## Periodic Table of the Elements

$\begin{array}{c} \mathbf{He}^{1s} \\ \mathbf{He}^{\text{Helium}} \\ {}^{4.002602(2)} \\ \mathbf{Ne}^{0} \\ {}^{Ncon} \\ {}^{20.1797(6)} \\ \mathbf{Ar} \\ {}^{\mathbf{Ar}} \\ {}^{\mathbf{Argon}} \\ {}^{3p} \\ \mathbf{Argon} \\ {}^{3p} \\ \mathbf{Argon} \end{array}$	$\frac{3.00}{\mathbf{K}\mathbf{r}}$	$\overset{2.60}{\mathrm{Xe}}$ 5p $\overset{5p}{\mathrm{Xenon}}$ Xenon 131.293(6)	$\mathop{\mathbf{Rn}}_{(222)}^{\overline{2.2}}$ 6 $p$	$egin{pmatrix} 0 & \mathbf{p} \\ \mathbf{O} & \mathbf{g} \\ \mathbf{O} & \mathbf{g} \\ \mathbf{O} & \mathbf{g} \\ 1294 \end{pmatrix}$
7 7	36	p 54	<b>98</b> d9	Tp 1.
2p 9 3.98 2p Fluorine 18.998403163(6) 3p 17 3.16 3p Claorine Chlorine 18.46-35.457		5p 53 2.66 5	$\mathop{\mathbb{A}}_{\text{Astatine}}^{6p}$	$\begin{array}{c c} 7p & 117 \\ & \mathbf{TS} \\ \mathbf{n} & \text{Temessine} \\ & (294) \end{array}$
3.44 Oxygen 15.99077 15.99077 Sulphur 059-32.0'	Selenium E	2.1 Te	$\overset{2.0}{P_0}$	LV rmorium (293)
$\frac{3.04}{N}$ 2p 8 $\frac{3.04}{N}$ Nitrogen 14.00643- $\frac{2.19}{P}$ 3p 16 $\frac{2.19}{P}$ 3p 3p 3p 393761998(5) 32.	$\mathbf{A}$	5p 52	6p <b>84</b>	$\overline{\mathbf{MC}}_{\mathrm{Moscovium}}^{7p}$ $\overline{\mathbf{Live}}_{\mathrm{(289)}}^{116}$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Lp 33 A A A 74.9	$\sum_{\text{Antiin}} \frac{5p}{\mathbf{S}_{121.7}}$	<b>8</b> d9	7p 1
		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\stackrel{6p}{\mathbf{P}} \stackrel{82}{\overset{1.87}{\mathbf{P}}} \stackrel{\mathbf{P}}{\mathbf{D}}$	$F_p$ 114 $F_1$ Flerovium (289)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Gallium Ger 69.723(1)		1.62 Thallium 204.382- 204.385	$\stackrel{Ah}{\overset{onium}{\overset{onium}{\overset{cas}{\overset{o}}{\overset{o}{\overset{o}{\overset{o}{\overset{o}{\overset{o}{\overset{o}{\overset{o}{\overset{o}}{\overset{o}{\overset{o}}{\overset{o}{\overset{o}}{\overset{o}{\overset{o}}{\overset{o}{\overset{o}}{\overset{o}}{\overset{o}{\overset{o}}{\overset{o}}{\overset{o}{\overset{o}}{\overset{o}}{\overset{o}}{\overset{o}}{\overset{o}}{\overset{o}}{\overset{o}}{\overset{o}}{\overset{o}}{\overset{o}}}{\overset{o}}}}$
	$\sum_{\mathrm{Zinc}}^{1.65} _{3d} _{31}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\mathbf{H}_{\mathrm{Mercury}}^{2.00 5d}$	$\mathop{\mathrm{Copernicium}}_{(285)}^{6d} \mathop{\mathrm{Ins}}_{(285)}^{113}$
	$\bigcup_{\text{Copper}}^{1.90 \text{ 3}d*} 3d^*$	$ \begin{matrix} \mathbf{A}_{\mathbf{S}} \\ \mathbf{A}_{\mathbf{S}} \\ \text{Silver} \\ 107.8682(2) \end{matrix} $	${\stackrel{79}{\mathbf{Au}}}_{\text{Gold}}^{2.54} {\stackrel{5d^*}{80}}_{\text{N}}^{60}$	$\underset{(282)}{\mathbf{Rg}} \mathbf{Rg} \begin{array}{c} 112 \\ \mathbf{Rg} \\ \mathbf{Roentgenium} \end{array}$
	3d 29	10 4d* 47 Lium 5 Lium 5 107	*	$egin{array}{c} 6d \ \mathbf{DS} \ \mathbf{I}$ nstadtium Roei (281)
	d 28	$\overset{*}{\overset{16}{\overset{2.20}{\overset{2.20}{\overset{4}{\overset{4}{\overset{4}{\overset{6}{\overset{2.20}{\overset{4}{\overset{4}{\overset{4}{\overset{6}{\overset{2.20}{\overset{4}{\overset{4}{\overset{4}{\overset{4}{\overset{4}{\overset{4}{\overset{4}{$	5d 78 2.28 5 Pt Platinum 195.084(9)	d 1110
shell; atomic	3d <b>27</b> 1.88 3 <b>COo</b> Cobalt 58.933194(4)	$\Pr_{\text{Rhodium}}^{45} \Pr_{\text{102.90550(2)}}^{2.28}$	$ \begin{array}{c cccc} 77 & 2.20 & 5 \\ \hline \mathbf{L} & \\ \text{Iridium} \\ 192.217(3) \end{array} $	$\sum_{(278)}^{6} {Mt}$
Z= atomic number; eneg = electronegativity; ss = subshell; Sy = Symbol, Name = element name, saw = standard atom weight	Fe Iron 1.83 25.845(2	$\mathbf{Ru}^4$ $\mathbf{Ru}^2$ $\mathbf{Ru}$ Ruthenium 101.07(2)	6 2.2 5d OSmium 190.23(3)	$\mathop{Hassium}\limits_{(269)}^{66}$
Z= atomic number; eneg = electronegativity; ss = sub Sy = Symbol, Name = element name, saw = standard weight	$\frac{1.55  3d}{\text{Manganese}}$ Manganese 54.938044(3)	13 1.9 4d 4 Technetium (98)	$\mathbf{Re}$ 1.9 5d 76 Rhenium O 186.207(1)	$\overset{6d}{\mathbf{Bh}} \overset{6d}{\mathbf{Bh}} \overset{108}{\overset{1}{\overset{1}{\overset{1}{\overset{1}{\overset{1}{\overset{1}{\overset{1}{$
oer; eneg = ome	$\begin{bmatrix} \frac{1.66}{\mathbf{C}} & 3d^* & 25 \\ \mathbf{Cr} & \end{bmatrix}$ Chromium  M 51.9961(6)	Lo 4d* 43 Lo lenum Te 5(1)	5d 75	<i>‡</i>
tomic numl Symbol, Na t	$\begin{array}{c c} 3d & 24 & \underline{1.66} & 3 \\ \hline & C \mathbf{r} \\ \hline & \text{Chromium} \\ 51.9961(6) \end{array}$	$d^*$ 42 $2.16$ 4 $d^*$ $Molybdenum$ 95.95(1)	d 74	6d 106
	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\mathop{N}^{41}\mathop{Nb}^{1.6}_{\mathbf{N}} \overset{4d}{\mathbf{b}}$	5d 73 1.5 5 Tantalum 180.94788(2)	$\mathop{\mathrm{Db}}_{\text{Dubnium}}^{105}$
$\sum_{\substack{\text{cnog} \\ \text{Name} \\ \text{saw}}} z$	<b>₽</b>	$\sum_{\text{Zirconium}}^{40} \frac{1.33}{2}  ^{4d}$	1.3 Hf afrium 78.49(2)	$\Pr^{6d}_{ ext{Rutherfordium}}$
	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \sum_{S \text{ S 9 } 1.22} \sum_{1.22} 4d \ \frac{10}{2} \sum_{1.33} 4d \ \frac{11}{2} \sum_{\text{Nobjum}} 4d^* \ \frac{42}{2} \sum_{1.6} 4d^* \ \frac{43}{2} \sum_{1.9} 4d \ \frac{44}{44} \sum_{2.2} 4d^* \ \frac{44}{2} \sum_{1.2} 4d^* \ \frac{11}{2} \sum_{1.24(2)} 4d^* \ \frac{11}{2} \sum_{\text{Nobjum}} 4d^* \ \frac{11}{2} \sum_{1.24(2)} 4d \ \frac{11}{2} $	57-71 * Lanthanides	89-103 <b>**</b> Actinides
4 1.57 28 Be Beylium 9.0121831(5) I2 1.31 38 Magnesium 24.304-24.307	$\overset{1.00}{\mathbf{Ca}}$ 4s 21		<b>Ba</b> Barium 137.327(7)	$\overset{0.9}{\mathrm{Radium}}^{7s}$
23 38 (2)	2 4s 20 Im Ca (1) 40.	28	26	7.88
$\begin{array}{c} \mathbf{H} \\ $	$\frac{19}{\mathbf{K}}$ Potassium $39.0983(1)$	$\mathop{Rbb}\limits_{\text{Rubidium}}$	55 <u>0.79</u> 6s Csium 132.90545196(6)	$\frac{87}{\text{Fr}} \frac{0.7}{\text{Francium}}$ Francium (223)

+		4	
$^{4f}$ $\stackrel{71}{\overset{1.27}{\overset{1.27}{\overset{1}{\overset{1}{\overset{1}{\overset{1}{\overset{1}{\overset{1}{\overset{1}{$	174.9668(1)	$\sum_{\mathbf{L}}^{103} \sum_{\mathbf{L}}^{1.3} 5 j$	Lawrencium (266)
$ \mathbf{r}  = \mathbf{r} \mathbf{r}$	173.045(10)	$\overset{102}{\mathrm{No}}\overset{1.3}{\mathrm{O}}$	Nobelium (259)
$egin{array}{c c} 4f & 69 & 1.25 & 4f \ \hline & Tm \ \end{array}$	168.93422(2)	$\mathbf{M}^{\frac{1.3}{101}}$	
$\frac{68}{\mathbf{Er}} \frac{1.24}{\mathbf{Fr}} $	167.259(3)	$\overset{100}{\mathrm{Fm}}\overset{5f}{}$	
4f 67 1.23 4f HO	164.93033(2)	$\mathbf{E}^{99}$	Einsteinium (252)
$\overset{66}{\overset{1.22}{\overset{1.22}{{{{}{{}{}{}$	Lysprosium 162.500(1)	$\overset{98}{ ext{Cf}}^{rac{1.3}{ ext{C}}}$	Californium (251)
$\prod_{\text{Total in }}^{4f} \overset{4f}{\text{Total in }}$	158.92535(2)	$\mathbf{B}^{67}$	Berkelium (247)
4 64 1.2 4f* 65	157.25(3)	$\mathbf{Cm}^{96}$	
$\overset{63}{\mathrm{E}}\overset{1.2}{\mathrm{u}}\overset{4f}{\mathrm{u}}$	151.964(1)	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Americium (243)
$\mathbf{Sm}^{62}$	150.36(2)	$\mathbf{Pu}^{94} \stackrel{1.28}{\mathbf{Pu}}^{5f}$	Plutonium (244)
$\left  egin{array}{cccccccccccccccccccccccccccccccccccc$	r romeunum (145)	$\sum_{93}^{1.36} \sum_{5f^*}^{5f^*}$	Neptunium (237)
$\overset{\text{60}}{\overset{1.14}{\text{N}}}\overset{\text{4}f}{\overset{\text{M}}{\text{O}}}$	144.242(3)	$\bigcup_{1.38}^{92} 5f^*$	Uranium 238.02891(3)
$\sum_{\mathbf{r}}^{1.13} \psi$	140.90766(2)	$\mathbf{Pa}^{rac{1.5}{1.5}}$	Protactinium 231.03588(2)
$\overset{r}{\operatorname{La}}\overset{1.1}{\operatorname{La}}\overset{5d^*}{\operatorname{S}}\overset{1.8}{\operatorname{Ce}}\overset{1.12}{\operatorname{Ce}}\overset{4f^*}{\operatorname{Prase}}\overset{59}{\operatorname{Prase}}$	140.116(1)	$egin{array}{c c c c c c c c c c c c c c c c c c c $	Thorium 232.0377(4)
$\frac{57}{\mathbf{La}} \frac{1.1}{\mathbf{b}} 5 d^*$	138.90547(7)	$\mathbf{\hat{A}^{0}}$	Actinium (227)
*		* *	

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

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