

# Announcements

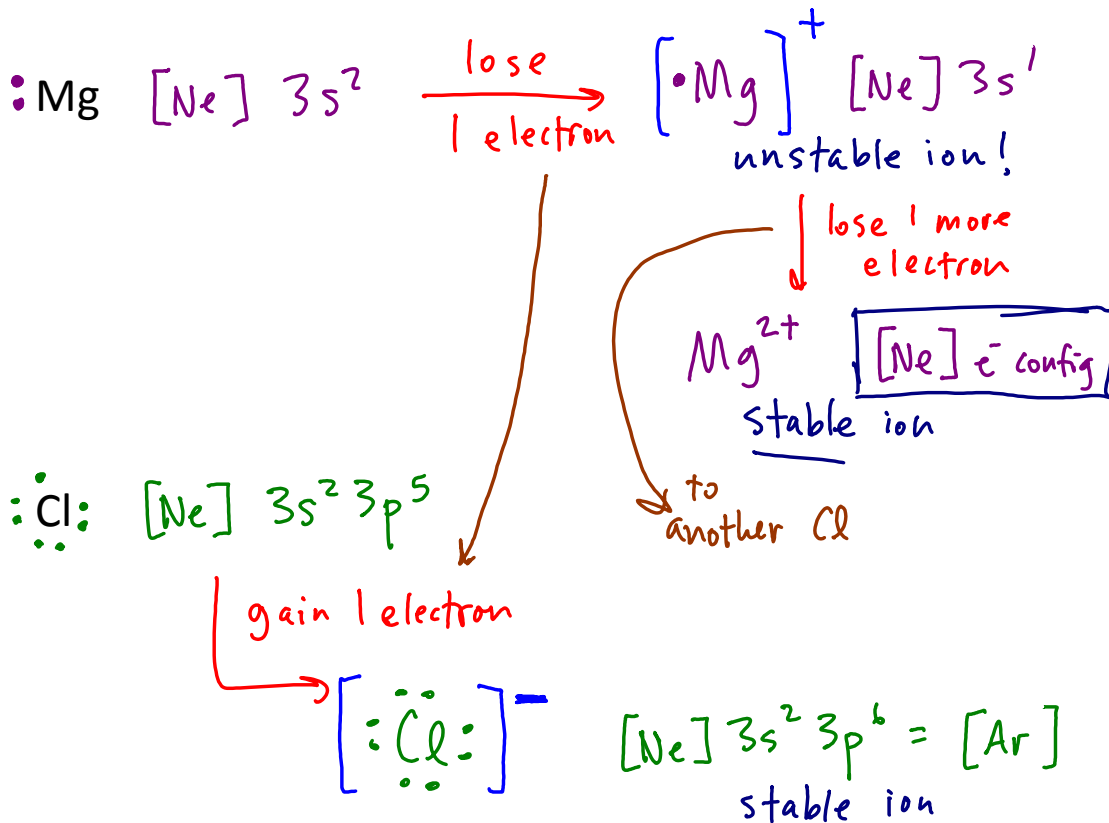
Monday, April 06, 2009

Exam 2 will be returned Wednesday.

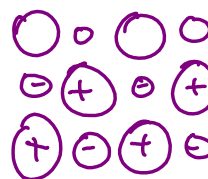
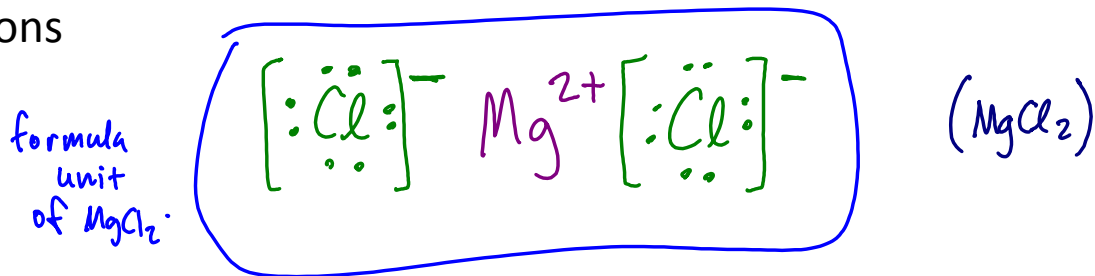
Discussion assignment 2, phase 1 (choosing a topic) is posted - topic choice due by next Monday before class (April 13).

Experiment 5 is this week.

**Lewis electron-dot structures:** show valence electrons as dots



Ionic bonding: attraction between oppositely-charged ions



if 2 elements only, metal & nonmetal ionic bond



# Lewis electron-dot structures of molecules

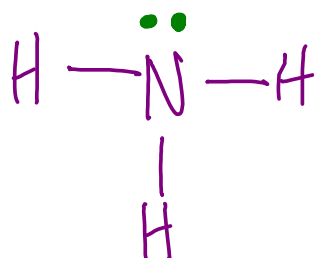
	H	C	N	O	F	
# valence e <sup>-</sup> :	1	4	5	6	7	
# covalent bonds:	(1	4	3	2	1)	← only applies to neutral molecules
	duet rule ↗	↖ octet rule → 8 ve <sup>-</sup>				
	H/He need 2 v.e.					

A proper Lewis structure for a molecule:

- shows all valence electrons
  - covalent bonds = lines (each cov. bond has 2 e<sup>-</sup>)
  - unshared electrons = dots
- has full octets or duets
- has the correct number of bonds on each atom

ammonia

NH<sub>3</sub>: total # valence e<sup>-</sup> in molecule:  $5 + 3(1) = 8 \text{ ve total}$

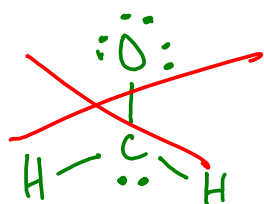


tot # ve ✓  
 oct/duets ✓  
 # bonds ✓

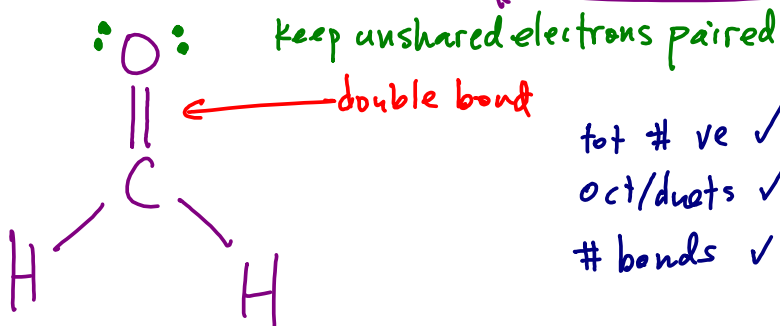
CH<sub>2</sub>O: total # valence e<sup>-</sup> in molecule:

try element w/ most bonds in center

$$\boxed{4 + 2(1) + 6 = 12 \text{ ve total}}$$



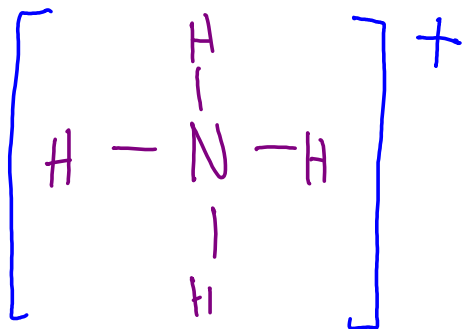
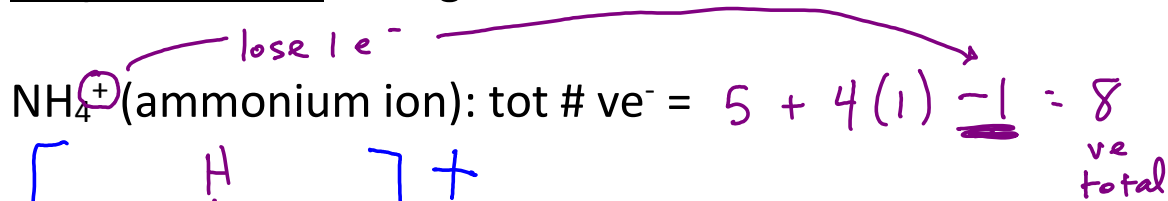
this is CH<sub>2</sub>O<sup>2-</sup>



tot # ve ✓  
 oct/duets ✓  
 # bonds ✓

## Lewis structures of polyatomic ions

### Polyatomic ion: charged molecule



#### check:

correct tot. # $\text{ve}^-$ ? ✓

full octets/duets? ✓

*N normally only makes 3 bonds. (only applies to neutral molecules)*

Polyatomic ions do not follow the rules for the normal number of covalent bonds to atoms (this is one reason they are charged!)

