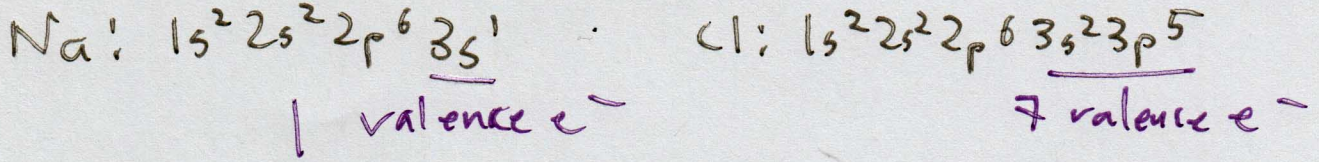




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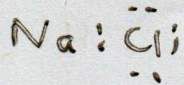
Ionic bond - A bond formed by atoms of opposite charge.

Lewis symbols - Symbols based on the octet rule used to express the number of electrons in the outermost (valence) shell of an atom.



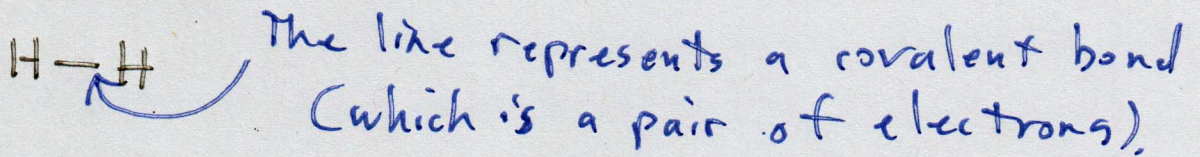
Na  → If sodium lost a single e⁻, it would then have an octet configuration, this why Na tends to form ions with +1 charge

 → If chlorine gains an e⁻, it would have an octet configuration, which is why Cl tends to form ions with -1 charge.

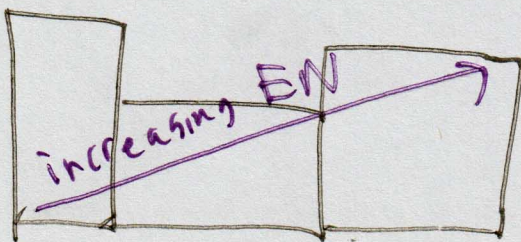


In forming sodium chloride, an electron is transferred from sodium to chlorine, forming Na⁺ and Cl⁻. Once the ions form, they come together in an ionic bond due to their opposite charges.

Covalent bond - A bond that is formed by electrons being shared between atoms.



Electronegativity - The ability of atoms to pull electrons towards themselves when part of a bond.



Electronegativity is higher on the top of the table since electrons are closer to nucleus, and it is higher to the right of the table because atoms are closer to completing an octet.

The type of bond that forms between two atoms depends ^{L2} on the difference in electronegativity (EN).

- In NaCl, the atoms have a large difference in EN, so they form an ionic bond.

- In H₂, the atoms have equal electronegativity, so they form a covalent bond.

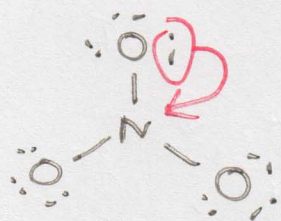
Lewis dot structures

monatomic ions - an ion that contains only one atom

NO₃⁻ nitrate

polyatomic ion - an ion that contains multiple atoms

In most polyatomic ions, the first atom listed is the central atom and the other atoms listed surround that central atom.



Rules of writing Lewis structures

1) count the total # of valence electrons
30 + 1N + negative charge
3x6 + 1x5 + 1 = 24 e⁻

2) draw single bonds between appropriate atoms

3) place the remaining electrons around the most electronegative atoms first, following the octet rule

4) if atoms do not have an octet, electrons are moved between atoms to form additional bonds to complete octets.

