.
  - a) except for H which is never central.
  - b) oxygen is generally not bonded to itself.
  - c) nonbinary acids (not HCl etc.) the H is ALWAYS bonded to O which is in turn bonded to the third element (call it E), so that you have E-O-H as part of the structure.
  - d) many molecules have several "central atoms" which are bonded to each other.
2. Count up the total valence electrons from all the atoms, add or subtract electrons to the total for ions.
3. Use a pair of electrons to form a bond between each pair of atoms in your skeleton structure.
4. Arrange the remaining electrons from your total so that each atom has 8 electrons around it (the octet rule). Make double and triple bonds as needed so that all atoms have access to eight electrons. (Recall exceptions to the octet rule, for example H needs only 2 electrons not eight, B and Be and all elements beyond the third period elements can be exceptions.) *+ few others → Si, H<sub>2</sub>SO<sub>4</sub>!*

Practice



*(1 + 7 + 12 = 20)*



*5 + 6 x 2 = 17 ← resonance!*

*Unusual, unpaired non-bonding e<sup>-</sup>!*

*Do in this order!*