

# Electron configurations and the periodic table

Note: use pencil to complete the directions below (unless colour is called for). You will have to write small to fit in the required information into the space provided.

- 1) Use your knowledge of electron filling order ([fig. 6.20 pg. 205](#), [6.7 pg. 204-7](#)) to write shorthand electron configurations for elements 1-36, 37, 55, 87, 57, 58, 89, 90. Write each configuration in its appropriate box. Caution: do not use a periodic table showing actual electron configurations. In some cases, actual configurations differ from what would be predicted. I want the theoretical configuration based on our rules for filling subshells.
- 2) What patterns do you notice in each column and row? Place a label on the top of each column (space provided) that indicates the pattern you observe - e.g.  $s^1$ . Place a label to the right of each row, or portion of a row, to indicate the pattern you observe (e.g. 2p).
- 3) Find all elements that are different from their preceding element due to the addition of an electron in an s subshell. Shade in the relevant boxes with one colour. Shade in boxes related to p, d, and f subshells, using different colours for each. Indicate which colours you have chosen for s, p, d, and f by adding a legend to this sheet.
- 4) Based on the patterns you have indicated, fill in electron configurations for elements 50, 74, 85, and 95

$s^1$																														
1	H 1	He 2																												
2	Li 3	Be 4																			B 5	C 6	N 7	O 8	F 9	Ne 10	2p			
3	Na 11	Mg 12																			Al 13	Si 14	P 15	S 16	Cl 17	Ar 18				
4	K 19	Ca 20	Sc 21	Ti 22	V 23	Cr 24	Mn 25	Fe 26	Co 27	Ni 28	Cu 29	Zn 30	Ga 31	Ge 32	As 33	Se 34	Br 35	Kr 36												
5	Rb 37	Sr 38	Y 39	Zr 40	Nb 41	Mo 42	Tc 43	Ru 44	Rh 45	Pd 46	Ag 47	Cd 48	In 49	Sn 50	Sb 51	Te 52	I 53	Xe 54												
6	Cs 55	Ba 56	Lu 71	Hf 72	Ta 73	W 74	Re 75	Os 76	Ir 77	Pt 78	Au 79	Hg 80	Tl 81	Pb 82	Bi 83	Po 84	At 85	Rn 86												
7	Fr 87	Ra 88	Lr 103	Rf 104	Db 105	Sg 106	Bh 107	Hs 108	Mt 109	110	111	112	113	114	115	116	117	118												
			La 57	Ce 58	Pr 59	Nd 60	Pm 61	Sm 62	Eu 63	Gd 64	Tb 65	Dy 66	Ho 67	Er 68	Tm 69	Yb 70														
			Ac 89	Th 90	Pa 91	U 92	Np 93	Pu 94	Am 95	Cm 96	Bk 97	Cf 98	Es 99	Fm 100	Md 101	No 102														