

## PERIODIC TABLE OF THE ELEMENTS

Group →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Period ↓																		
1	Hydrogen <b>1</b> <b>H</b> 1.008																	Helium <b>2</b> <b>He</b> 4.003
2	Lithium <b>3</b> <b>Li</b> 6.941	Beryllium <b>4</b> <b>Be</b> 9.012											Boron <b>5</b> <b>B</b> 10.811	Carbon <b>6</b> <b>C</b> 12.011	Nitrogen <b>7</b> <b>N</b> 14.007	Oxygen <b>8</b> <b>O</b> 15.999	Fluorine <b>9</b> <b>F</b> 18.998	Neon <b>10</b> <b>Ne</b> 20.180
3	Sodium <b>11</b> <b>Na</b> 22.990	Magnesium <b>12</b> <b>Mg</b> 24.305											Aluminum <b>13</b> <b>Al</b> 26.982	Silicon <b>14</b> <b>Si</b> 28.086	Phosphorus <b>15</b> <b>P</b> 30.974	Sulfur <b>16</b> <b>S</b> 32.066	Chlorine <b>17</b> <b>Cl</b> 35.453	Argon <b>18</b> <b>Ar</b> 39.948
4	Potassium <b>19</b> <b>K</b> 39.098	Calcium <b>20</b> <b>Ca</b> 40.078	Scandium <b>21</b> <b>Sc</b> 44.956	Titanium <b>22</b> <b>Ti</b> 47.88	Vanadium <b>23</b> <b>V</b> 50.942	Chromium <b>24</b> <b>Cr</b> 51.996	Manganese <b>25</b> <b>Mn</b> 54.938	Iron <b>26</b> <b>Fe</b> 55.847	Cobalt <b>27</b> <b>Co</b> 58.933	Nickel <b>28</b> <b>Ni</b> 58.693	Copper <b>29</b> <b>Cu</b> 63.546	Zinc <b>30</b> <b>Zn</b> 65.39	Gallium <b>31</b> <b>Ga</b> 69.723	Germanium <b>32</b> <b>Ge</b> 72.61	Arsenic <b>33</b> <b>As</b> 74.922	Selenium <b>34</b> <b>Se</b> 78.96	Bromine <b>35</b> <b>Br</b> 79.904	Krypton <b>36</b> <b>Kr</b> 83.80
5	Rubidium <b>37</b> <b>Rb</b> 85.468	Strontium <b>38</b> <b>Sr</b> 87.62	Yttrium <b>39</b> <b>Y</b> 88.906	Zirconium <b>40</b> <b>Zr</b> 91.224	Niobium <b>41</b> <b>Nb</b> 92.906	Molybdenum <b>42</b> <b>Mo</b> 95.94	Technetium <b>43</b> <b>Tc</b> 97.907	Ruthenium <b>44</b> <b>Ru</b> 101.07	Rhodium <b>45</b> <b>Rh</b> 102.906	Palladium <b>46</b> <b>Pd</b> 106.42	Silver <b>47</b> <b>Ag</b> 107.868	Cadmium <b>48</b> <b>Cd</b> 112.411	Indium <b>49</b> <b>In</b> 114.82	Tin <b>50</b> <b>Sn</b> 118.710	Antimony <b>51</b> <b>Sb</b> 121.757	Tellurium <b>52</b> <b>Te</b> 127.60	Iodine <b>53</b> <b>I</b> 126.904	Xenon <b>54</b> <b>Xe</b> 131.290
6	Cesium <b>55</b> <b>Cs</b> 132.905	Barium <b>56</b> <b>Ba</b> 137.327	Lanthanum <b>57</b> <b>La</b> 138.906	Hafnium <b>72</b> <b>Hf</b> 178.49	Tantalum <b>73</b> <b>Ta</b> 180.948	Tungsten <b>74</b> <b>W</b> 183.84	Rhenium <b>75</b> <b>Re</b> 186.207	Osmium <b>76</b> <b>Os</b> 190.2	Iridium <b>77</b> <b>Ir</b> 192.22	Platinum <b>78</b> <b>Pt</b> 195.08	Gold <b>79</b> <b>Au</b> 196.967	Mercury <b>80</b> <b>Hg</b> 200.59	Thallium <b>81</b> <b>Tl</b> 204.383	Lead <b>82</b> <b>Pb</b> 207.2	Bismuth <b>83</b> <b>Bi</b> 208.980	Polonium <b>84</b> <b>Po</b> 208.982	Astatine <b>85</b> <b>At</b> 209.978	Radon <b>86</b> <b>Rn</b> 222.018
7	Francium <b>87</b> <b>Fr</b> 223.020	Radium <b>88</b> <b>Ra</b> 226.025	Actinium <b>89</b> <b>Ac</b> 227.028	Rutherfordium <b>104</b> <b>Rf</b> (261)	Dubnium <b>105</b> <b>Db</b> (262)	Seaborgium <b>106</b> <b>Sg</b> (263)	Bohrium <b>107</b> <b>Bh</b> (262)	Hassium <b>108</b> <b>Hs</b> (265)	Meitnerium <b>109</b> <b>Mt</b> (266)									
<b>Lanthanide Series</b>				Cerium <b>58</b> <b>Ce</b> 140.115	Praseodymium <b>59</b> <b>Pr</b> 140.908	Neodymium <b>60</b> <b>Nd</b> 144.24	Promethium <b>61</b> <b>Pm</b> 144.913	Samarium <b>62</b> <b>Sm</b> 150.36	Europium <b>63</b> <b>Eu</b> 151.965	Gadolinium <b>64</b> <b>Gd</b> 157.25	Terbium <b>65</b> <b>Tb</b> 158.925	Dysprosium <b>66</b> <b>Dy</b> 162.50	Holmium <b>67</b> <b>Ho</b> 164.930	Erbium <b>68</b> <b>Er</b> 167.26	Thulium <b>69</b> <b>Tm</b> 168.934	Ytterbium <b>70</b> <b>Yb</b> 173.04	Lutetium <b>71</b> <b>Lu</b> 174.967	
<b>Actinide Series</b>				Thorium <b>90</b> <b>Th</b> 232.038	Protactinium <b>91</b> <b>Pa</b> 231.038	Uranium <b>92</b> <b>U</b> 238.029	Neptunium <b>93</b> <b>Np</b> 237.048	Plutonium <b>94</b> <b>Pu</b> 244.064	Americium <b>95</b> <b>Am</b> 243.061	Curium <b>96</b> <b>Cm</b> 247.070	Berkelium <b>97</b> <b>Bk</b> 247.070	Californium <b>98</b> <b>Cf</b> 251.080	Einsteinium <b>99</b> <b>Es</b> 252.083	Fermium <b>100</b> <b>Fm</b> 257.095	Mendelevium <b>101</b> <b>Md</b> 258.099	Nobelium <b>102</b> <b>No</b> 259.101	Lawrencium <b>103</b> <b>Lr</b> 260.105	

1 Mole =  $6.02 \times 10^{23}$