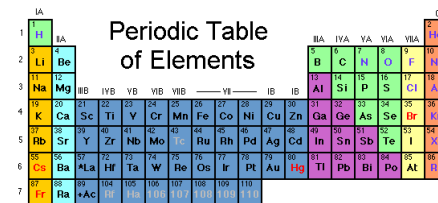


N-12



Periodic Table of Elements

A small, color-coded periodic table of elements is shown in the top right corner. The table is organized into groups (IA through VIIA) and periods (1 through 7). The elements are color-coded by groups: IA (green), IIA (yellow), IIIA (orange), IVA (red), VA (purple), VIA (blue), VIIA (pink), and VIII (grey). The noble gases (He, Ne, Ar, Kr, Xe, Rn) are in the far right column. The lanthanide and actinide series are shown as separate rows at the bottom of the table.

Periodic Table Trick for Electron Configurations

Target: I can use the layout of the periodic table to help me write electron configurations.

Link to YouTube Presentation: <https://youtu.be/ZBficpKEfFI>

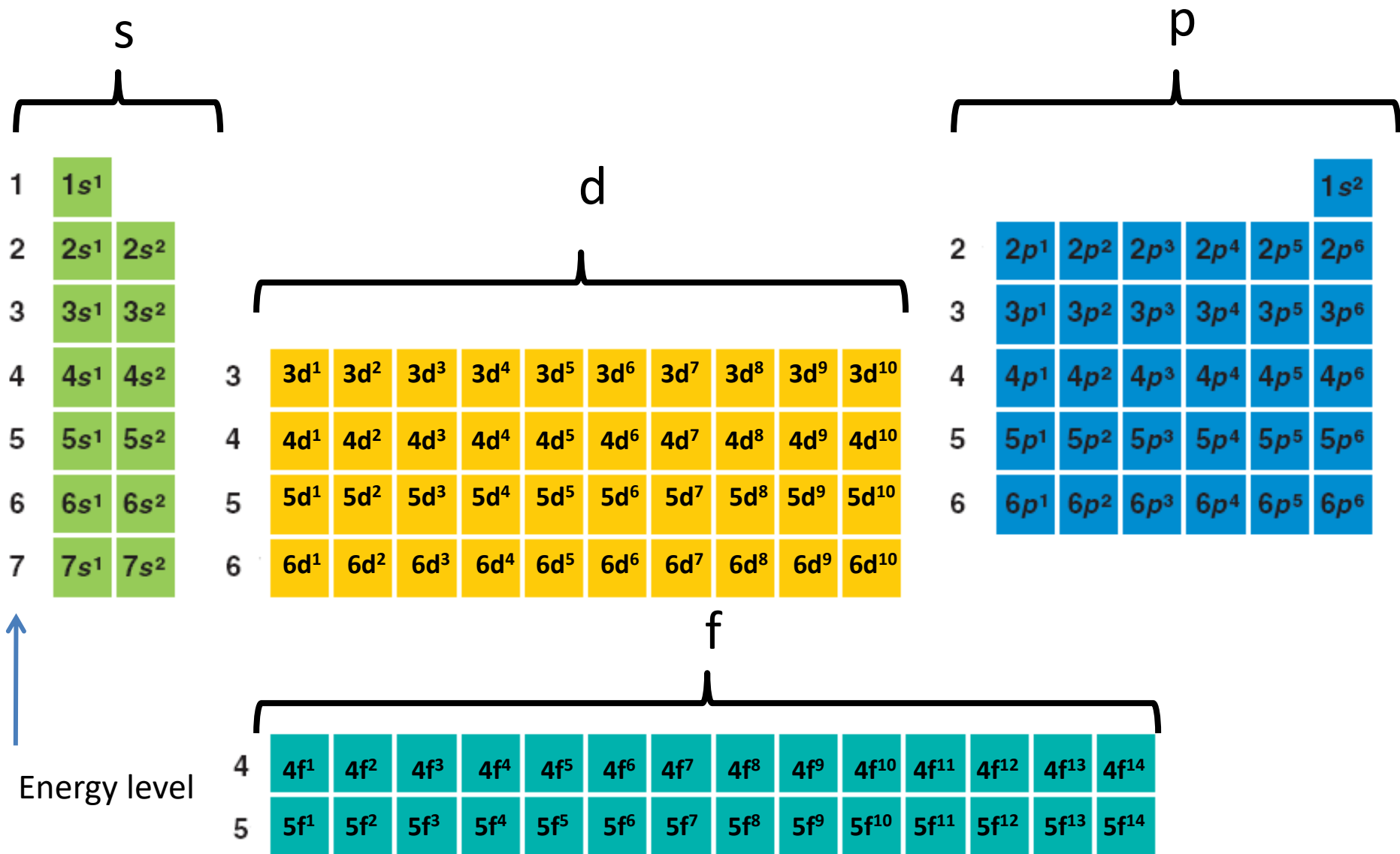
N-12

Trick for writing electron configurations so you don't have to use an orbital diagram

Periodic Table of Elements

1 H																	2 He
3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne
11 Na	12 Mg	III B	IV B	V B	VIB	VIB	VII		IB	IB	13 Al	14 Si	15 P	16 S	17 Cl	18 Ar	
19 K	20 Ca	21 Sc	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
55 Cs	56 Ba	*57 La	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
87 Fr	88 Ra	+89 Ac	104 Rf	105 Ha	106 106	107 107	108 108	109 109	110 110								

The periodic table orders elements for you!

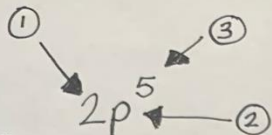


1A Hydrogen 1 H 1.01																		2A Helium 2 He 4.00												
3 Li 6.94																		4 Be 9.01												
11 Na 22.99																		12 Mg 24.31												
19 K 39.10																		20 Ca 40.08												
37 Rb 85.47																		38 Sr 87.62												
55 Cs 132.91																		56 Ba 137.33												
87 Fr (223)																		88 Ra (226)												
57 La 138.91		58 Ce 140.12	59 Pr 140.91	60 Nd 144.24	61 Pm (145)	62 Sm 150.36	63 Eu 151.97	64 Gd 157.25	65 Tb 158.93	66 Dy 162.50	67 Ho 164.93	68 Er 167.26	69 Tm 168.93	70 Yb 173.04	71 Lu 174.97	72 Hf 178.49	73 Ta 180.95	74 W 183.84	75 Re 186.21	76 Os 190.23	77 Ir 192.22	78 Pt 195.08	79 Au 196.97	80 Hg 200.59	81 Tl 204.38	82 Pb 207.20	83 Bi 208.98	84 Po (209)	85 At (210)	86 Rn (222)
89 Ac (227)		90 Th 232.04	91 Pa 231.04	92 U 238.03	93 Np (237)	94 Pu (244)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (251)	99 Es (252)	100 Fm (257)	101 Md (258)	102 No (259)	103 Lr (262)	104 Rf (267)	105 Db (268)	106 Sg (271)	107 Bh (272)	108 Hs (270)	109 Mt (276)	110 Ds (281)	111 Rg (286)	112 Cn (285)	113 Nh (286)	114 Fl (289)	115 Mc (289)	116 Lv (293)	117 Ts (294)	118 Og (294)

S-block

★ +1 +2

1	1A Hydrogen 1 H 1.01	2 2A Helium 2 He 4.00
2	3 Li 6.94	4 Be 9.01
3	11 Na 22.99	12 Mg 24.31
4	19 K 39.10	20 Ca 40.08
5	37 Rb 85.47	38 Sr 87.62
6	55 Cs 132.91	56 Ba 137.33
7	87 Fr (223)	88 Ra (226)



- ① energy level
- ② orbital type
- ③ # of e⁻ in the orbital "set"

p-block

	3A Boron 5 B 10.81	4A Carbon 6 C 12.01	5A Nitrogen 7 N 14.01	6A Oxygen 8 O 16.00	7A Fluorine 9 F 19.00	8A Helium 2 He 4.00
	13 Al 26.98	14 Si 28.09	15 P 30.97	16 S 32.07	17 Cl 35.45	18 Ar 39.95
	31 Ga 69.72	32 Ge 72.61	33 As 74.92	34 Se 78.96	35 Br 79.90	36 Kr 83.80
	49 In 114.82	50 Sn 118.71	51 Sb 121.76	52 Te 127.60	53 I 126.90	54 Xe 131.29
	81 Tl 204.38	82 Pb 207.20	83 Bi 208.98	84 Po (209)	85 At (210)	86 Rn (222)
	113 Nh (286)	114 Fl (289)	115 Mc (289)	116 Lv (293)	117 Ts (294)	118 Og (294)

d-block
multiple charges possible (d & f block)

3B Scandium 21 Sc 44.96	4B Titanium 22 Ti 47.88	5B Vanadium 23 V 50.94	6B Chromium 24 Cr 52.00	7B Manganese 25 Mn 54.94	8B Iron 26 Fe 55.85	9B Cobalt 27 Co 58.93	10B Nickel 28 Ni 58.69	11B Copper 29 Cu 63.55	12B Zinc 30 Zn 65.39
39 Yttrium 88.91	40 Zirconium 91.22	41 Niobium 92.91	42 Molybdenum 95.94	43 Technetium (98)	44 Ruthenium 101.07	45 Rhodium 102.91	46 Palladium 106.42	47 Silver 107.87	48 Cadmium 112.41
57 Lanthanum 138.91	72 Hf 178.49	73 Ta 180.95	74 W 183.84	75 Re 186.21	76 Os 190.23	77 Ir 192.22	78 Pt 195.08	79 Au 196.97	80 Mercury 200.59
89 Actinium (227)	104 Rf (267)	105 Db (268)	106 Sg (271)	107 Bh (272)	108 Hs (270)	109 Mt (276)	110 Ds (281)	111 Rg (280)	112 Cn (285)

# of orbitals in a "set"	# of e ⁻ in the "set"
s	1 2
p	3 6
d	5 10
f	7 14

IONS

Atoms want to look like a "noble gas", they want a "full shell". They will make ions to fill their shells!

Cations	Anions
lose e ⁻	gain e ⁻
p ⁺ e ⁻	p ⁺ 2 e ⁻
↓	↓
+ charge	- charge

*lanthanides → 4
*actinides → 5

58 Ce 140.12	59 Pr 140.91	60 Nd 144.24	61 Pm (145)	62 Sm 150.36	63 Eu 151.97	64 Gd 157.25	65 Tb 158.93	66 Dy 162.50	67 Ho 164.93	68 Er 167.26	69 Tm 168.93	70 Yb 173.04	71 Lu 174.97
90 Th 232.04	91 Pa 231.04	92 U 238.03	93 Np (237)	94 Pu (244)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (251)	99 Es (252)	100 Fm (257)	101 Md (258)	102 No (259)	103 Lr (262)

f block

go back to d-block!

YouTube Link to Presentation of Mrs. Farmer setting up the Periodic Table and showing how to do the trick:

<https://youtu.be/ZBficpKEfFI>

Another video on setting up your periodic table

https://www.youtube.com/watch?v=qb0hia__crM

Another video on using your periodic table to write configs.

<https://www.youtube.com/watch?v=ououF9nHUhk>