## Periodic Table of the Elements

$\begin{array}{c} \mathbf{^{2} He} \\ \mathbf{Helium} \\ 4.002602(2) \\ \mathbf{Ne} \\ \mathbf{Neon} \\ 20.1797(6) \\ \mathbf{Argon} \\ \mathbf{Argon} \\ 39.948(1) \end{array}$	$\mathbf{Kr}$ Krypton 83.798(2)	$\overset{54}{\mathbf{X}}\overset{5p}{\mathbf{E}}$ Xenon 131.293(6)	$\mathop{\mathrm{Radon}}\limits_{\text{(222)}}^{6p}$	$\begin{array}{ccc} 7p & 118 & 7p \\ \mathbf{S} & \overline{\mathbf{U}} \mathbf{UO} \\ \mathbf{un} & \mathrm{Ununoctium} \\ & & (294) \end{array}$
2p 9 2p 10 Fluorine 18.998403163(6) 22 18 Chlorine 20 18 18 17 2p 18 18 18 18 18 18 18 18 18 18 18 18 18	35   4p   36	5p <b>53</b> 5p	$\stackrel{6p}{=} \stackrel{85}{=} \stackrel{6p}{=} \stackrel{4}{=} \stackrel{4}{=} \stackrel{4}{=} \stackrel{4}{=} \stackrel{6p}{=} \stackrel{6p}$	$\bigcup_{(294)}^{117}$
8 Oxygen 15.9903- 15.99077 16 Sulphur 32.059-32.0'	4 <i>p</i> 34 4 <i>p</i> <b>Se</b> Selenium (5) 78.971(8)	5p <b>52</b> 5p Tellurium 127.60(3)	$\stackrel{6p}{=} \begin{array}{c} 84 & 6p \\ \hline PO \\ \text{Polonium} \\ \text{(209)} \end{array}$	$\sum_{(293)}^{116}$
7 Nitrogen 14.00643- 14.00728 15 Phosphoru 30.973761998	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	6p 83 6p Bismuth 208.98040(1)	$\bigcup_{115}^{7p} \bigcup_{(289)}^{7p}$
	4p 32 4p Germanium 72.630(8)	$\mathbf{S}_{p}$ 50 $\mathbf{S}_{n}$ $\mathbf{S}_{n}$ $\mathbf{S}_{n}$	$\Pr_{\substack{\text{Lead}\\207.2(1)}}$	7p 114 7p
$\begin{array}{c} 5 \\ \mathbf{B} \\ \text{Boron} \\ \text{10.806-10.821} \\ 13 \\ \mathbf{A} \\ \text{Aluminium} \\ \text{26.9815385(7)} \end{array}$	34 31 4p	$\begin{bmatrix} 4d & 49 & 5p \\ & \mathbf{In} \end{bmatrix}$	81 6 <i>p</i> Thallium 204.382-204.385	$\bigcup_{\text{(286)}}^{113}$
	$\begin{vmatrix} 3d^* & 30 & 3d \\ \mathbf{L} & \mathbf{Zn} \\ \vdots & \text{Zinc} \\ 65.38(2) \end{vmatrix}$	44* 48 4d Cadmium (2) 112.414(4)	5 <i>d</i> * 80 5 <i>d</i> Mercury (5) 200.592(3)	$\mathop{\mathrm{Coperniciu}}\limits_{(285)}^{112}$
	$\begin{array}{c c} 3d & 29 & 3d^* \\ & \mathbf{Cu} \\ \text{Copper} \\ \end{array}$		$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\mathop{Rg}\limits_{\text{(282)}}^{111}$
	$\begin{array}{c c} 3d & 28 & 3d \\ \hline \mathbf{Nickel} \\ \text{Nickel} \\ 58.6934(4) \end{array}$	$\begin{array}{c c} 4d^* & 46 & 4d^* \\ \textbf{L} & \textbf{Pd} \\ \text{n} & \text{Palladium} \\ (2) & 106.42(1) \end{array}$	5d <b>78</b> 5d* <b>Pt</b> Platinum 195.084(9)	
	3d <b>27</b> 3d <b>Co</b> Cobalt 58.933194(4)	$egin{array}{c cccc} 4d^* & 45 & 4d^* \ & & \mathbf{Rh} \ & & & \mathbf{Rhodium} \ & & & \mathbf{Rhodium} \ \end{array}$	5d 77 5d	$\bigvee_{\text{Meitnerium}}^{6d} \mathbf{t}$
	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\mathbf{R}^{4d}$ $\mathbf{R}^{4d^*}$ $\mathbf{R}^{4d^*}$ $\mathbf{R}^{4d^*}$	5d 76 5d OS osmium 190.23(3)	$\stackrel{6d}{\overset{108}{\overset{6d}{\overset{6d}{\overset{6d}{\overset{1}{\overset{1}{\overset{1}{\overset{1}{\overset{1}{\overset{1}{\overset{1}{$
	<b>Mn</b> Janganes 4.938044(;	$ \begin{array}{c c} 4d* & 43 & 4d \\                                   $	$\mathbf{R}^{5d}$ $\mathbf{R}^{6}$	$\stackrel{6d}{=} \frac{107}{\underset{(270)}{\mathbf{Bhrium}}}$
	$\frac{3d}{Cr}$ $\frac{24}{Cr}$ $\frac{3d^*}{Cr}$ Chromium N 51.9961(6)	MC olybden 95.95(1)	5d 74 5d W Thingsten 183.84(1)	$\begin{array}{c c} 6d & 106 & 6d \\ \mathbf{Sg} \\ \mathbf{Seaborgium} \\ \mathbf{(269)} \end{array}$
ut T	3d <b>23</b> 3d Vanadium 50.9415(1)	44 41 Ad* 42 Av	5d <b>73</b> 5d Tantalum 180.94788(2)	$\mathop{\mathbf{Db}}_{\text{Dubnium}}^{6d}$
Atomic # subshell  Symbol  Name Std. Atomic Weight	3d <b>22</b> 3d <b>Ti</b> Titanium 47.867(1)	44 <b>Zr</b> Zirconium 91.224(2)	$\inf_{178.49(2)}^{72}$	$\Pr_{ ext{Ruther-}}^{ ext{fordium}}$
<b>4 0</b> 1 %	48 21 3d Scandium 44.955908(5)	5s 39 4d  Yttrium 88.90584(2)	57-71 * Lanthanides	89-103 ** Actinides
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4s 20 4s Cacium 40.078(4)	5s 38 5s Sr Strontium 87.62(1)	68 <b>56</b> 68 Barium (6) 137.327(7)	$\stackrel{7s}{\overset{88}{\overset{7s}{\operatorname{Radium}}}} \mathop{Radium}\limits_{(226)}$
$\begin{array}{c} \mathbf{H} \\ \mathbf{H} \\ \mathbf{Hydrogen} \\ 1.00784 - \\ 1.00811 \\ \mathbf{Lithium} \\ 6.938-6.997 \\ \mathbf{Na} \\ \mathbf{Na} \\ \mathbf{Sodium} \\ 22.98976928(2) \\ 1 \end{array}$	$\begin{matrix} 19 & 4s \\ \mathbf{K} \\ \mathbf{Fotassium} \\ 39.0983(1) \end{matrix}$	$\Pr_{\text{Rubidium}}^{57} \mathop{Eb}_{\text{Rubidium}}$	$\mathop{\mathbf{CS}}_{\text{Caesium}}^{6s}$	$\Pr_{\text{Francium}}^{77}$

<b>→</b> ○ 4	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\frac{\mathbf{P}_{\mathbf{r}}}{\mathbf{P}_{\mathbf{r}}}$	$\overset{\text{4}f}{\text{Nadymium}}_{\text{144.242(3)}}$	$\Pr_{\text{Promethium}}^{f \ bm}$	$\mathbf{\hat{Sm}}_{\text{Samarium}}^{4f}$ Samarium 150.36(2)	$\mathbf{E}_{\mathbf{u}}^{f}$ $\mathbf{E}_{\mathbf{u}}^{f}$ Europium 151.964(1)	$\mathop{Gadolinium}\limits_{157.25(3)}^{4f^*}$	$ \begin{array}{c c} tf^* & \textbf{65} & 4f \\ & \textbf{T} \textbf{b} \\ n & \text{Terbium} \\ 158.92535(2) \end{array} $	$\begin{array}{c c} \mathbf{H} & 66 & 4f \\ & \mathbf{D} \mathbf{y} \\ & \text{Dysprosium} \\ & 162.500(1) \end{array}$	$\mathop{Holmium}\limits_{164.93033(2)}^{4f}$	$\begin{array}{c c} 4f & 68 & 4f \\ \hline \mathbf{Er} \\ \text{Erbium} \\ 167.259(3) \end{array}$	$\sum_{ ext{Thulium}}^{ ext{4}f}$	$\sum_{\substack{\text{Ytterbium}\\173.045(10)}}^{4f}$	$\int_{0}^{4f} \frac{71}{\text{Lutetium}} \int_{174.9668(1)}^{4f}$
6d* 90 $4f$ Thrium  Thorium  232.0377(4)	*	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\bigcup_{\substack{\text{Uranium}\\238.02891(3)}}^{4f^*}$	$\sum_{\substack{\mathbf{p} \\ \text{Neptunium} \\ (237)}} 4f^*$	$\Pr_{\text{Plutonium}}^{94}$	$ \begin{array}{c c} \mathbf{A} & \mathbf{A} \\ \mathbf{A} \\$	$\overset{96}{\mathbf{Cm}}_{\overset{1f^*}{(247)}}$	${f Bk}_{\rm Berkelium}$	$\mathcal{C}^{4f}_{\Gamma}$ $\mathcal{C}^{4f}_{\Gamma}$ Californium (251)	$\begin{array}{ccc} 4f & 99 & 4f \\ & \mathbf{ES} \\ \mathbf{n} & \text{Einsteinium} \\ & (252) & \end{array}$	$\overset{100}{\mathrm{Fm}}_{\overset{\mathrm{minm}}{\mathrm{m}}}$	${\stackrel{101}{\mathrm{Md}}}_{\stackrel{4}{\mathrm{Mendelevium}}}$	$\sum_{\substack{\text{Nobelium} \\ (259)}}^{f} 45$	103 4 <i>f</i> Lavrencium (266)

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