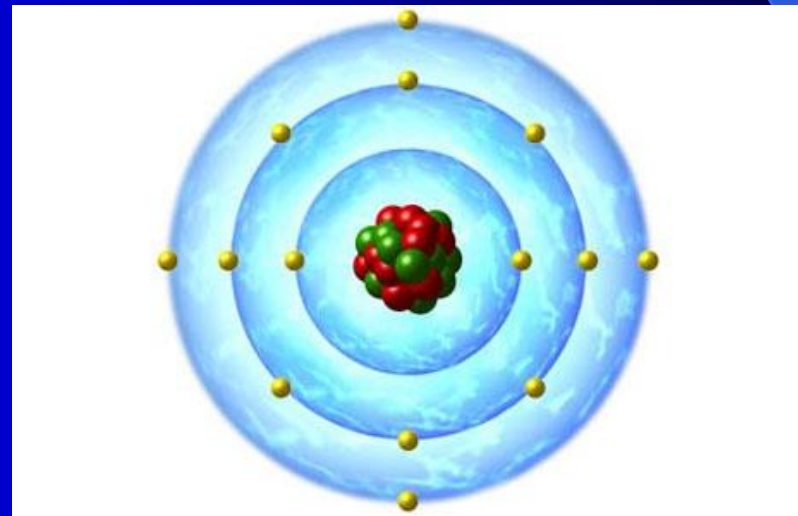


Atomic Models

- Also known as Bohr Models
- Electrons are contained within energy levels of atoms
- Each level can hold a certain # of electrons
 - 1st = up to 2
 - 2nd = up to 8
 - 3rd = up to 18
 - 4th = up to 32
 - 5th = up to 32

$2n^2$

n : energy level

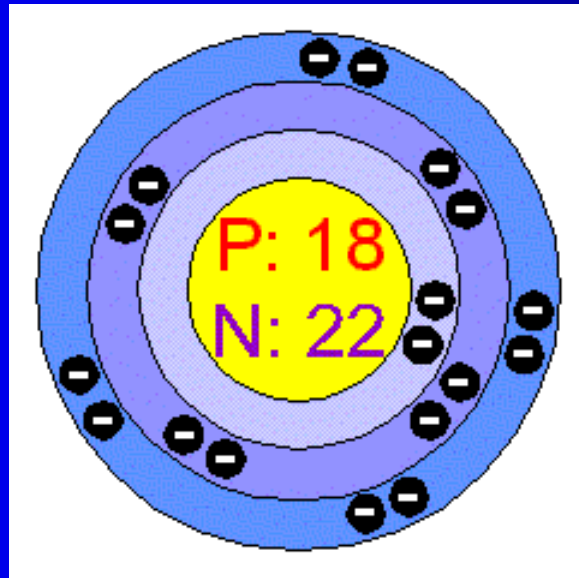


Silicon

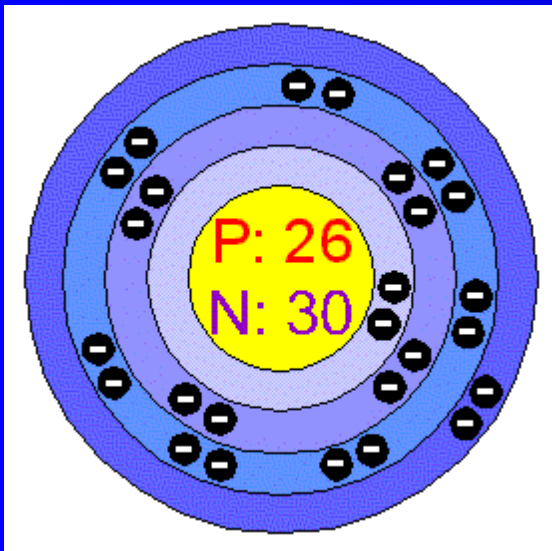
Valence Electrons

- These are the electrons in an atom's outermost energy shell
- If the shell has less than the full amount, an atom will be reactive (not stable)

Argon



Most transition metals have 2 valence electrons...



Iron

Main groups										Main groups								
1	2											13	14	15	16	17	18	
1A	2A											3A	4A	5A	6A	7A	8A	
1	2											5	6	7	8	9	10	
H	He											B	C	N	O	F	Ne	
3	4	Transition-metal groups										13	14	15	16	17	18	
Li	Be	3	4	5	6	7	8	9	10	11	12	Al	Si	P	S	Cl	Ar	
11	12	3B	4B	5B	6B	7B	8B				1B	2B	31	32	33	34	35	36
Na	Mg	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr	
19	20	21	22	23	24	25	26	27	28	29	30	49	50	51	52	53	54	
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	In	Sn	Sb	Te	I	Xe	
37	38	39	40	41	42	43	44	45	46	47	48	81	82	83	84	85	86	
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	Tl	Pb	Bi	Po	At	Rn	
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn	
87	88	89	104	105	106	107	108	109	110	111	112							
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt										
Lanthanides		58	59	60	61	62	63	64	65	66	67	68	69	70	71			
		Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu			
Actinides		90	91	92	93	94	95	96	97	98	99	100	101	102	103			
		Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr			

Iron

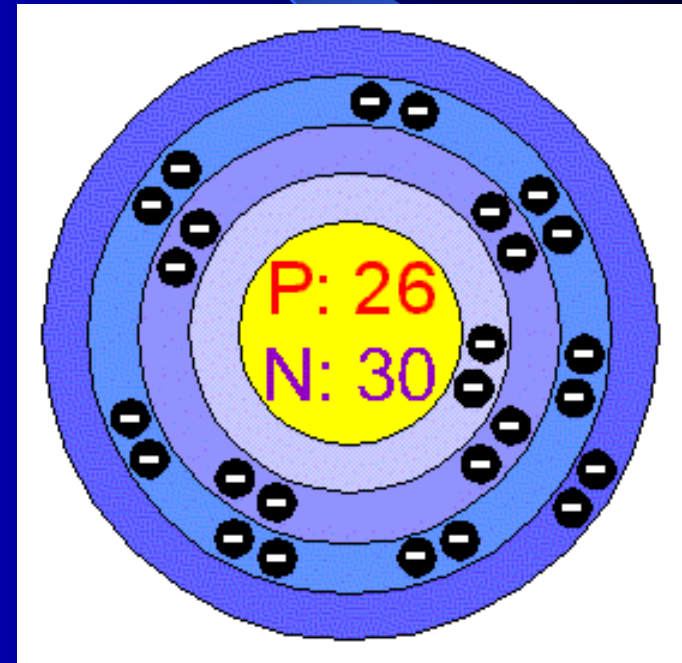
Number of Energy Levels: 4

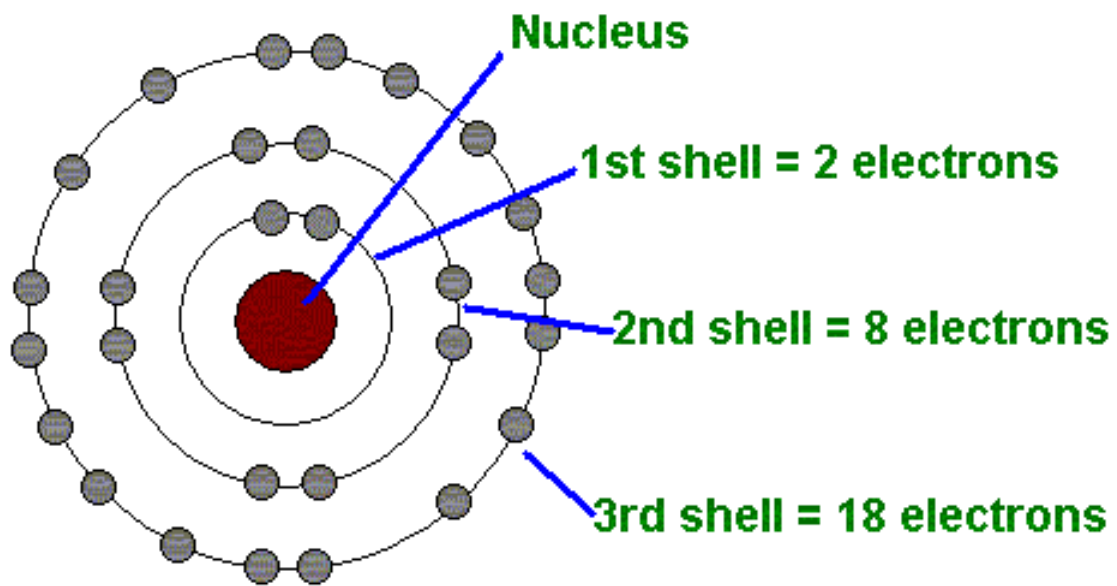
First Energy Level: 2

Second Energy Level: 8

Third Energy Level: 14

Fourth Energy Level: 2

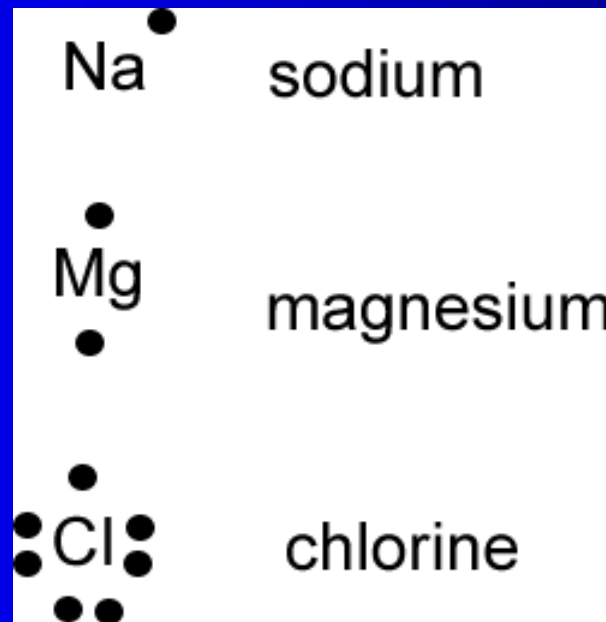




Practice drawing atomic models...

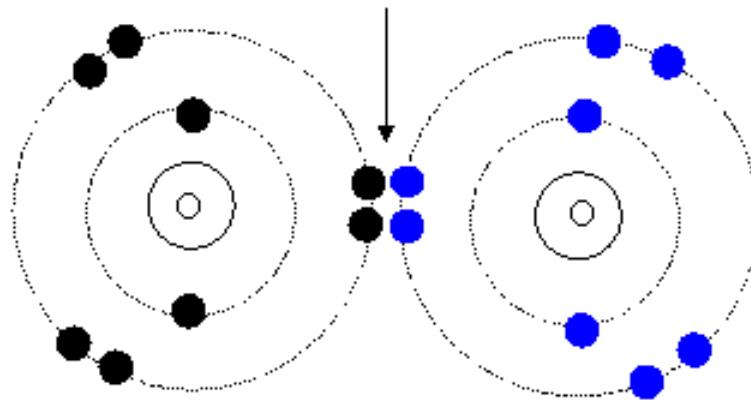
Electron Dot Diagrams

- May also be called *Lewis Dot Diagrams*
- Show the arrangement of valence electrons only



Dot diagrams can also show bonding

Both atoms share these four electrons, so each atom has 8 electrons in the outer shell.



A MOLECULE OF OXYGEN GAS
(O₂)