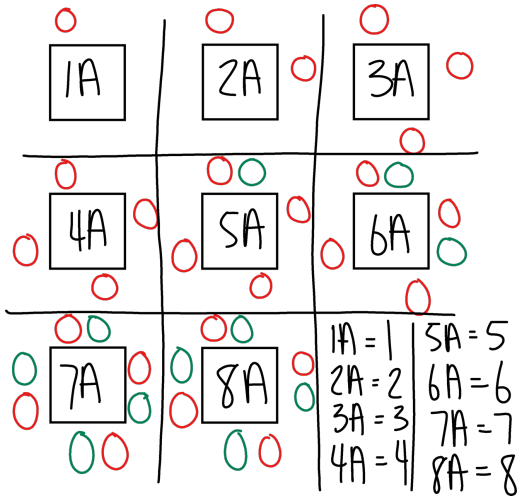
Lewis Dot Structures Review



Valance Electrons are the outer *bonding* electrons.

Bonding is the connection of *two or more* atoms due to the *transfer* or *sharing* of valance electrons.

Lewis Dot Structures are visual representation of *valance electrons* using dots in a **electron filling order**

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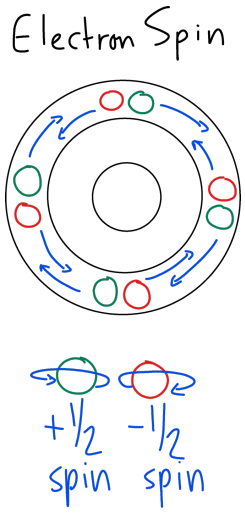
Pairs of Electrons



Electron Pairs

An ***electron pair*** is a set of electrons that exist in the same area (*orbital*) of the atom. An *orbital* is a location within an atom that electrons can exist (*labeled s, p, d, and f*)

Electron Spin

An ***electron spin*** is the *direction* that an individual electron travels within an atom. (*labeled as +1/2 and -1/2 spin*)

Both electrons in a pair have opposite spins

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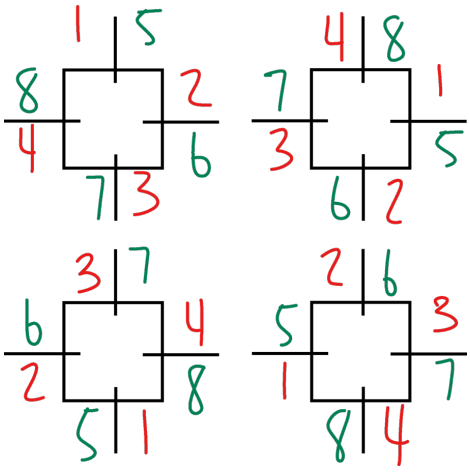
Electron Filling Order



Electron Filling Order is the method that *valence electrons* fill around the outside of the atom.

Electrons always fill in a **4 – 4 pattern** around the *Lewis Dot Structure.*

4 – 4 Pattern
One Electrons on each side of the structure, then pair in the same order

Electron filling can start on any side

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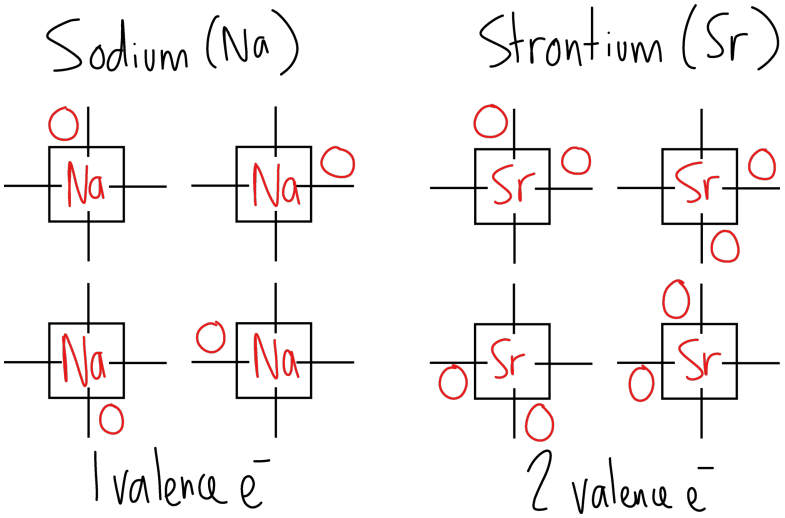
Metal Electron Filling Order



Representative Metals Atoms
(*groups 1A, 2A, Al*) only have a single valance electron on each side of the dot structure

No paired e⁻

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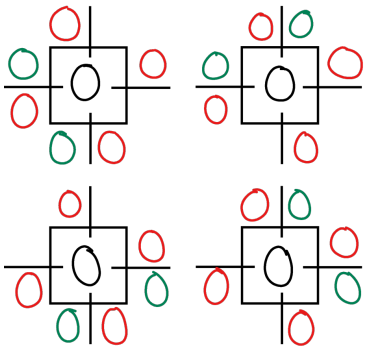
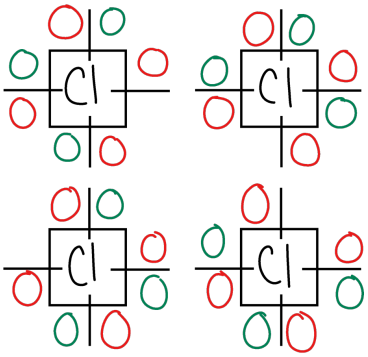
Non-Metal Electron Filling Order

Oxygen, O



6 valence e⁻

Chlorine, Cl



7 valence e⁻

Representative Non-Metal Atoms (*groups 5A – 8A*) will have a combination of paired & unpaired valance electrons

Paired e⁻
Unpaired e⁻

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