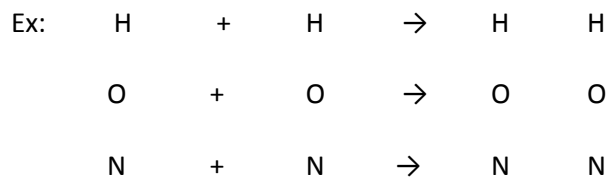


Success 24/7 Chemistry Notes: Covalent Bonds- Lewis Dot Structures

Covalent bonds:

A bond between 2 or more nonmetals. Electrons are shared between two atoms.

Lewis dot structures can be useful for representing covalent bonds in compounds.



Rules for drawing Lewis Dot Structures: *USE PENCIL!*

1. Add up the valence electrons from all the atoms in the compound.
 - Don't try to keep track of which electrons come from which atoms.
 - If you are working with an ion, you must add or subtract electrons to account for the charge.
2. Put the element that you have the fewest of as the central element.
 - Put the elements in spatial order.
3. Use a pair of electrons to form a bond between each pair of atoms.
4. Arrange the remaining electrons to satisfy the duet rule for hydrogen and the octet rule for all remaining atoms.
5. Count the number of electrons represented in the drawn molecule.
 - If two too many electrons are represented:
 - draw a double bond between two elements
 - remove a pair of electrons from each element taking place in the bond.



Molecule	Electron Count	Lewis Dot Structure
SO ₃		
CBr ₄		
N ₂		
PO ₄ ³⁻		
SO ₃ ²⁻		
NO ₂ ⁻		

Resonance Structures:

Structures that can occur when it is possible to write two or more valid electron dot structures that satisfy the octet rule.

Draw both 2 resonance structure for NO₂⁻: