

# Los Alamos National Laboratory Chemistry Division

## Periodic Table of the Elements

|   |   |   |  |  |   |  |  |   |   |   |  |   |   |  |   |   |  |  |   |   |   |   |   |
|---|---|---|--|--|---|--|--|---|---|---|--|---|---|--|---|---|--|--|---|---|---|---|---|
| 1A<br>1<br><b>H</b><br>1s <sup>1</sup><br>hydrogen<br>1.008 |   |   |  |  |   |  |  |   |   |   |  |   |   |  |   |   | 8A<br>2<br><b>He</b><br>1s <sup>2</sup><br>helium<br>4.003   |  |   |   |   |   |   |
| 3<br><b>Li</b><br>[He]2s <sup>1</sup><br>lithium<br>6.941   | 2A<br>4<br><b>Be</b><br>[He]2s <sup>2</sup><br>beryllium<br>9.012 |   |  |  |   |  |  |   |   |   |  |   |   |  |   |   |  | 3A<br>5<br><b>B</b><br>[He]2s <sup>2</sup> 2p <sup>1</sup><br>boron<br>10.81 | 4A<br>6<br><b>C</b><br>[He]2s <sup>2</sup> 2p <sup>2</sup><br>carbon<br>12.01 | 5A<br>7<br><b>N</b><br>[He]2s <sup>2</sup> 2p <sup>3</sup><br>nitrogen<br>14.01 | 6A<br>8<br><b>O</b><br>[He]2s <sup>2</sup> 2p <sup>4</sup><br>oxygen<br>16.00 | 7A<br>9<br><b>F</b><br>[He]2s <sup>2</sup> 2p <sup>5</sup><br>fluorine<br>19.00 | 10<br><b>Ne</b><br>[He]2s <sup>2</sup> 2p <sup>6</sup><br>neon<br>20.18 |
| 11<br><b>Na</b><br>[Ne]3s <sup>1</sup><br>sodium<br>22.99   | 12<br><b>Mg</b><br>[Ne]3s <sup>2</sup><br>magnesium<br>24.31      | 3B  | 4B   | 5B   | 6B  | 7B   | 8B   |   | 11B   | 12B   | 13<br><b>Al</b><br>[Ne]3s <sup>2</sup> 3p <sup>1</sup><br>aluminum<br>26.98                  | 14<br><b>Si</b><br>[Ne]3s <sup>2</sup> 3p <sup>2</sup><br>silicon<br>28.09                                    | 15<br><b>P</b><br>[Ne]3s <sup>2</sup> 3p <sup>3</sup><br>phosphorus<br>30.97                              | 16<br><b>S</b><br>[Ne]3s <sup>2</sup> 3p <sup>4</sup><br>sulfur<br>32.07                                     | 17<br><b>Cl</b><br>[Ne]3s <sup>2</sup> 3p <sup>5</sup><br>chlorine<br>35.45                                   | 18<br><b>Ar</b><br>[Ne]3s <sup>2</sup> 3p <sup>6</sup><br>argon<br>39.95                                      |  |  |   |   |   |   |   |
| 19<br><b>K</b><br>[Ar]4s <sup>1</sup><br>potassium<br>39.10 | 20<br><b>Ca</b><br>[Ar]4s <sup>2</sup><br>calcium<br>40.08        | 21<br><b>Sc</b><br>[Ar]4s <sup>2</sup> 3d <sup>1</sup><br>scandium<br>44.96               | 22<br><b>Ti</b><br>[Ar]4s <sup>2</sup> 3d <sup>2</sup><br>titanium<br>47.88                        | 23<br><b>V</b><br>[Ar]4s <sup>2</sup> 3d <sup>3</sup><br>vanadium<br>50.94                   | 24<br><b>Cr</b><br>[Ar]4s <sup>1</sup> 3d <sup>5</sup><br>chromium<br>52.00                     | 25<br><b>Mn</b><br>[Ar]4s <sup>2</sup> 3d <sup>5</sup><br>manganese<br>54.94                 | 26<br><b>Fe</b><br>[Ar]4s <sup>2</sup> 3d <sup>6</sup><br>iron<br>55.85                      | 27<br><b>Co</b><br>[Ar]4s <sup>2</sup> 3d <sup>7</sup><br>cobalt<br>58.93                       | 28<br><b>Ni</b><br>[Ar]4s <sup>2</sup> 3d <sup>8</sup><br>nickel<br>58.69                         | 29<br><b>Cu</b><br>[Ar]4s <sup>1</sup> 3d <sup>10</sup><br>copper<br>63.55                | 30<br><b>Zn</b><br>[Ar]4s <sup>2</sup> 3d <sup>10</sup><br>zinc<br>65.39                     | 31<br><b>Ga</b><br>[Ar]4s <sup>2</sup> 3d <sup>10</sup> 4p <sup>1</sup><br>gallium<br>69.72                   | 32<br><b>Ge</b><br>[Ar]4s <sup>2</sup> 3d <sup>10</sup> 4p <sup>2</sup><br>germanium<br>72.58             | 33<br><b>As</b><br>[Ar]4s <sup>2</sup> 3d <sup>10</sup> 4p <sup>3</sup><br>arsenic<br>74.92                  | 34<br><b>Se</b><br>[Ar]4s <sup>2</sup> 3d <sup>10</sup> 4p <sup>4</sup><br>selenium<br>78.96                  | 35<br><b>Br</b><br>[Ar]4s <sup>2</sup> 3d <sup>10</sup> 4p <sup>5</sup><br>bromine<br>79.90                   | 36<br><b>Kr</b><br>[Ar]4s <sup>2</sup> 3d <sup>10</sup> 4p <sup>6</sup><br>krypton<br>83.80                |  |   |   |   |   |   |
| 37<br><b>Rb</b><br>[Kr]5s <sup>1</sup><br>rubidium<br>85.47 | 38<br><b>Sr</b><br>[Kr]5s <sup>2</sup><br>strontium<br>87.62      | 39<br><b>Y</b><br>[Kr]5s <sup>2</sup> 4d <sup>1</sup><br>yttrium<br>88.91                 | 40<br><b>Zr</b><br>[Kr]5s <sup>2</sup> 4d <sup>2</sup><br>zirconium<br>91.22                       | 41<br><b>Nb</b><br>[Kr]5s <sup>1</sup> 4d <sup>4</sup><br>niobium<br>92.91                   | 42<br><b>Mo</b><br>[Kr]5s <sup>1</sup> 4d <sup>5</sup><br>molybdenum<br>95.94                   | 43<br><b>Tc</b><br>[Kr]5s <sup>2</sup> 4d <sup>5</sup><br>technetium<br>(98)                 | 44<br><b>Ru</b><br>[Kr]5s <sup>1</sup> 4d <sup>7</sup><br>ruthenium<br>101.1                 | 45<br><b>Rh</b><br>[Kr]5s <sup>1</sup> 4d <sup>8</sup><br>rhodium<br>102.9                      | 46<br><b>Pd</b><br>[Kr]4d <sup>10</sup><br>palladium<br>106.4                                     | 47<br><b>Ag</b><br>[Kr]5s <sup>1</sup> 4d <sup>10</sup><br>silver<br>107.9                | 48<br><b>Cd</b><br>[Kr]5s <sup>2</sup> 4d <sup>10</sup><br>cadmium<br>112.4                  | 49<br><b>In</b><br>[Kr]5s <sup>2</sup> 4d <sup>10</sup> 5p <sup>1</sup><br>indium<br>114.8                    | 50<br><b>Sn</b><br>[Kr]5s <sup>2</sup> 4d <sup>10</sup> 5p <sup>2</sup><br>tin<br>118.7                   | 51<br><b>Sb</b><br>[Kr]5s <sup>2</sup> 4d <sup>10</sup> 5p <sup>3</sup><br>antimony<br>121.8                 | 52<br><b>Te</b><br>[Kr]5s <sup>2</sup> 4d <sup>10</sup> 5p <sup>4</sup><br>tellurium<br>127.6                 | 53<br><b>I</b><br>[Kr]5s <sup>2</sup> 4d <sup>10</sup> 5p <sup>5</sup><br>iodine<br>126.9                     | 54<br><b>Xe</b><br>[Kr]5s <sup>2</sup> 4d <sup>10</sup> 5p <sup>6</sup><br>xenon<br>131.3                  |  |   |   |   |   |   |
| 55<br><b>Cs</b><br>[Xe]6s <sup>1</sup><br>cesium<br>132.9   | 56<br><b>Ba</b><br>[Xe]6s <sup>2</sup><br>barium<br>137.3         | 57<br><b>La*</b><br>[Xe]6s <sup>2</sup> 5d <sup>1</sup><br>lanthanum<br>138.9             | 72<br><b>Hf</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>2</sup><br>hafnium<br>178.5        | 73<br><b>Ta</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>3</sup><br>tantalum<br>180.9 | 74<br><b>W</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>4</sup><br>tungsten<br>183.9     | 75<br><b>Re</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>5</sup><br>rhenium<br>186.2  | 76<br><b>Os</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>6</sup><br>osmium<br>190.2   | 77<br><b>Ir</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>7</sup><br>iridium<br>190.2     | 78<br><b>Pt</b><br>[Xe]6s <sup>1</sup> 4f <sup>14</sup> 5d <sup>9</sup><br>platinum<br>195.1      | 79<br><b>Au</b><br>[Xe]6s <sup>1</sup> 4f <sup>14</sup> 5d <sup>10</sup><br>gold<br>197.0 | 80<br><b>Hg</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>10</sup><br>mercury<br>200.5 | 81<br><b>Tl</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>10</sup> 6p <sup>1</sup><br>thallium<br>204.4 | 82<br><b>Pb</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>10</sup> 6p <sup>2</sup><br>lead<br>207.2 | 83<br><b>Bi</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>10</sup> 6p <sup>3</sup><br>bismuth<br>208.9 | 84<br><b>Po</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>10</sup> 6p <sup>4</sup><br>polonium<br>(209) | 85<br><b>At</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>10</sup> 6p <sup>5</sup><br>astatine<br>(210) | 86<br><b>Rn</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>10</sup> 6p <sup>6</sup><br>radon<br>(222) |  |   |   |   |   |   |
| 87<br><b>Fr</b><br>[Rn]7s <sup>1</sup><br>francium<br>(223) | 88<br><b>Ra</b><br>[Rn]7s <sup>2</sup><br>radium<br>(226)         | 89<br><b>Ac~</b><br>[Rn]7s <sup>2</sup> 6d <sup>1</sup><br>actinium<br>(227)              | 104<br><b>Rf</b><br>[Rn]7s <sup>2</sup> 5f <sup>14</sup> 6d <sup>2</sup><br>rutherfordium<br>(257) | 105<br><b>Db</b><br>[Rn]7s <sup>2</sup> 5f <sup>14</sup> 6d <sup>3</sup><br>dubnium<br>(260) | 106<br><b>Sg</b><br>[Rn]7s <sup>2</sup> 5f <sup>14</sup> 6d <sup>4</sup><br>seaborgium<br>(263) | 107<br><b>Bh</b><br>[Rn]7s <sup>2</sup> 5f <sup>14</sup> 6d <sup>5</sup><br>bohrium<br>(262) | 108<br><b>Hs</b><br>[Rn]7s <sup>2</sup> 5f <sup>14</sup> 6d <sup>6</sup><br>hassium<br>(265) | 109<br><b>Mt</b><br>[Rn]7s <sup>2</sup> 5f <sup>14</sup> 6d <sup>7</sup><br>meitnerium<br>(266) | 110<br><b>Ds</b><br>[Rn]7s <sup>1</sup> 5f <sup>14</sup> 6d <sup>9</sup><br>darmstadtium<br>(271) | 111<br><b>Uuu</b><br>(272)  | 112<br><b>Uub</b><br>(277)   | 114<br><b>Uuq</b><br>(296)  |   | 116<br><b>Uuh</b><br>(298)   |   | 118<br><b>Uuo</b><br>(?)  |  |  |   |   |   |   |   |
| Lanthanide Series*  |   | 58<br><b>Ce</b><br>[Xe]6s <sup>2</sup> 4f <sup>1</sup> 5d <sup>1</sup><br>cerium<br>140.1 | 59<br><b>Pr</b><br>[Xe]6s <sup>2</sup> 4f <sup>3</sup><br>praseodymium<br>140.9                    | 60<br><b>Nd</b><br>[Xe]6s <sup>2</sup> 4f <sup>4</sup><br>neodymium<br>144.2                 | 61<br><b>Pm</b><br>[Xe]6s <sup>2</sup> 4f <sup>5</sup><br>promethium<br>(147)                   | 62<br><b>Sm</b><br>[Xe]6s <sup>2</sup> 4f <sup>6</sup><br>samarium<br>(150.4)                | 63<br><b>Eu</b><br>[Xe]6s <sup>2</sup> 4f <sup>7</sup><br>europium<br>152.0                  | 64<br><b>Gd</b><br>[Xe]6s <sup>2</sup> 4f <sup>7</sup> 5d <sup>1</sup><br>gadolinium<br>157.3   | 65<br><b>Tb</b><br>[Xe]6s <sup>2</sup> 4f <sup>9</sup><br>terbium<br>158.9                        | 66<br><b>Dy</b><br>[Xe]6s <sup>2</sup> 4f <sup>10</sup><br>dysprosium<br>162.5            | 67<br><b>Ho</b><br>[Xe]6s <sup>2</sup> 4f <sup>11</sup><br>holmium<br>164.9                  | 68<br><b>Er</b><br>[Xe]6s <sup>2</sup> 4f <sup>12</sup><br>erbium<br>167.3                                    | 69<br><b>Tm</b><br>[Xe]6s <sup>2</sup> 4f <sup>13</sup><br>thulium<br>168.9                               | 70<br><b>Yb</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup><br>ytterbium<br>173.0                                | 71<br><b>Lu</b><br>[Xe]6s <sup>2</sup> 4f <sup>14</sup> 5d <sup>1</sup><br>lutetium<br>175.0                  |   |  |  |   |   |   |   |   |
| Actinide Series~  |   | 90<br><b>Th</b><br>[Rn]7s <sup>2</sup> 6d <sup>2</sup><br>thorium<br>232.0                | 91<br><b>Pa</b><br>[Rn]7s <sup>2</sup> 5f <sup>2</sup> 6d <sup>1</sup><br>protactinium<br>(231)    | 92<br><b>U</b><br>[Rn]7s <sup>2</sup> 5f <sup>3</sup> 6d <sup>1</sup><br>uranium<br>(238)    | 93<br><b>Np</b><br>[Rn]7s <sup>2</sup> 5f <sup>4</sup> 6d <sup>1</sup><br>neptunium<br>(237)    | 94<br><b>Pu</b><br>[Rn]7s <sup>2</sup> 5f <sup>6</sup><br>plutonium<br>(242)                 | 95<br><b>Am</b><br>[Rn]7s <sup>2</sup> 5f <sup>7</sup><br>americium<br>(243)                 | 96<br><b>Cm</b><br>[Rn]7s <sup>2</sup> 5f <sup>7</sup> 6d <sup>1</sup><br>curium<br>(247)       | 97<br><b>Bk</b><br>[Rn]7s <sup>2</sup> 5f <sup>9</sup><br>berkelium<br>(247)                      | 98<br><b>Cf</b><br>[Rn]7s <sup>2</sup> 5f <sup>10</sup><br>californium<br>(249)           | 99<br><b>Es</b><br>[Rn]7s <sup>2</sup> 5f <sup>11</sup><br>einsteinium<br>(254)              | 100<br><b>Fm</b><br>[Rn]7s <sup>2</sup> 5f <sup>12</sup><br>fermium<br>(253)                                  | 101<br><b>Md</b><br>[Rn]7s <sup>2</sup> 5f <sup>13</sup><br>mendelevium<br>(256)                          | 102<br><b>No</b><br>[Rn]7s <sup>2</sup> 5f <sup>14</sup><br>nobelium<br>(254)                                | 103<br><b>Lr</b><br>[Rn]7s <sup>2</sup> 5f <sup>14</sup> 6d <sup>1</sup><br>lawrencium<br>(257)               |   |  |  |   |   |   |   |   |

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|  |                                       |                                      |  |                                       |   |  |                                       |   |   |   |   |                                      |  |                                       |   |                                      |                                     |                                 |                                  |                                    |                                  |                                    |                                  |
|--|---------------------------------------|--------------------------------------|--|---------------------------------------|---|--|---------------------------------------|---|---|---|---|--------------------------------------|--|---------------------------------------|---|--------------------------------------|-------------------------------------|---------------------------------|----------------------------------|------------------------------------|----------------------------------|------------------------------------|----------------------------------|
| 1A<br>1<br><b>H</b><br>hydrogen<br>1.008 |                                       |                                      |  |                                       |   |  |                                       |   |   |   |   |                                      |  |                                       |   |                                      | 2<br><b>He</b><br>helium<br>4.003   |                                 |                                  |                                    |                                  |                                    |                                  |
| 3<br><b>Li</b><br>lithium<br>6.941       | 4<br><b>Be</b><br>beryllium<br>9.012  |                                      |  |                                       |   |  |                                       |   |   |   |   |                                      |  |                                       |   |                                      |                                     | 5<br><b>B</b><br>boron<br>10.81 | 6<br><b>C</b><br>carbon<br>12.01 | 7<br><b>N</b><br>nitrogen<br>14.01 | 8<br><b>O</b><br>oxygen<br>16.00 | 9<br><b>F</b><br>fluorine<br>19.00 | 10<br><b>Ne</b><br>neon<br>20.18 |
| 11<br><b>Na</b><br>sodium<br>22.99       | 12<br><b>Mg</b><br>magnesium<br>24.31 | 3B                                   | 4B   | 5B                                    | 6B                                      | 7B                                     | 8B                                    |   | 11B                                       | 12B                                     | 13<br><b>Al</b><br>aluminum<br>26.98    | 14<br><b>Si</b><br>silicon<br>28.09  | 15<br><b>P</b><br>phosphorus<br>30.97    | 16<br><b>S</b><br>sulfur<br>32.07     | 17<br><b>Cl</b><br>chlorine<br>35.45    | 18<br><b>Ar</b><br>argon<br>39.95    |                                     |                                 |                                  |                                    |                                  |                                    |                                  |
| 19<br><b>K</b><br>potassium<br>39.10     | 20<br><b>Ca</b><br>calcium<br>40.08   | 21<br><b>Sc</b><br>scandium<br>44.96 | 22<br><b>Ti</b><br>titanium<br>47.88       | 23<br><b>V</b><br>vanadium<br>50.94   | 24<br><b>Cr</b><br>chromium<br>52.00    | 25<br><b>Mn</b><br>manganese<br>54.94  | 26<br><b>Fe</b><br>iron<br>55.85      | 27<br><b>Co</b><br>cobalt<br>58.93      | 28<br><b>Ni</b><br>nickel<br>58.69        | 29<br><b>Cu</b><br>copper<br>63.55      | 30<br><b>Zn</b><br>zinc<br>65.39        | 31<br><b>Ga</b><br>gallium<br>69.72  | 32<br><b>Ge</b><br>germanium<br>72.58    | 33<br><b>As</b><br>arsenic<br>74.92   | 34<br><b>Se</b><br>selenium<br>78.96    | 35<br><b>Br</b><br>bromine<br>79.90  | 36<br><b>Kr</b><br>krypton<br>83.80 |                                 |                                  |                                    |                                  |                                    |                                  |
| 37<br><b>Rb</b><br>rubidium<br>85.47     | 38<br><b>Sr</b><br>strontium<br>87.62 | 39<br><b>Y</b><br>yttrium<br>88.91   | 40<br><b>Zr</b><br>zirconium<br>91.22      | 41<br><b>Nb</b><br>niobium<br>92.91   | 42<br><b>Mo</b><br>molybdenum<br>95.94  | 43<br><b>Tc</b><br>technetium<br>(98)  | 44<br><b>Ru</b><br>ruthenium<br>101.1 | 45<br><b>Rh</b><br>rhodium<br>102.9     | 46<br><b>Pd</b><br>palladium<br>106.4     | 47<br><b>Ag</b><br>silver<br>107.9      | 48<br><b>Cd</b><br>cadmium<br>112.4     | 49<br><b>In</b><br>indium<br>114.8   | 50<br><b>Sn</b><br>tin<br>118.7          | 51<br><b>Sb</b><br>antimony<br>121.8  | 52<br><b>Te</b><br>tellurium<br>127.6   | 53<br><b>I</b><br>iodine<br>126.9    | 54<br><b>Xe</b><br>xenon<br>131.3   |                                 |                                  |                                    |                                  |                                    |                                  |
| 55<br><b>Cs</b><br>cesium<br>132.9       | 56<br><b>Ba</b><br>barium<br>137.3    | 57<br><b>La*</b>                     | 72<br><b>Hf</b><br>hafnium<br>178.5        | 73<br><b>Ta</b><br>tantalum<br>180.9  | 74<br><b>W</b><br>tungsten<br>183.9     | 75<br><b>Re</b><br>rhenium<br>186.2    | 76<br><b>Os</b><br>osmium<br>190.2    | 77<br><b>Ir</b><br>iridium<br>190.2     | 78<br><b>Pt</b><br>platinum<br>195.1      | 79<br><b>Au</b><br>gold<br>197.0        | 80<br><b>Hg</b><br>mercury<br>200.5     | 81<br><b>Tl</b><br>thallium<br>204.4 | 82<br><b>Pb</b><br>lead<br>207.2         | 83<br><b>Bi</b><br>bismuth<br>208.9   | 84<br><b>Po</b><br>polonium<br>(209)    | 85<br><b>At</b><br>astatine<br>(210) | 86<br><b>Rn</b><br>radon<br>(222)   |                                 |                                  |                                    |                                  |                                    |                                  |
| 87<br><b>Fr</b><br>francium<br>(223)     | 88<br><b>Ra</b><br>radium<br>(226)    | 89<br><b>Ac~</b>                     | 104<br><b>Rf</b><br>rutherfordium<br>(257) | 105<br><b>Db</b><br>dubnium<br>(260)  | 106<br><b>Sg</b><br>seaborgium<br>(263) | 107<br><b>Bh</b><br>bohrium<br>(262)   | 108<br><b>Hs</b><br>hassium<br>(265)  | 109<br><b>Mt</b><br>meitnerium<br>(266) | 110<br><b>Ds</b><br>darmstadtium<br>(271) | 111<br><b>Uuu</b><br>(272)              | 112<br><b>Uub</b><br>(277)              | 114<br><b>Uuq</b><br>(296)           |  | 116<br><b>Uuh</b><br>(298)            |   | 118<br><b>Uuo</b><br>(?)             |                                     |                                 |                                  |                                    |                                  |                                    |                                  |
| Lanthanide Series*                       |                                       | 58<br><b>Ce</b><br>cerium<br>140.1   | 59<br><b>Pr</b><br>praseodymium<br>140.9   | 60<br><b>Nd</b><br>neodymium<br>144.2 | 61<br><b>Pm</b><br>promethium<br>(147)  | 62<br><b>Sm</b><br>samarium<br>(150.4) | 63<br><b>Eu</b><br>europium<br>152.0  | 64<br><b>Gd</b><br>gadolinium<br>157.3  | 65<br><b>Tb</b><br>terbium<br>158.9       | 66<br><b>Dy</b><br>dysprosium<br>162.5  | 67<br><b>Ho</b><br>holmium<br>164.9     | 68<br><b>Er</b><br>erbium<br>167.3   | 69<br><b>Tm</b><br>thulium<br>168.9      | 70<br><b>Yb</b><br>ytterbium<br>173.0 | 71<br><b>Lu</b><br>lutetium<br>175.0    |                                      |                                     |                                 |                                  |                                    |                                  |                                    |                                  |
| Actinide Series~                         |                                       | 90<br><b>Th</b><br>thorium<br>232.0  | 91<br><b>Pa</b><br>protactinium<br>(231)   | 92<br><b>U</b><br>uranium<br>(238)    | 93<br><b>Np</b><br>neptunium<br>(237)   | 94<br><b>Pu</b><br>plutonium<br>(242)  | 95<br><b>Am</b><br>americium<br>(243) | 96<br><b>Cm</b><br>curium<br>(247)      | 97<br><b>Bk</b><br>berkelium<br>(247)     | 98<br><b>Cf</b><br>californium<br>(249) | 99<br><b>Es</b><br>einsteinium<br>(254) | 100<br><b>Fm</b><br>fermium<br>(253) | 101<br><b>Md</b><br>mendelevium<br>(256) | 102<br><b>No</b><br>nobelium<br>(254) | 103<br><b>Lr</b><br>lawrencium<br>(257) |                                      |                                     |                                 |                                  |                                    |                                  |                                    |                                  |