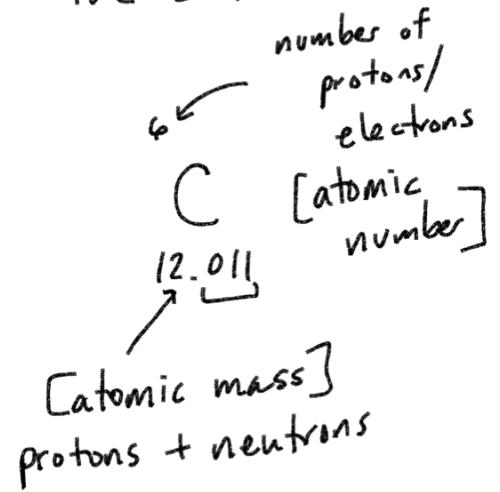


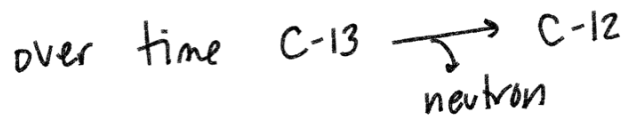
# W-PS Physical Science Week 17

Isotope - atoms can have different numbers of neutrons and still be the same element.

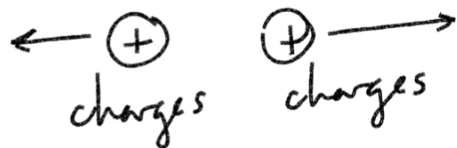
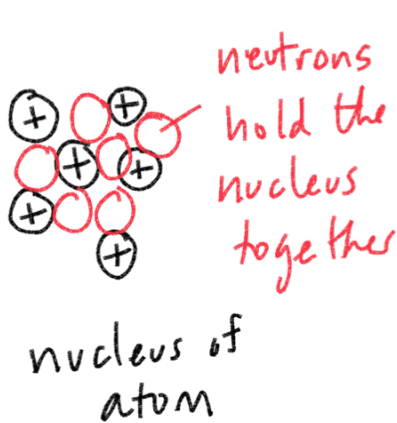
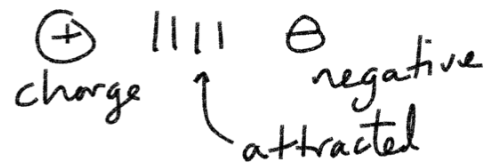
	>99%	<1%	<1%
	C-12	C-13	C-14
neutrons	6	7	8



Use C-13 "carbon dating"



Electrostatic attraction

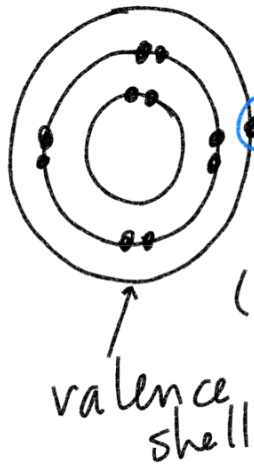


opposite charges attract  
like charges repel

Ions - charged atoms.

Ions occur as atoms attempt to gain a complete octet valence shell

Sodium (Na)



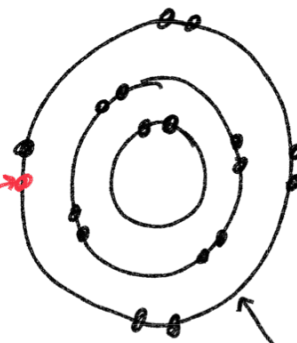
(1) -10 electrons  
+ 11 protons  

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+ 1 overall charge

Chlorine

$Cl^-$



-18 electrons  
+ 17 protons  

---

- 1 overall charge

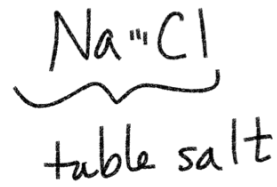
Octet - eight electrons in the outermost orbital

most stable is 8 e<sup>-</sup>s

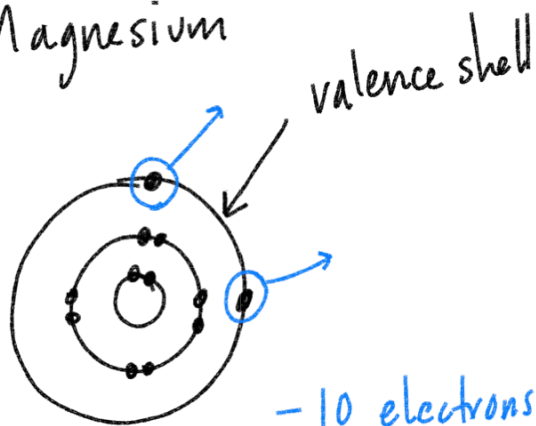
(7)

ion →  $e^-$  anion

valence (outermost) orbital



Magnesium



12 electrons

electrons in valence shell : 2

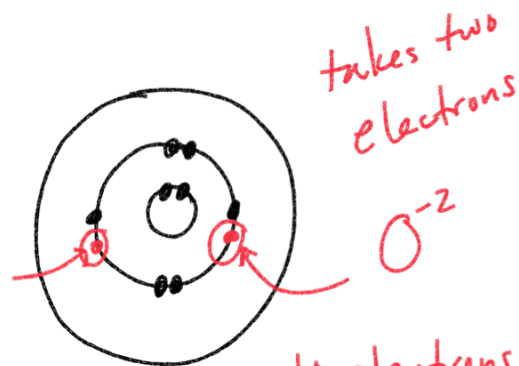
positively charged ion  $\rightarrow$  cation

-10 electrons

+ 12 protons

$+12 + (-10) = +2$

Oxygen



takes two electrons



-10 electrons

$-10 + 8 = -2$  + 8 protons

8 electrons

electrons in valence shell : 6

HW Online HW 17 } due Feb 10<sup>th</sup>  
 Quiz 17 }  
 HW/Quiz 15 due Jan 28<sup>th</sup>  
 tomorrow