## Periodic Table of the Elements

Helium 4.002602	$\mathbf{N}_{ ext{Neon}}^{2p}$	$\mathbf{\hat{Ar}}_{ ext{Argon}}^{3p}$	$\overset{3.00}{\mathbf{Kr}}$	$\overset{2.60}{\text{Xe}}$ 5p	${f Rn}^{2.2}_{ m Radon}$	$\log_{{\rm Oganesson}\atop{(294)}}^{7p}$
2 H H H 2.0.4	. 10 a	3p 18	4p 36	5p <b>5</b> 4	<b>98</b> d9	<i>d</i> .
	$ \begin{array}{ccc} 9 & 3.98 & 2 \\ & \mathbf{F} \\ & \text{Fluorine} \\ 18.998403163 \end{array} $	3p 17 3.16 Clorine 35.451	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	5p 53 2.66  Lodine 126.90447	$\overset{6p}{A}\overset{85}{\underset{\text{Astatine}}{2.2}}$	$ \begin{array}{c cccc}  & & & 7p \\ \hline  & & & & Temessine \\  & & & & & (294) \end{array} $
	8 3.44 2p 9 Oxygen 15.999	$\mathbf{S}^{2.58}$ Sulphur 32.065	$\overset{2.55}{\mathbf{Se}}$	$\mathbf{T}_{\text{ellurium}}^{2.1}$	$\mathbf{P_0}^{\frac{2.0}{2.0}}$	$\begin{array}{c c} 7p & 116 & 7p \\ \hline LV \\ \text{Livermorium} \\ \text{(293)} \end{array}$
	$\begin{bmatrix} \frac{3.04}{N} & 2p & 8 \\ N & Nitrogen \\ 14.007 \end{bmatrix}$	Example 1.6 (1.2) (1.6)	$\stackrel{\mathbf{A}}{\mathbf{A}} = \frac{2.18}{\mathbf{A}} + p \begin{vmatrix} 34 \\ \mathbf{A} \\ \text{Arsenic} \end{vmatrix}$	State of the state	33 2.02 6p 84 Bismuth P	$\sqrt{\mathbf{c}}$
	$\begin{bmatrix} \frac{2.55}{\text{C}} & 2p \\ \text{C} \\ \text{Carbon} \\ 12.011 \end{bmatrix}$	Silcon Ph		$\mathop{\mathbf{Sn}}_{\text{Tin}}^{0}$	$\overset{\mathbf{P}}{\mathbf{P}}$	$\begin{array}{c cccc} \mathbf{F1} & 7p & 115 \\ \hline \mathbf{F1} & & & \\ & \mathbf{F} \\ \text{Elerovium} & & \mathbf{Mo} \\ & & & \\ & & & \\ \end{array}$
	$\begin{bmatrix} \frac{2.04}{\mathbf{B}} & 2p & 6 \\ \mathbf{B} & \\ \text{Boron} \\ 10.811 \end{bmatrix}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\left(\begin{array}{cc} 1 & 1.81 \\ Ga \end{array}\right)^{4p}$ Gallium $G_{9.723}$	9 1.78 5p 50	1 1.62 6p 82 Thallium 204.384	$\Pr_{\text{Nihonium}}^{13} 7p$ 114
	ъ	1	$\sum_{\mathrm{Zinc}}^{0} \frac{3d}{2n} = \frac{31}{8}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	0 2.00 5d 81 HS Mercury 200.592	$ \bigcup_{\substack{\text{Copernicium} \\ (285)}}^{6d} \bigcup_{\substack{\text{Nil} \\ \text{Nil}}}^{\text{Nil}} $
			$\frac{\mathbf{Q}}{\mathbf{C}_{\text{Opper}}} = \frac{1.90}{3d^*} \frac{3d^*}{\mathbf{M}}$	${\overset{7}{\text{Ag}}}_{\text{Silver}}^{1.93} 4d^* {\overset{4}{\text{Ag}}}_{\text{Silver}}^{107.8682}$	$\mathbf{A}^{9}$	$\begin{array}{c c} \mathbf{Rg} & 112 \\ \mathbf{Rg} & \\ \text{Roentgenium} & \text{Cop} \\ \hline (282) & \end{array}$
			$\sum_{\substack{\text{Nickel} \\ 58.6934}}^{8} \frac{3d}{29}$	$\overset{6}{\overset{2.20}{\mathbf{Pd}}}\overset{4d^*}{4}$	8 2.28 5d* 79 Pt Platinum 195.084 1	$\bigcup_{\text{Darmstadtium}} \frac{6d}{1}$
	ell; omic		7 1.88 3d 28 Cobalt 58.933194	${f Rh}^{5}$	7 2.20 5d 78	$\sum_{\substack{\text{dinerium} \ (278)}}^{6d}$
	rity; ss = subsh r = standard at		6 1.83 3d 27 Feb 1 Fron 55.845 5	Ruthenium Rh 101.07	6 2.2 5d 77 Osmium 190.23	6d sassium (269)
	= electronegati ment name, saw		$\overline{\mathrm{M}}_{\mathrm{maganese}}^{\mathrm{1.55}}$ 3d $\overline{\mathrm{M}}_{\mathrm{maganese}}^{\mathrm{1.55}}$	13 1.9 4 <i>d</i> 4  Technetium (98)	54 75 1.9 54 76 Rehenium 186.207	$\begin{bmatrix} \mathbf{Bh} & 108 \\ \mathbf{Bh} & 1 \\ \mathbf{Bohrium} & \mathbf{H} \\ 270 \end{bmatrix}$
	Z=atomic number; eneg = electronegativity; ss = subshell; Sy = Symbol, Name = element name, saw = standard atomic weight		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	12 2.16 44* 4 Molybdenum 95.95	5d 74 2.36 5d 7 W Tungsten 183.84	106 6d 107 Seaborgium B(269)
	Z = atomi Sy = Symb weight		. 48	1 1.6 4d* 4 Nobium 92.90637	73 1.5 5d 77 Ta Ta Tantalum 180.94788	105 6d 106 Db Sea (268)
	$\begin{array}{ccc} \mathbf{z} & & & \\ \mathbf{S} & & \\ \mathbf{N} & & \\ & & \\ \text{saw} & & \\ \end{array}$		22 1.54 3d 23 Titanium Va 47.867	$\sum_{{ m Ytrium}}^{1.22} { m 4d} { m 40} { m 1.33} { m 4d} { m 41} { m 1.6} { m 4d}^* { m 42} { m 2.16} { m 4d}^* { m 43} { m 1.9} { m 4d} { m 4d} { m 42} { m 2.2} { m 4d} { m 4d} { m 4d} { m 2.2} { m 4d} { m 4d} { m 2d} { m 2d} { m 4d} { m 4d} { m 2d} { m 2d} { m 4d} { m 4d} { m 2d} { m 2d} { m 2d} { m 4d} { m 4d} { m 2d} { m 2d} { m 2d} { m 4d} { m 4d} { m 2d} { m 2d} { m 2d} { m 4d} { m 4d} { m 2d} { m 2d} { m 2d} { m 2d} { m 4d} { m 4d} { m 2d} { m 2d} { m 2d} { m 2d} { m 4d} { m 4d} { m 2d} {$	72 1.3 5d 7 Halfnium 1.78.49	$\frac{\mathbf{Rf}}{\mathbf{Rutherfordium}}$
		J	Scandium 44.955908		57-71  * Lanthanides	89-103 <b>**</b> Actinides
	$\mathbf{Be}_{\text{0.0121831}}^{1.57}$	$\overline{\mathbf{Mg}}_{24.305}^{1.31}$	Calcium 40.078	38 0.95 58 39 Strontium 87.62	Barium 137.327	88 0.9 7.8 <b>Rad</b> Radium (226)
$ \begin{array}{c c} 1 & \underline{2.20} & 1s \\ \hline \mathbf{H} \\ \text{Hydrogen} \\ 1.0079 \end{array} $	3 0.98 28 4 <b>Lithium</b> 6.990	$\frac{11}{Na}$ $\frac{0.93}{a}$ 3s $\frac{12}{12}$ Sodium $\frac{22.98976928}{12}$	19 0.82 48 20 <b>K K</b> Potassium 39.0983	37 0.82 58 38 Rb Rubidium S5.4678	55 0.79 6s 56 Cesium 132.90545196	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

44 71 1.27 45 Lu Lutetium 1.74.9668	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$f = \frac{70  1.1}{\text{Y} \text{b}}$	$ \begin{array}{c c} 5f & 102 & 1.3 \\ \hline  & NO \\  & Nobelium \\  & (259) \end{array} $
44 69 1.25 4 Thulium 168.93422	$\sum_{\substack{\text{Mendelevium} \\ (258)}} \frac{101}{\text{Mendelevium}} \frac{1.3}{5}$
14 68 1.24 Erbium 167.259	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
Homium 164.93033	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
14 66 1.22 4 Dy Dysprosium 162.500	$\begin{array}{c c} 5f & 98 & \underline{1.3} & 5 \\ & \mathbf{Cf} \\ & \mathbf{Californium} \\ & (251) \end{array}$
** 65 1.1 4 Terbium 158.92535	3 <b>X X X X X X X X X X</b>
$ \begin{array}{c c} f & 64 & \underline{1.2} & 4f^* & 65 \\ \mathbf{Gd} & & & \\ \mathbf{Gadolinium} & & \mathbf{T} \\ 157.25 & & & 1 \end{array} $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
<b>Eu</b> Europium 151.964	$\begin{vmatrix} 95 & \underline{1.13} & 5 \\ \mathbf{Am} & \mathbf{Am} \\ \text{Americium} \\ (243) \end{vmatrix}$
Smarium 150.36	$\Pr_{\text{Plutonium}}^{94 - 1.28}$
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
60   1.14 4   4   4   1   1   4   4   4   4   4	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
13 4) <b>T</b> dymium 90766	$\mathbf{P}^{1.5}_{\mathbf{a}}$ Protactinium 231.03588
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	${{{{ m AC}} \over {{ m AC}}}}_{(227)}^{11} = {{6d}^*} \ {{90}} \ {{1.3}\over {1.5}} \ {{5f}^*} \ {{91}} \ {{1.5}\over {1.5}} \ {{{ m AC}} \over {{ m AC}}} \ {{{ m$
$\sum_{\text{Lanthanum}}^{57} \sum_{138.90547}^{1.1}$	$ \underset{(227)}{89}  \underset{(227)}{\underline{1.1}}  6d^* $
*	* *

Standard atomic weights taken from the Commission on Isotopic Abundances and Atomic Weights (ciaaw.org/atomic-weights.htm). Adapted from Ivan Griffin's BAEX Periodic Table. © 2018 Paul Danese

An asterisk (\*) next to a subshell indicates an anomalous (Aufbau rule-breaking) ground state electron configuration.