## Periodic Table of the Elements

$\mathop{He}_{\text{Helium}\atop 4.002602(2)}^{1s}$	$\begin{array}{ccc} 2p & 10 & 2p \\ & Neon \\ 3(6) & 20.1797(6) \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4p 36 4p Krypton 83.798(2)	5p <b>54</b> 5p	$\overset{6p}{\mathbf{R}}\overset{86}{\mathbf{R}}\overset{6p}{\mathbf{R}}$	7p 118 7p  S
	$\begin{bmatrix} 2p \\ \mathbf{F} \end{bmatrix}$ Fluorine Fluorine 18.998403163(6)	3p 17 3p Chorine Chlorine 35.446-35.457	4p <b>35</b> 4p <b>Br</b> Bromine 79.901-79.907	5p <b>53</b> 5p	6p 85 6p At Astatine (210)	$\bigcup_{(294)}^{117}$
	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	16 Sulphur 32.059-32.0	4p <b>Se</b> Selenium (5) 78.971(8)	5p <b>52</b> 5p Tellurium 127.60(3)	6p 84 6p Po Polonium (209)	$\sum_{\substack{\text{Livermoriu} \\ (293)}}$
	$\sum_{\substack{\text{Nitrogen}\\14.00643-\\14.00728}}$	$\begin{array}{ccc} \mathbf{Si} & \mathbf{3p} & 15 & \mathbf{3p} \\ \mathbf{Si} & \mathbf{P} & \mathbf{P} \\ \mathrm{Silicon} & \mathrm{Phosphorus} \\ 28.084-28.086 & 30.973761998(5) \end{array}$	$\begin{array}{c c} 4p & 33 & 4p \\ & \mathbf{AS} \\ \mathbf{n} & \text{Arsenic} \\ 74.921595(6) \end{array}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	6p 83 6p Bismuth 208.98040(1)	7p 115 7p
	$ \begin{array}{c} 6 \\ \mathbf{C} \\ \text{Carbon} \\ 12.0096 - \\ 12.0116 \end{array} $	3p 14 3p Silcon Silcon 28.084-28.086	4p 32 4p Germanium 72.630(8)	<b>Sn</b> Tin 8.710(7)	$egin{array}{c c} 6p & \mathbf{s2} & 6p \\ \hline \mathbf{Pb} & & \\ \mathbf{Lead} & \\ \hline & & \\ \hline \end{array}$	7p 114 7p
	$\mathop{\mathbf{B}}_{\text{Bron}}^{2p}$	13 3p A1 Aluminium 26.9815385(7)	$\begin{array}{c c} 3d & 31 & 4p \\ & \mathbf{Gallium} \\ \text{Gallium} \\ 69.723(1) \end{array}$	44 49 5p	81 Thalliw 204.382 204.385	$\bigcup_{\text{Ununtrium} (286)}$
			$\stackrel{3d^*}{\stackrel{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{D}}{\overset{\mathbf{Z}}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}}}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{\mathbf{Z}}{\overset{Z}}}}{\overset{\mathbf{Z}}{\overset{Z}}}{\overset{Z}}}{\overset{Z}}{\overset{Z}}{\overset{Z}}{\overset{Z}}}{\overset{Z}}}{\overset{Z}}{\overset{Z}}{\overset{Z}}{\overset{Z}}}{\overset{Z}}{\overset{Z}}{\overset{Z}}{\overset{Z}}{\overset{Z}}}}{\overset{Z}}}{\overset{Z}}{\overset{Z}}{\overset{Z}}{\overset{Z}}}}{\overset{Z}}}{\overset{Z}}}{\overset{Z}}}{\overset{Z}}}{\overset{Z}}}{\overset{Z}}}}}}}}$	$\overset{4d^*}{{\circ}} \overset{4s}{{\circ}} \overset{4d}{{\circ}} \overset{4d}{{{\circ}}} \overset{4d}{{\circ}} \overset{4d}{{\circ}} \overset{4d}{{{\circ}}} \overset{4d}{{{{\circ}}}} \overset{4d}{{{{\circ}}}} \overset{4d}{{{{\circ}}}} \overset{4d}{{{{{\circ}}}} \overset{4d}{{{{{\circ}}}}} \overset{4d}{{{{{{{{{{\overset$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\mathop{\mathrm{Coperniciu}}_{\mathrm{(285)}}^{112}$
			$\begin{array}{c c} 3d & 29 & 3d^* \\ & \mathbf{Cu} \\ \text{Copper} \\ \text{Copper} \\ 63.546(3) \end{array}$	${\mathop{\rm Ad}^*\atop {\rm E}\atop {\rm B}\atop {\rm Bilver}\atop {\rm C}\atop {\rm C}\atop {\rm E}\atop {\rm E$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\mathop{Rg}\limits_{\text{Roentgeniu}\atop{(282)}}$
			3d <b>28</b> 3d Nickel Nickel 58.6934(4)	$\begin{array}{c c} 4d^* & 46 & 4d^* \\ \textbf{P} & \textbf{Pd} \\ \text{m} & \text{Palladium} \\ \text{(2)} & 106.42(1) \end{array}$	5d <b>78</b> 5d* <b>Pt</b> Platinum 195.084(9)	
			3d <b>COpalt</b> Cobalt 58.933194(4)	$egin{array}{c cccc} 4d^* & 45 & 4d^* \ & \mathbf{Rh} \ & & \mathbf{Rhodium} \ & & \mathrm{Rhodium} \ \end{array}$	5d 77 5d	$\stackrel{6d}{\text{Meitnerium}}_{(278)}^{6d}$
			3d <b>26</b> 3d	$\mathbf{R}^{4d}$ $\mathbf{R}^{4d*}$ $\mathbf{R}^{4d*}$ $\mathbf{R}^{4d*}$	5d 76 5d OS osmium 190.23(3)	$\mathop{Hssium}_{\text{(269)}}$
			$\sum_{ m Langanes}$	$\frac{43}{\Gamma_{ m Chnetiu}}$	$\mathop{\mathbf{Re}}_{1}$ $\mathop{\mathbf{Re}}_{1}$ Rhenium $_{186.207(1)}$	$\stackrel{6d}{=} \frac{107}{\mathbf{Bh}} \stackrel{6d}{=} \frac{100}{(270)}$
			$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\mathbf{Molybdenum}^{42} \qquad \mathbf{T}^{4d^*}$	5d 74 5d W Tungsten 183.84(1)	$\mathbf{S}^{6d}$ 106 64 Seaborgium (269)
			$\begin{array}{c c} 3d & 23 & 3d \\ \hline \mathbf{V} & \mathbf{V} \\ \text{Vanadium} \\ 50.9415(1) \end{array}$	1 Niobium Md* 42.90637(2)	5d <b>73</b> 5d Ta Ta Tantalum 180.94788(2)	$\mathop{Db}_{\text{Dubnium}}^{105}$
			3d <b>22</b> 3d <b>T</b> i Titanium 47.867(1)	44 <b>40</b> 44 <b>Zr</b> Zirconium 91.224(2)	$ \underset{178.49(2)}{\textbf{72}} \underbrace{ \text{Hf}}_{\text{Falfnium}} $	$\Pr_{ ext{Ruther-}  ext{fordium}}^{ ext{for}}$
			48 21 3 <i>d</i> Scandium 44.955908(5)	5s 39 4d  Y  Yttrium 88.90584(2)	57-71 * Lanthanides	89-103 <b>**</b> Actinides
	$\mathbf{Beryllium} \\ 9.0121831(5)$	3s 12 3s Mg Magnesium (2) 24.304–24.307	$\sum_{1}^{48} \frac{20}{\text{Calcium}}$	5s 38 5s Sr Strontium 87.62(1)	6s <b>56</b> 6s Barium (6) 137.327(7)	$\Pr_{\text{Radium}\atop{(226)}}$
$ \begin{array}{c} 1 & 1s \\ \text{Hydrogen} \\ 1.00784-\\ 1.00811 \end{array} $	3 2s 4 Lithium 6.938-6.997	$\overset{\text{11}}{\text{Na}}\overset{\text{3s}}{\text{Sodium}}$ $\overset{\text{Sodium}}{\text{22.98976928(2)}}$	$\mathbf{K}^{19}_{\mathbf{F}}$ Potassium 39.0983(1)	$\Pr_{\text{Rubidium}}^{5s}$	$ \bigcup_{\text{Caesium} \atop \text{132.90545196(6)} }^{6s} $	$\Pr_{\text{Francium}}^{77}$

4.	4.				
$\sum_{\substack{\text{Lutetium} \ 174.9668(1)}}^{4f}$	$\frac{1}{103}$ 4 $f$ $\frac{1}{103}$ Lawrencium (266)				
$\sum_{\text{Ytterbium}}^{4f}$	$\sum_{\substack{\text{Nobelium} (259)}}^{02}$				
$\begin{bmatrix} \mathbf{P} & 4f & 70 \\ \mathbf{T} & & & \\ & \mathbf{T}^{\mathrm{nulium}} & & \mathbf{Y} \\ 168.93422(2) & & 177 \end{bmatrix}$	$\prod_{\substack{\mathbf{h} \in \mathbf{M} \\ \text{Mendelevium} \\ (258)}} ^{4f}$				
$\mathbf{Er}_{\text{Erbium}}^{4f}$ Erbium 167.259(3)	4f 100 4f Fm Fermium (257)				
4f 67 4f HO Holmium 164.93033(2)	4f 99 4f ES msteinium (252)				
$\sum_{\substack{\text{Dysprosium} \\ 162.500(1)}} 4f$	$\begin{array}{c c} 4f & 98 & 4f \\ \hline & Cf \\ \hline & \text{Californium} \\ & (251) \end{array}$				
$\prod_{\substack{\text{Terbium}\\158.92535(2)}} 4f$	$\frac{\mathbf{Bk}}{\mathbf{Berkelium}}$				
$\begin{array}{c} 64 & 4f^* & 65 \\ \mathbf{Gd} & \\ \mathbf{Gadolinium} & \\ 157.25(3) & 11 \end{array}$	$_{\mathrm{n}}^{4f} \stackrel{96}{\overset{\mathbf{Cm}}{\overset{\mathbf{M}^{*}}{\overset{97}{\overset{97}{\overset{67}}}{\overset{67}{\overset{67}{\overset{67}{\overset{67}}{\overset{67}{\overset{67}{\overset{67}{\overset{67}{\overset{67}{\overset{67}{\overset{67}{\overset{67}{\overset{67}{\overset{67}{\overset{67}{\overset{67}{\overset{67}{\overset{67}{\overset{67}}{\overset{67}{\overset{67}$				
$\mathbf{E}_{\mathrm{uropium}}^{4f}$ Europium 151.964(1)	$\left  egin{array}{c} 45 & \mathbf{4f} \ \mathbf{Am} \ \mathbf{Americium} \ & 243 \ \end{array}  ight $				
$\mathbf{Smarium}_{150.36(2)}^{4f}$	$\mathbf{Pu}_{\text{Plutonium}}^{4f}$				
$\Pr_{\text{Promethium}}^{4f}$	$\begin{array}{ccc} 4f^* & 93 & 4f^* \\ & & \mathbf{Np} \\ \mathbf{n} & & \text{Neptumium} \\ 3 & & \mathbf{(237)} \end{array}$				
$\stackrel{\mathbf{M}}{\overset{\mathbf{M}}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}}{\overset{\mathbf{M}}}{\overset{\mathbf{M}}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}}{\overset{\mathbf{M}}{\overset{M}}}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{M}}}{\overset{\mathbf{M}}}{\overset{\mathbf{M}}{\overset{M}}{\overset{\mathbf{M}}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{\mathbf{M}}{\overset{M}}}}}{\overset{\mathbf{M}}{\overset{M}}}}{}}}{}{$	Uranium 238.02891				
$\mathbf{P}_{\mathbf{r}}^{4f}$ Praseodymium 140.90766(2)	$\Pr_{231.03588(2)}^{4f^*}$				
$ \begin{matrix} 58 & 4f^* & 59 \\ \mathbf{Ce} & \mathbf{Pras} \\ \mathbf{Cerium} & \mathbf{Pras} \\ 140.116(1) & 140 \end{matrix} $	90 Thorium				
$\overset{57}{\text{La}}_{\text{anthanum}}^{5d^*}$	$egin{array}{c} 89 & 6d^* & 90 \ \mathbf{AC} &  &  \ \mathrm{Actinium} &  \  &  \  \end{array}$				
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subshell Symbol Name Std. Atomic Weight					

Standard atomic weights taken from the Commission on Isotopic Abundances and Atomic Weights (ciaaw.org/atomic-weights.htm). Adapted from Ivan Griffin's LAFX Periodic Table. © 2015 Paul Danese