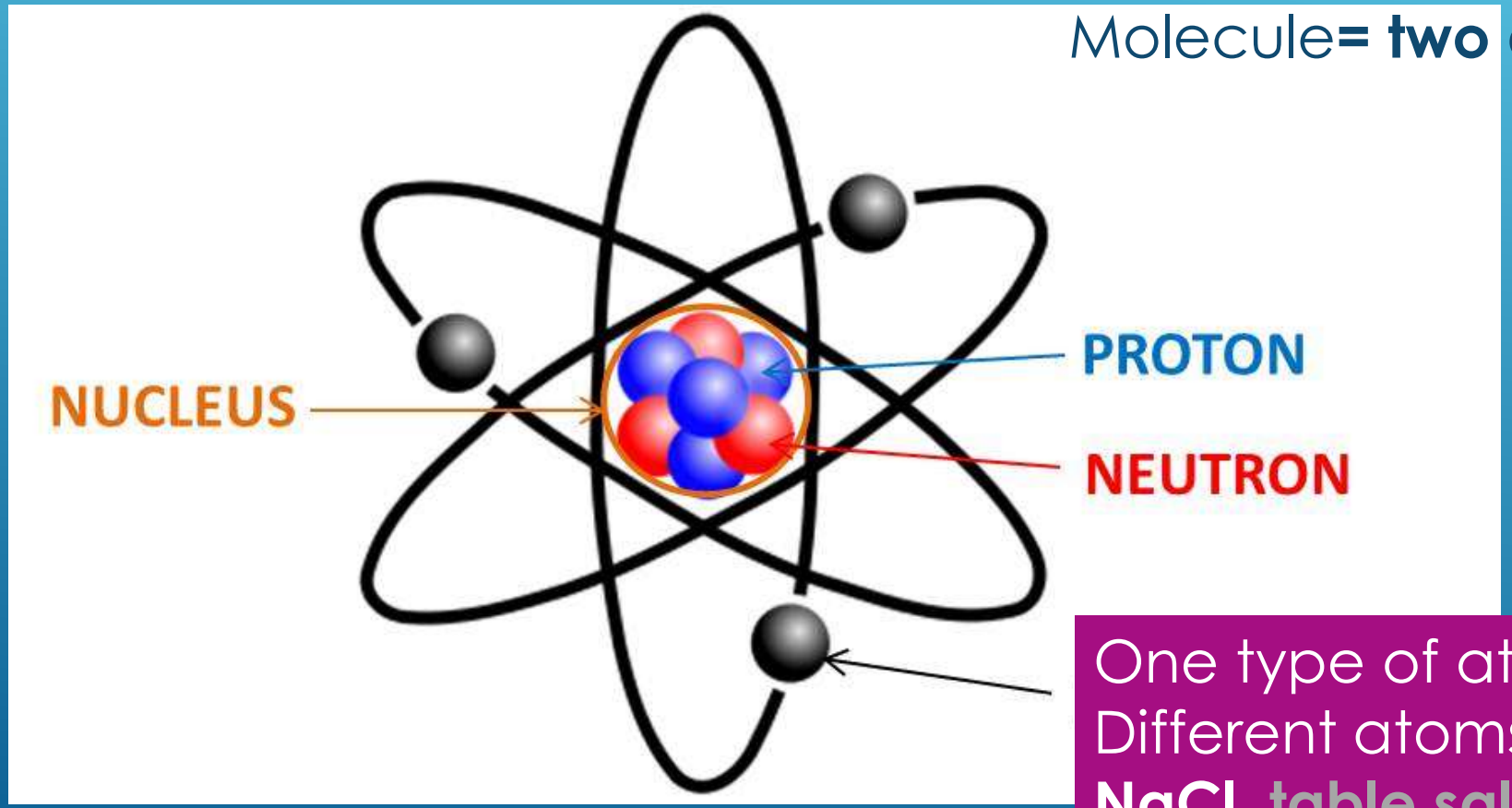
MOLECULES

Chapter 2

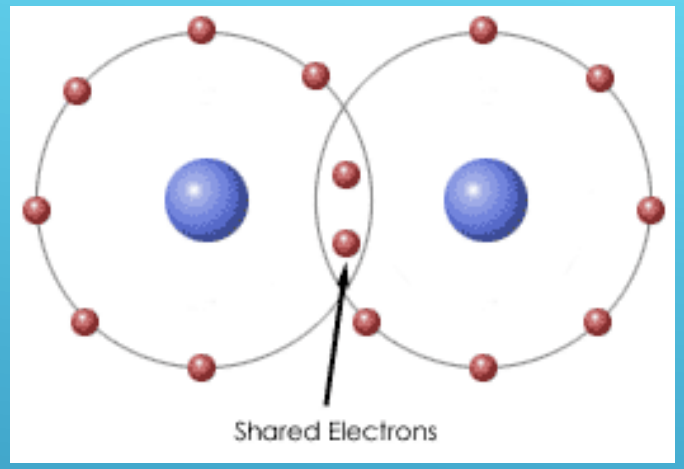
REVIEW OF AN ATOM

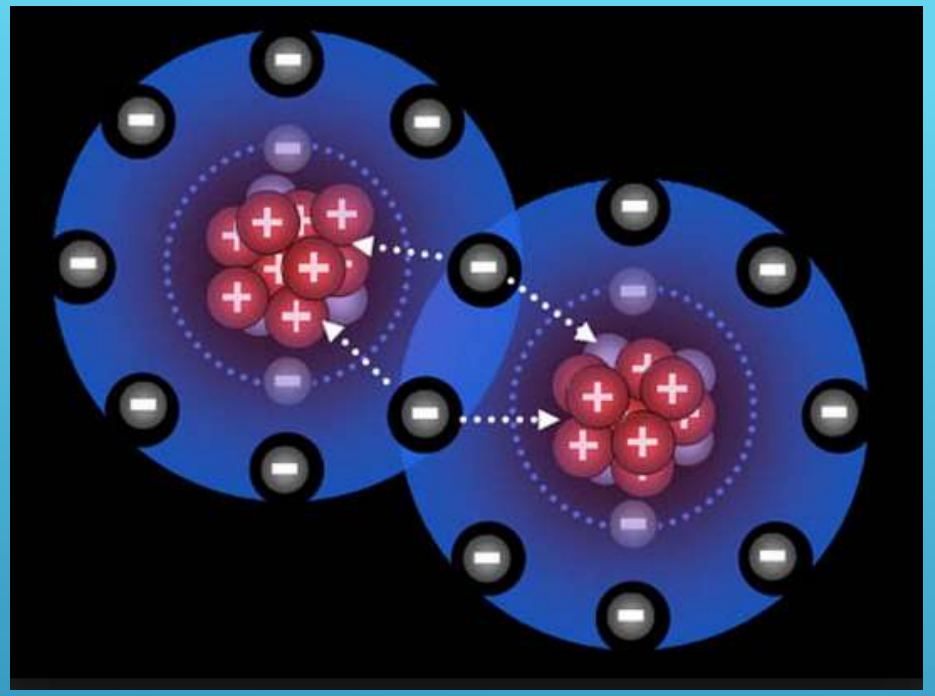
Sometimes atoms "stick" together…

Molecule**= two atoms combined**



One type of atom= **Gold**
Different atoms combined=
NaCl, **table salt**

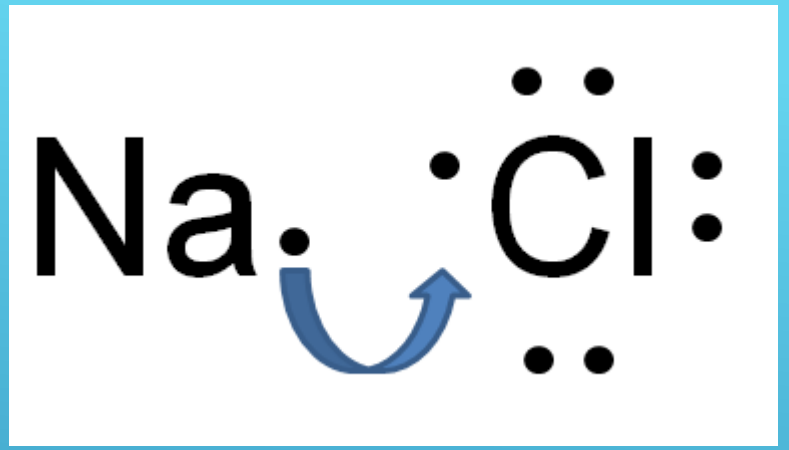




FORMING BONDS

- Electrons like to share
- Cause the atoms to “stick” to each other
- **Bond-** the attachment between two atoms
- Ex. Hydrogen

ORBITALS



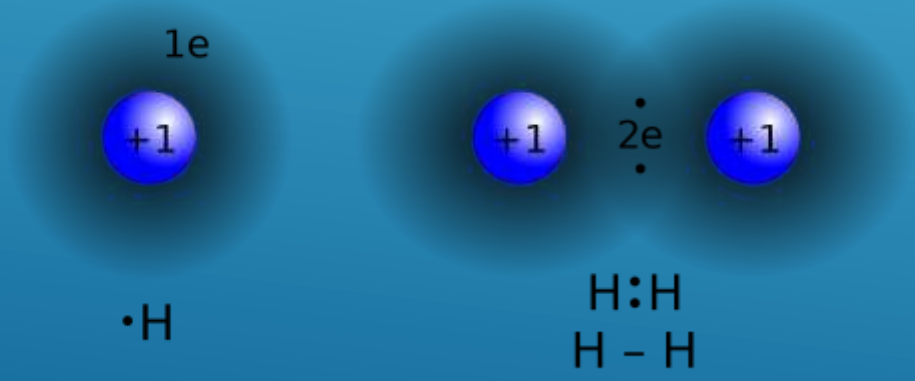
- Electron clouds= orbitals
- Space for electrons to be
- **Is there enough space?** Then the electrons can bond.
- **What if the orbital is full?** No bonding can happen.

Nobel Gases

TYPES OF BONDS

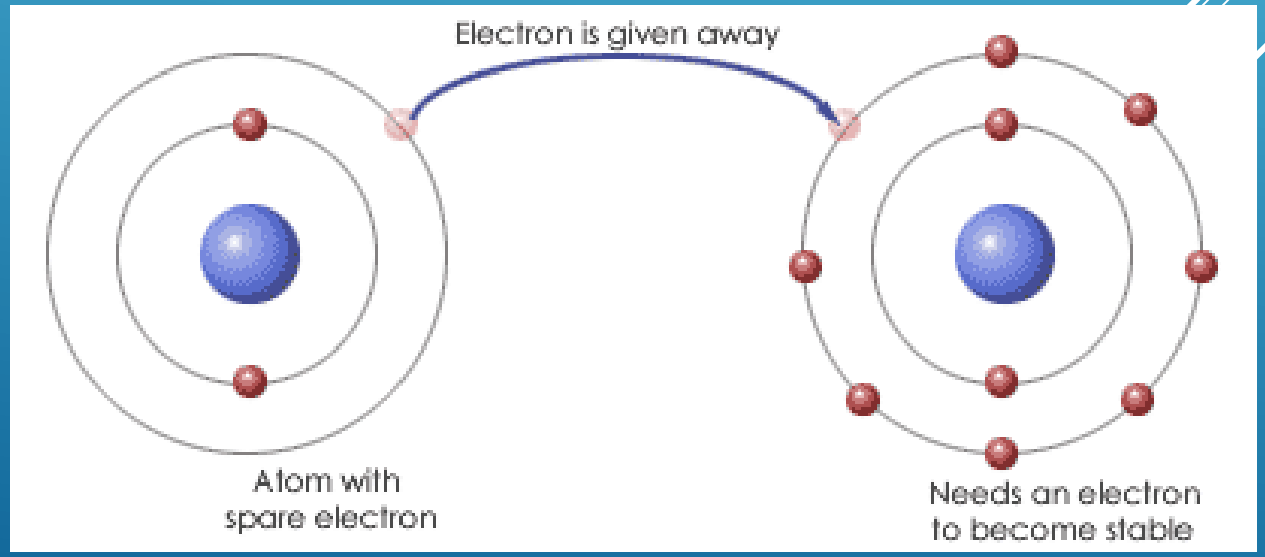
Shared Electron Bond

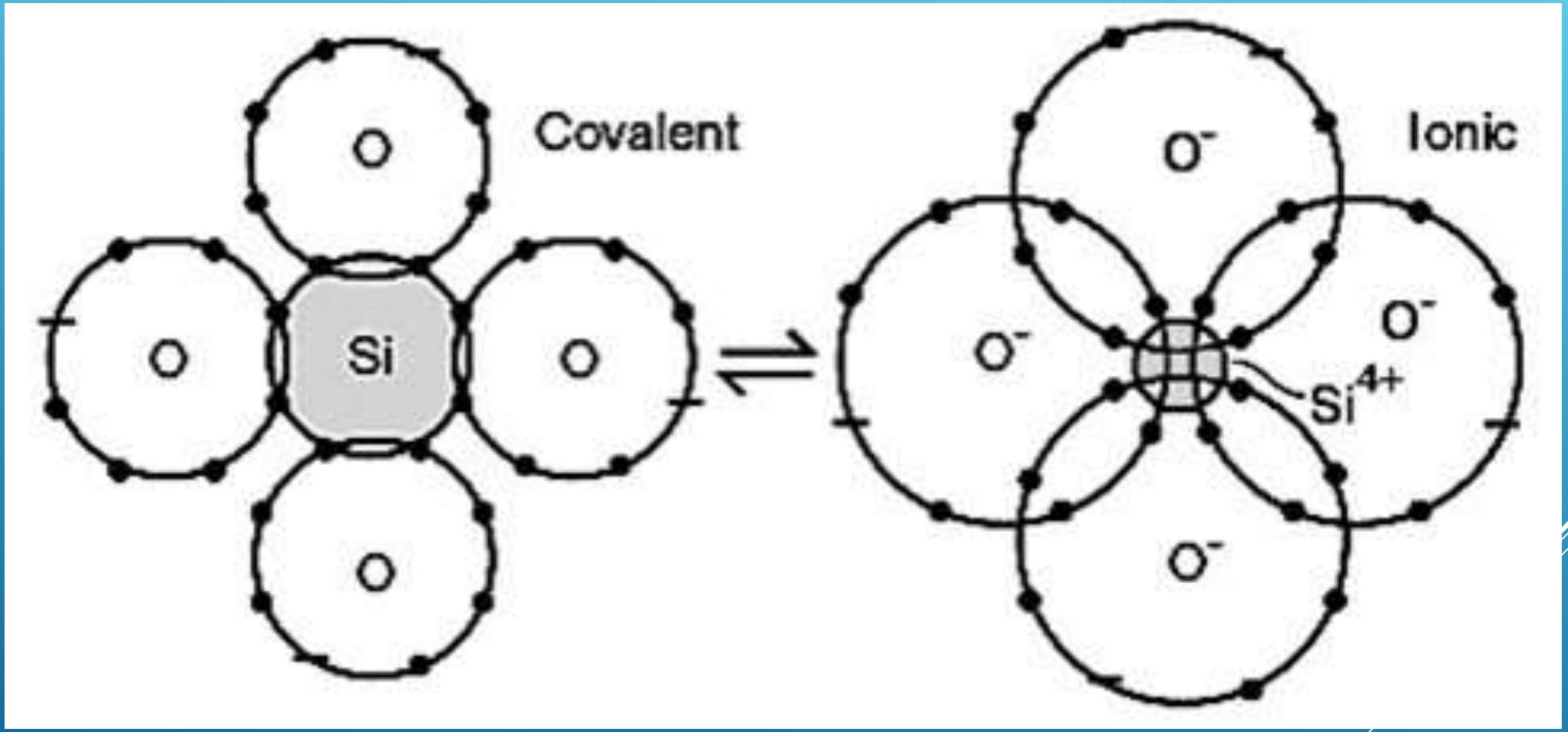
- Electrons are shared between two atoms
- **Co**valent bonds= equally shared
- "Sharing is **C**aring!"



Unshared Electron Bond

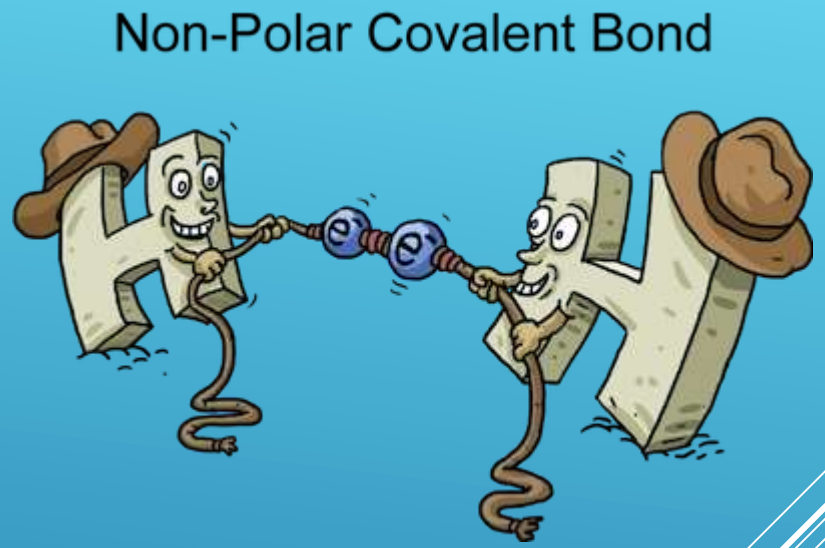
- One atom takes more electrons for itself
- **I**onic bonds= one atom doesn't share
- "**I** want it for myself."



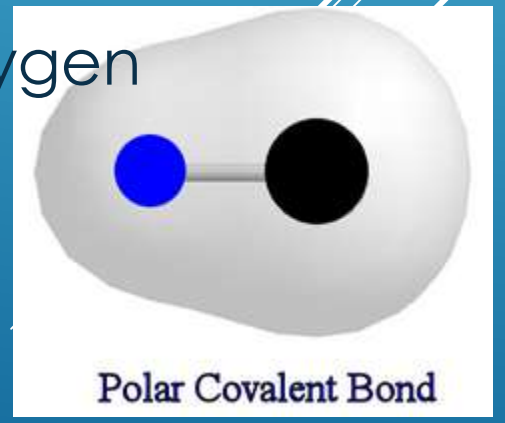

Covalent
O
O
Si
O
O
Ionic
O⁻
O⁻
O⁻
Si4+
O⁻

COVALENT BONDS

- Atoms that are identical have equal power
- Share **equally**



- Atoms that are not the same, but still want to share
- Share ***mostly*** equally
- Ex- Carbon/Oxygen, Carbon/Hydrogen, Hydrogen/Oxygen

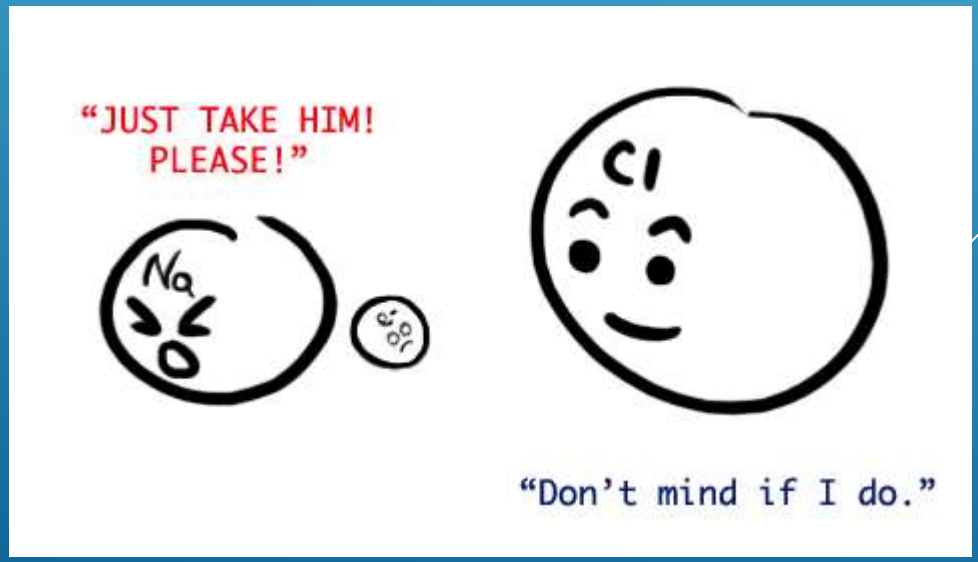


IONIC BONDS

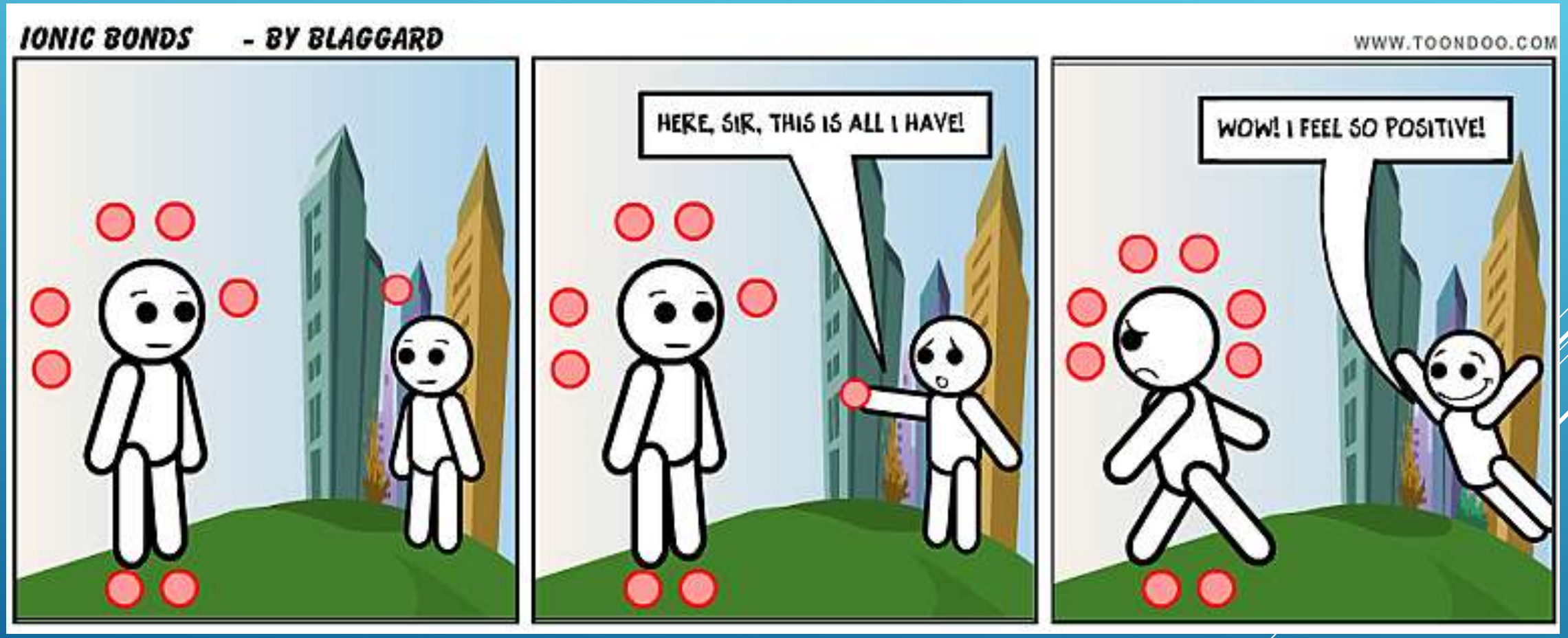
- **DON'T WANT TO SHARE**
- "Weaker" atom gives atoms away
  - Hangs out next to the stronger atom
- "Stronger" atom takes atoms

Has **fewer** electrons than normal

Has **more** electrons than normal

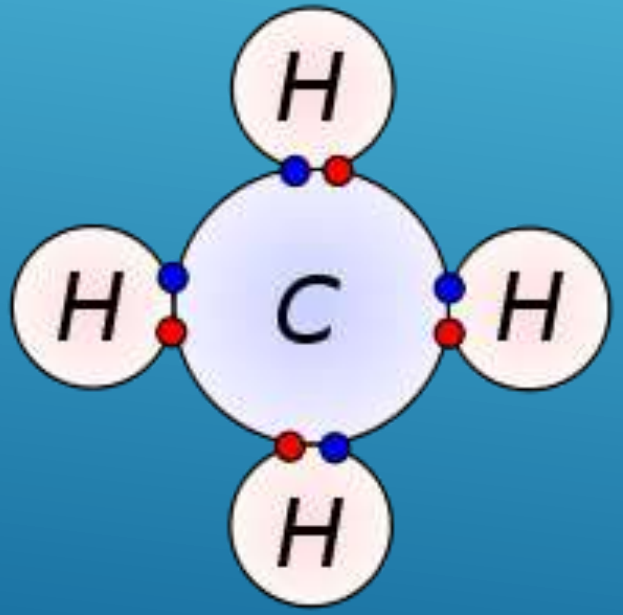


Easier to break these bonds

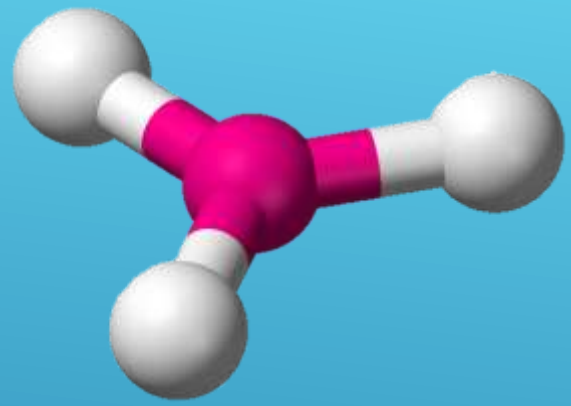

IONIC BONDS - BY BLAGGARD
WWW.TOONDOO.COM
HERE, SIR, THIS IS ALL I HAVE!
WOW! I FEEL SO POSITIVE!

BONDING RULES

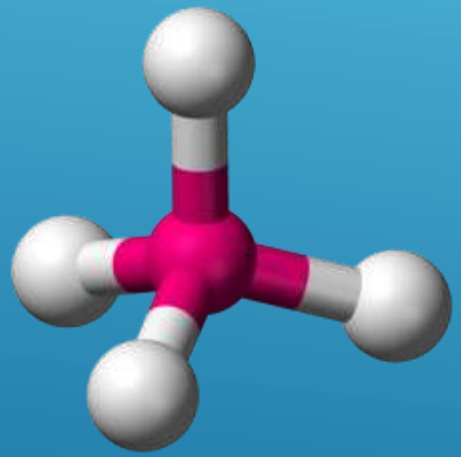
- **# of electrons= # of bonds an atom can have**
- Some are already in pairs and can't be used in bonds
- Leftover ones can form bonds

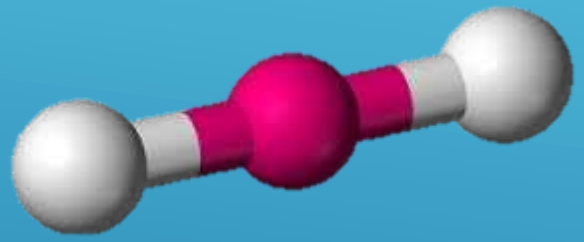


Trigonal planar= 3 bonds, flat



Tetrahedral= 4 bonds

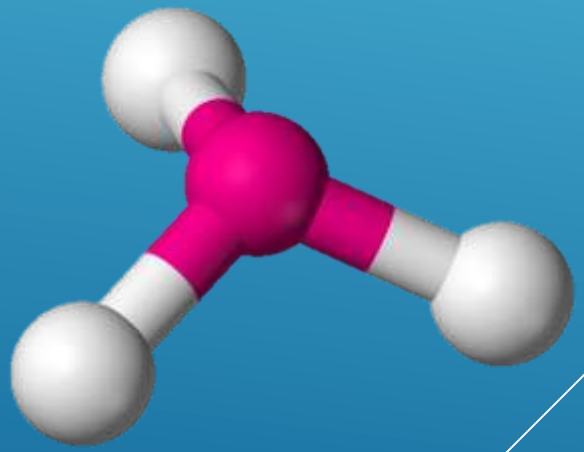




Linear= 2 bonds

SHAPES OF MOLECULES

…depends on the bonds (follows rules)



pyramidal= 3 bonds, 3D


linear
trigonal - planar
angular
tetrahedral
trigonal - pyramidal
angular


no non-bonding pairs
triangular bipyramidal
one non-bonding pair
seesaw
two non-bonding pairs
T shaped
three non-bonding pairs
linear


no non-bonding pairs
octahedral
six electron pairs,
one non-bonding pair
square-pyramidal
two non-bonding pairs
square-planar