

# Lewis/Dot Structures/Diagrams

Way to figure out the structure of molecules

Have to know the # of valence e<sup>-</sup> for EACH atom in the molecule!

From the periodic table → group #  
 1A, 2A, 3A... etc.  
 Li = 1 Be = 2 N = 5 Ne = 8 \*  
 \* Full shell = octet "8 is great!"

Q: why valence e<sup>-</sup> not all e<sup>-</sup>?

A: b/c the valence e<sup>-</sup> are on the outside - they are involved in bonding

## OCTET "RULE"

every atom wants to have 8 valence e<sup>-</sup>... usually...

ANYTHING can break the "rule" when needed

Common exceptions to octet rule:

element	H	B	P	S
# of v.e <sup>-</sup>	2	6	10	12

\* memorize \*

## Drawing Single atoms



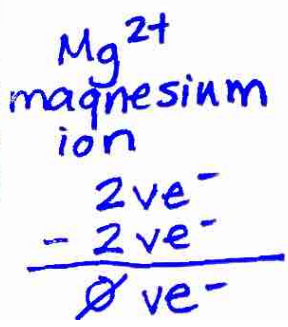
## Drawing Ions



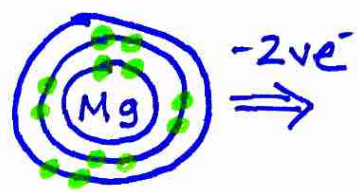
Anions



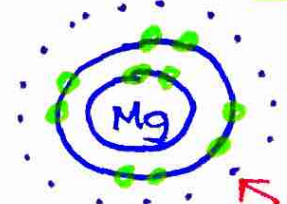
Cations



[Mg]<sup>2+</sup>  
 we only draw the original valence shell!



→ -2 v.e<sup>-</sup>  
 ↑ original 2 valence e<sup>-</sup> in the 3rd energy level



↳ the original valence shell is empty now

# Ionic Compounds

sodium chloride



magnesium oxide



calcium fluoride

