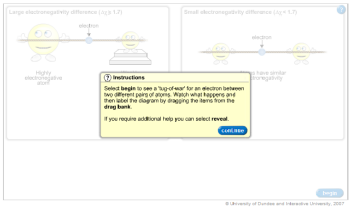
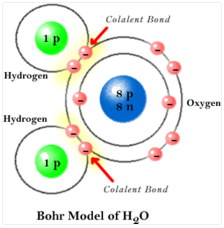
- Bonding is the result of two or more atoms in a tug of war for electrons
  - Who wins??

- By looking at the electronegativity of atoms we can predict the kind of bonding that will take place.



Covalent Bonding -

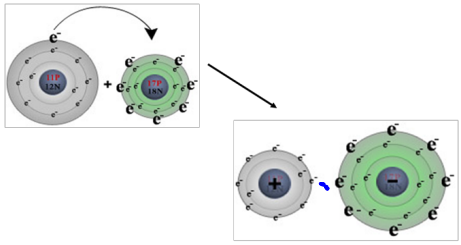
• If electronegativities of both atoms are **high**, neither atoms wins tug of war and they share the electron

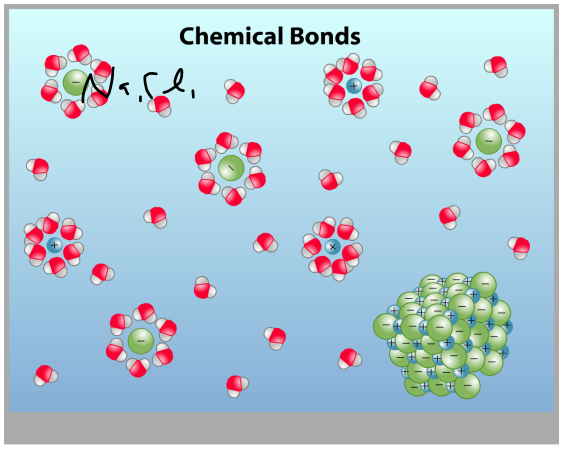


Bohr Model of H_2O

Ionic Bonding -

• If electronegativities are **different (>2)** then the atom with the higher will steal the electron from the other one





STEP-THROUGH NARRATED HELP

http://www.youtube.com/watch?v=gpQCgCHc0Nw

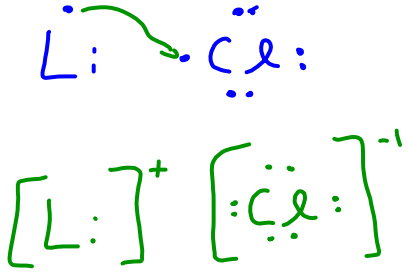
Ionic compounds are:

- **<u>Stable</u>**, which means they have full valence energy levels
- **<u>Conductive</u>** which means they are made up of charged particles
- Formed from the collision of **<u>metal and non-metal</u>** atoms.

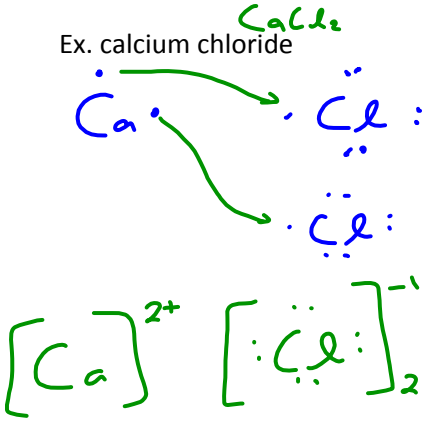
Lewis structures for Ionic Compounds

- We can show formation of ionic comp using Lewis Structures

Ex. lithium chloride

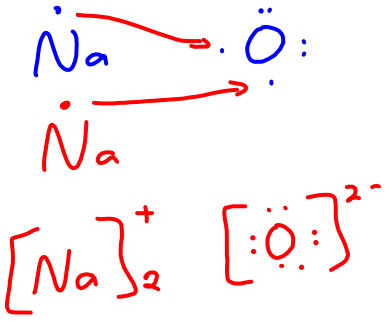


Ex. calcium chloride

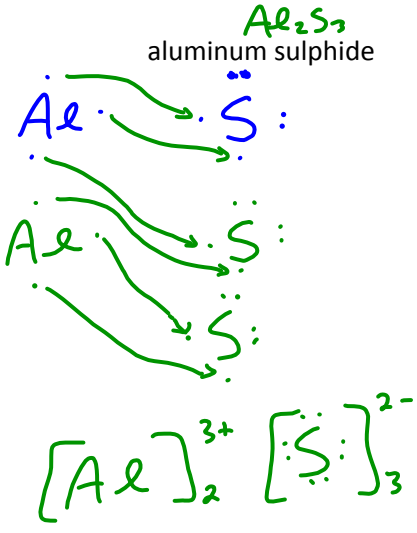


You try:

sodium oxide



Al_2S_3
aluminum sulphide



Practice Sheet 2

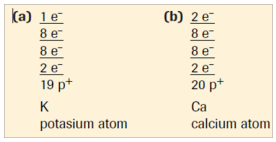
1. Use bonding theory to describe the following in terms of electrons and orbitals: bonding electron, lone pair.

2. Fill in the chart below for all the elements in period 3.

Symbol	Electronegativity	Group #	# of valence e-	Lewis Symbol	# of bonding e-	# of lone pairs

3. Using the electronegativity data in the periodic table, describe the variation in electronegativities within a group and a period.

4. Potassium and calcium both have valence electrons in the fourth energy level, presumably about the same distance from their nuclei, yet calcium has higher electronegativity. Why?



5. Potassium chloride is a substitute for table salt for people who need to reduce their intake of sodium ions. Use Lewis formulas to represent the formation of potassium chloride from its elements.

6. Use Lewis formulas to represent the reaction of calcium and oxygen atoms. Name the ionic product.

7. The empirically determined chemical formula for magnesium chloride is MgCl2. Create Lewis formulas to explain the empirical formula of magnesium chloride.

8. Create Lewis formulas to predict the chemical formula of the product of the reaction of aluminium and oxygen.

9. Based only on differences in electronegativity, what compound would you expect to be the most strongly ionic of all binary compounds?