Phy. Science Notes. 11/12/12

Lewis Dot Diagrams

Rules:

1. Write Element name
2. Put the # of (valence electrons)
   ↳ e^- in outer level
   around the symbol; each electron is represented by a dot •
3. the dots are placed in the order of North, South, east, west.

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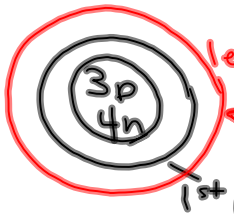
examples

Lithium has 3 prot, 4 neut, 3 elect.



1e⁻ = valence electrons

← can hold up to 8 e⁻

1st level only 2 e⁻

Lewis Dot

• ← Li only one dot b/c one valence elect.

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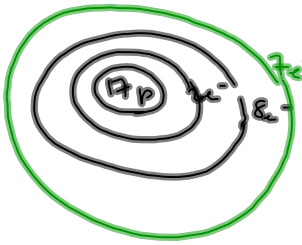
Example 2: Chlorine ⇒ 17p, 17e⁻



example 3: Chlorine ion Cl^{-1} ← means it gained an electron

gained electron →

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Note: all atoms in a group have the same # of valence electrons.

Group 1 Alkali Metals = 1 val. elect.

Group 2 = 2 val. elect.

Group 13 = 3 val. elect.

Group 14 = 4 val. elect.

Group 15 = 5 val. elect.

Group 16 = 6 val. elect.

Group 17 = 7 val. elect.

Group 18 = 8 val. elect.

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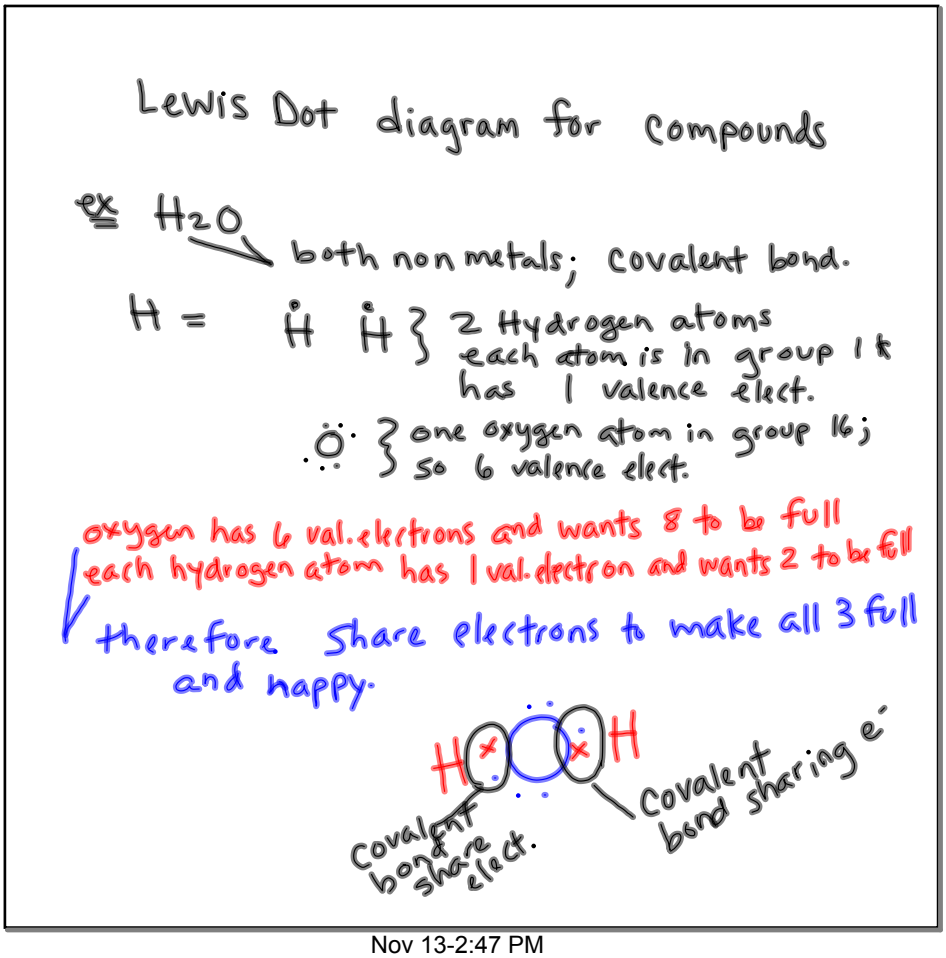
Lewis Dot diagram for compounds
ex H2O
both non metals; covalent bond.
H =
2 Hydrogen atoms each atom is in group 1 & has 1 valence elect.
one oxygen atom in group 16; so 6 valence elect.
oxygen has 6 val. electrons and wants 8 to be full
each hydrogen atom has 1 val. electron and wants 2 to be full
therefore share electrons to make all 3 full and happy.
covalent bond share elect.
covalent bond sharing e-

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