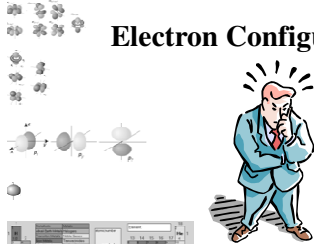
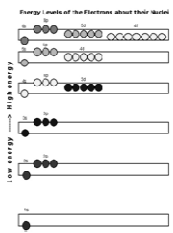
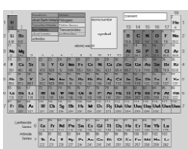



Electron Configuration Problems


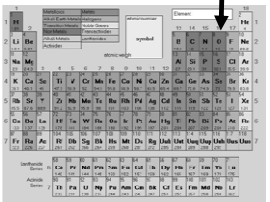
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Walking Through The Periodic Table


Electron Configuration = a walk through the table

What element has the electron configuration $1s^2 2s^2 2p^4$? O
 What period is it in? 2
 What group is it in? 6
 How many valence electrons? 6

Without "Table"
 Coefficient = period
 "A" Group = s + p

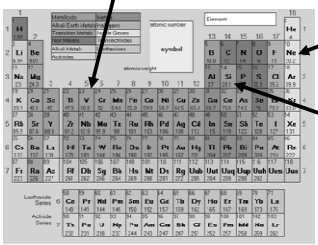
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Identify the elements with electron configurations

$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^3$


V



$1s^2 2s^2 2p^6$
Ne

$1s^2 2s^2 2p^6 3s^2 3p^2$
Si

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Write the ground state electron configuration of:

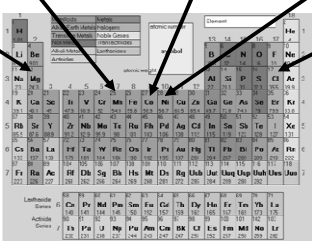

Magnesium
 $1s^2 2s^2 2p^6 3s^2$

Manganese
 $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^5$

Cobalt
 $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^7$

Nickel
 $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^8$

Chlorine
 $1s^2 2s^2 2p^6 3s^2 3p^5$


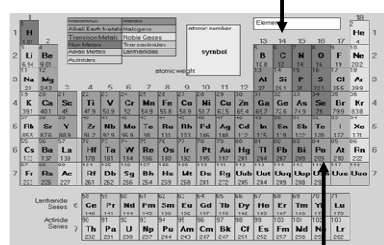
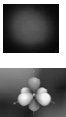



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What is the # of valence electrons in atoms of carbon & silicon?

Carbon and Silicon members of family 4A → 4 electrons


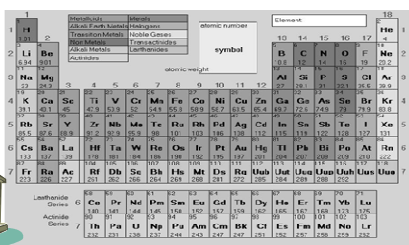
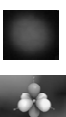
Which group of the Periodic Table does $ns^2 np^4$ represent?

Valence shell is $s + p: 2 + 4 = 6 \rightarrow$ VIA (16)

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Comparing Entities: Looking for IsoElectronic Atoms

Loses Electrons (Becomes More Positive): Move to Left
 Gains Electrons (Becomes More Negative): Move to Right
 Number on Charge Determines How Many Spaces to Move

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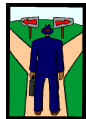
Which Atoms Are Isoelectronic?

N^{3-} [Ne] & F^- [Ne] Yes, both have same configuration (Ne)

K^+ [Ar] & Br^- [Kr] No, different outer shells

C^{4-} [Ne] & O^{2-} [Ne] Yes, both have same configuration (Ne)

Mg^{2+} [Ne] & Ca^{2+} [Ar] No, different outer shells

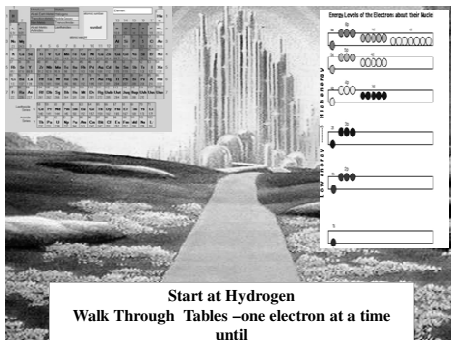


Periodic Table		Periodic Table	
1	H	1	H
2	He	2	He
3	Li	3	Li
4	Be	4	Be
5	B	5	B
6	C	6	C
7	N	7	N
8	O	8	O
9	F	9	F
10	Ne	10	Ne
11	Na	11	Na
12	Mg	12	Mg
13	Al	13	Al
14	Si	14	Si
15	P	15	P
16	S	16	S
17	Cl	17	Cl
18	Ar	18	Ar
19	K	19	K
20	Ca	20	Ca
21	Sc	21	Sc
22	Ti	22	Ti
23	V	23	V
24	Cr	24	Cr
25	Mn	25	Mn
26	Fe	26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

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Path To Success



Start at Hydrogen
Walk Through Tables –one electron at a time
until
Element or Configuration is reached

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