Periodic Table with electron configuration

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	1 **H** $1s^1$																	2 **He** $1s^2$
2	3 **Li** [He] $2s^1$	4 **Be** [He] $2s^2$											5 **B** [He] $2s^2\ 2p^1$	6 **C** [He] $2s^2\ 2p^2$	7 **N** [He] $2s^2\ 2p^3$	8 **O** [He] $2s^2\ 2p^4$	9 **F** [He] $2s^2\ 2p^5$	10 **Ne** [He] $2s^2\ 2p^6$
3	11 **Na** [Ne] $3s^1$	12 **Mg** [Ne] $3s^2$											13 **Al** [Ne] $3s^2\ 3p^1$	14 **Si** [Ne] $3s^2\ 3p^2$	15 **P** [Ne] $3s^2\ 3p^3$	16 **S** [Ne] $3s^2\ 3p^4$	17 **Cl** [Ne] $3s^2\ 3p^5$	18 **Ar** [Ne] $3s^2\ 3p^6$
4	19 **K** [Ar] $4s^1$	20 **Ca** [Ar] $4s^2$	21 **Sc** [Ar] $3d^1\ 4s^2$	22 **Ti** [Ar] $3d^2\ 4s^2$	23 **V** [Ar] $3d^3\ 4s^2$	24 **Cr** [Ar] $3d^5\ 4s^1$	25 **Mn** [Ar] $3d^5\ 4s^2$	26 **Fe** [Ar] $3d^6\ 4s^2$	27 **Co** [Ar] $3d^7\ 4s^2$	28 **Ni** [Ar] $3d^8\ 4s^2$	29 **Cu** [Ar] $3d^{10}\ 4s^1$	30 **Zn** [Ar] $3d^{10}\ 4s^2$	31 **Ga** [Ar] $3d^{10}\ 4s^2\ 4p^1$	32 **Ge** [Ar] $3d^{10}\ 4s^2\ 4p^2$	33 **As** [Ar] $3d^{10}\ 4s^2\ 4p^3$	34 **Se** [Ar] $3d^{10}\ 4s^2\ 4p^4$	35 **Br** [Ar] $3d^{10}\ 4s^2\ 4p^5$	36 **Kr** [Ar] $3d^{10}\ 4s^2\ 4p^6$
5	37 **Rb** [Kr] $5s^1$	38 **Sr** [Kr] $5s^2$	39 **Y** [Kr] $4d^1\ 5s^2$	40 **Zr** [Kr] $4d^2\ 5s^2$	41 **Nb** [Kr] $4d^4\ 5s^1$	42 **Mo** [Kr] $4d^5\ 5s^1$	43 **Tc** [Kr] $4d^5\ 5s^2$	44 **Ru** [Kr] $4d^7\ 5s^1$	45 **Rh** [Kr] $4d^8\ 5s^1$	46 **Pd** [Kr] $4d^{10}$	47 **Ag** [Kr] $4d^{10}\ 5s^1$	48 **Cd** [Kr] $4d^{10}\ 5s^2$	49 **In** [Kr] $4d^{10}\ 5s^2\ 5p^1$	50 **Sn** [Kr] $4d^{10}\ 5s^2\ 5p^2$	51 **Sb** [Kr] $4d^{10}\ 5s^2\ 5p^3$	52 **Te** [Kr] $4d^{10}\ 5s^2\ 5p^4$	53 **I** [Kr] $4d^{10}\ 5s^2\ 5p^5$	54 **Xe** [Kr] $4d^{10}\ 5s^2\ 5p^6$
6	55 **Cs** [Xe] $6s^1$	56 **Ba** [Xe] $6s^2$		72 **Hf** [Xe] $4f^{14}\ 5d^2\ 6s^2$	73 **Ta** [Xe] $4f^{14}\ 5d^3\ 6s^2$	74 **W** [Xe] $4f^{14}\ 5d^4\ 6s^2$	75 **Re** [Xe] $4f^{14}\ 5d^5\ 6s^2$	76 **Os** [Xe] $4f^{14}\ 5d^6\ 6s^2$	77 **Ir** [Xe] $4f^{14}\ 5d^7\ 6s^2$	78 **Pt** [Xe] $4f^{14}\ 5d^9\ 6s^1$	79 **Au** [Xe] $4f^{14}\ 5d^{10}\ 6s^1$	80 **Hg** [Xe] $4f^{14}\ 5d^{10}\ 6s^2$	81 **Tl** [Xe] $4f^{14}\ 5d^{10}\ 6s^2\ 6p^1$	82 **Pb** [Xe] $4f^{14}\ 5d^{10}\ 6s^2\ 6p^2$	83 **Bi** [Xe] $4f^{14}\ 5d^{10}\ 6s^2\ 6p^3$	84 **Po** [Xe] $4f^{14}\ 5d^{10}\ 6s^2\ 6p^4$	85 **At** [Xe] $4f^{14}\ 5d^{10}\ 6s^2\ 6p^5$	86 **Rn** [Xe] $4f^{14}\ 5d^{10}\ 6s^2\ 6p^6$
7	87 **Fr** [Rn] $7s^1$	88 **Ra** [Rn] $7s^2$		104 **Rf** [Rn] $5f^{14}\ 6d^2\ 7s^2$	105 **Db** *[Rn] $5f^{14}\ 6d^3\ 7s^2$	106 **Sg** *[Rn] $5f^{14}\ 6d^4\ 7s^2$	107 **Bh** *[Rn] $5f^{14}\ 6d^5\ 7s^2$	108 **Hs** *[Rn] $5f^{14}\ 6d^6\ 7s^2$	109 **Mt** *[Rn] $5f^{14}\ 6d^7\ 7s^2$	110 **Ds** *[Rn] $5f^{14}\ 6d^9\ 7s^1$	111 **Rg** *[Rn] $5f^{14}\ 6d^{10}\ 7s^1$	112 **Cn** *[Rn] $5f^{14}\ 6d^{10}\ 7s^2$	113 **Nh** *[Rn] $5f^{14}\ 6d^{10}\ 7s^2\ 7p^1$	114 **Fl** *[Rn] $5f^{14}\ 6d^{10}\ 7s^2\ 7p^2$	115 **Mc** *[Rn] $5f^{14}\ 6d^{10}\ 7s^2\ 7p^3$	116 **Lv** *[Rn] $5f^{14}\ 6d^{10}\ 7s^2\ 7p^4$	117 **Ts** *[Rn] $5f^{14}\ 6d^{10}\ 7s^2\ 7p^5$	118 **Og** *[Rn] $5f^{14}\ 6d^{10}\ 7s^2\ 7p^6$

				57 **La** [Xe] $5d^{16s2}$	58 **Ce** [Xe] $4f^1\ 5d^1\ 6s^2$	59 **Pr** [Xe] $4f^3\ 6s^2$	60 **Nd** [Xe] $4f^4\ 6s^2$	61 **Pm** [Xe] $4f^5\ 6s^2$	62 **Sm** [Xe] $4f^6\ 6s^2$	63 **Eu** [Xe] $4f^7\ 6s^2$	64 **Gd** [Xe] $4f^7\ 5d^1\ 6s^2$	65 **Tb** [Xe] $4f^9\ 6s^2$	66 **Dy** [Xe] $4f^{10}\ 6s^2$	67 **Ho** [Xe] $4f^{11}\ 6s^2$	68 **Er** [Xe] $4f^{12}\ 6s^2$	69 **Tm** [Xe] $4f^{13}\ 6s^2$	70 **Yb** [Xe] $4f^{14}\ 6s^2$	71 **Lu** [Xe] $4f^{14}\ 5d^1\ 6s^2$
				89 **Ac** [Rn] $6d^1\ 7s^2$	90 **Th** [Rn] $6d^2\ 7s^2$	91 **Pa** [Rn] $5f^2\ 6d^1\ 7s^2$	92 **U** [Rn] $5f^3\ 6d^1\ 7s^2$	93 **Np** [Rn] $5f^4\ 6d^1\ 7s^2$	94 **Pu** [Rn] $5f^6\ 7s^2$	95 **Am** [Rn] $5f^7\ 7s^2$	96 **Cm** [Rn] $5f^7\ 6d^1\ 7s^2$	97 **Bk** [Rn] $5f^9\ 7s^2$	98 **Cf** [Rn] $5f^{10}\ 7s^2$	99 **Es** [Rn] $5f^{11}\ 7s^2$	100 **Fm** [Rn] $5f^{12}\ 7s^2$	101 **Md** [Rn] $5f^{13}\ 7s^2$	102 **No** [Rn] $5f^{14}\ 7s^2$	103 **Lr** [Rn] $5f^{14}\ 7s^2\ 7p^1$

Periodic Table PDF with electron configuration (black and white): notes

About this sheet

The standard 18-column layout, with periods 1 to 7 down the side, groups 1 to 18 across the top, and the lanthanides and actinides in two rows below. Each tile shows the atomic number, the symbol and the electron configuration in noble-gas shorthand, for example [Ne] $3s^2$ $3p^6$ for argon.

Best for

Writing configurations, studying the s, p, d and f blocks, and checking the exceptions such as chromium and copper.

Printing

Plain white tiles with black outlines use very little ink and photocopy cleanly, so it suits class sets and sheets students will write on. Sized for A4 landscape: print at 100% (actual size) so the margins stay correct.

What the data shows

Filling the subshells in the simple order (1s, 2s, 2p, 3s, 3p, 4s, 3d and so on) gives the wrong answer for 20 of the first 103 elements, including Cr, Cu, Nb, Mo, Ru and Rh. Their tiles show the configuration that is actually observed.

The electron configurations are given in noble-gas shorthand, so the core of each atom is written as the symbol of the noble gas before it.

How the table is organised

Atomic number counts the protons in an atom's nucleus and fixes each element's place in the table. Moving down a group adds a new electron shell, so atomic radius grows and metallic character increases.

More periodic table PDFs are free to download at https://periodictable.page/periodic-table-pdf/.