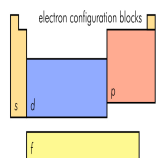


# The Periodic Table of the Elements

|   |  |  |  |  |  |  |  |  |  |  |  |  |   |   |  |  |  |   |   |   |  |   |  |  |   |   |   |   |   |  |  |  |  |  |  |  |    |
|---|--|--|--|--|--|--|--|--|--|--|--|--|---|---|--|--|--|---|---|---|--|---|--|--|---|---|---|---|---|--|--|--|--|--|--|--|----|
| group 1                                 |  |  |  |  |  |  |  |  |  |  |  |  |   |   |  |  |  |   |   |   |  |   |  |  |   |   |   |   | 18                                      |  |  |  |  |  |  |  |    |
| period 1                                |  |  |  |  |  |  |  |  |  |  |  |  | 1                                       | 2   |  |  |  |   |   |   |  |   |  |  |   |   |   | 2                                       |   |  |  |  |  |  |  |  |    |
| H<br>Hydrogen<br>1.00794<br>1312.0 2.20 |  |  |  |  |  |  |  |  |  |  |  |  | He<br>Helium<br>4.002602<br>2372.3      |   |  |  |  |   |   |   |  |   |  |  |   |   | He                                      |   |   |  |  |  |  |  |  |  |    |
|   |  |  |  |  |  |  |  |  |  |  |  |  | 3                                       | 4   |  |  |  |   |   |   |  |   |  |  |   |   |   | 10                                      |   |  |  |  |  |  |  |  |    |
|   |  |  |  |  |  |  |  |  |  |  |  |  | Li<br>Lithium<br>6.941<br>520.2 0.98    | Be<br>Beryllium<br>9.012182<br>999.5 1.57 |  |  |  |   |   |   |  |   |  |  |   |   |   | Ne<br>Neon<br>20.1797<br>2880.7         |   |  |  |  |  |  |  |  |    |
|   |  |  |  |  |  |  |  |  |  |  |  |  | 2                                       | 3   |  |  |  |   |   |   |  |   |  |  |   |   |   | 9                                       |   |  |  |  |  |  |  |  |    |
|   |  |  |  |  |  |  |  |  |  |  |  |  | Fe<br>Iron<br>55.845<br>762.5 1.83      | Co<br>Cobalt<br>58.93319<br>768.4 1.88    | Ni<br>Nickel<br>58.6934<br>737.1 1.88    | Cu<br>Copper<br>63.546<br>745.5 1.90     | Zn<br>Zinc<br>65.38<br>769.2 1.85        | Ga<br>Gallium<br>69.723<br>769.2 2.01   | Ge<br>Germanium<br>72.64<br>762.0 2.01    | As<br>Arsenic<br>74.92160<br>762.0 2.01 | Se<br>Selenium<br>78.96<br>762.0 2.01  | Br<br>Bromine<br>79.904<br>762.0 2.01   | Kr<br>Krypton<br>83.798<br>762.0 2.01  |  |   |   |   |   |   |  |  |  |  |  |  |  | 10 |
|   |  |  |  |  |  |  |  |  |  |  |  |  | 3                                       | 4   |  |  |  |   |   |   |  |   |  |  |   |   |   | 18                                      |   |  |  |  |  |  |  |  |    |
|   |  |  |  |  |  |  |  |  |  |  |  |  | Na<br>Sodium<br>22.98976<br>493.8 0.95  | Mg<br>Magnesium<br>24.3050<br>737.7 1.31  |  |  |  |   |   |   |  |   |  |  |   |   |   | Ar<br>Argon<br>39.948<br>769.8 1.88     |   |  |  |  |  |  |  |  |    |
|   |  |  |  |  |  |  |  |  |  |  |  |  | 4                                       | 5   |  |  |  |   |   |   |  |   |  |  |   |   |   | 18                                      |   |  |  |  |  |  |  |  |    |
|   |  |  |  |  |  |  |  |  |  |  |  |  | K<br>Potassium<br>39.0983<br>418.8 0.82 | Ca<br>Calcium<br>40.078<br>400.0 1.00     | Sc<br>Scandium<br>44.95591<br>504.0 1.36 | Ti<br>Titanium<br>47.867<br>488.8 1.54   | V<br>Vanadium<br>50.9415<br>600.9 1.63   | Cr<br>Chromium<br>51.9962<br>602.9 1.66 | Mn<br>Manganese<br>54.93804<br>717.3 1.55 | Fe<br>Iron<br>55.845<br>762.5 1.83      | Co<br>Cobalt<br>58.93319<br>768.4 1.88 | Ni<br>Nickel<br>58.6934<br>737.1 1.88   | Cu<br>Copper<br>63.546<br>745.5 1.90   | Zn<br>Zinc<br>65.38<br>769.2 1.85      | Ga<br>Gallium<br>69.723<br>769.2 2.01     | Ge<br>Germanium<br>72.64<br>762.0 2.01  | As<br>Arsenic<br>74.92160<br>762.0 2.01 | Se<br>Selenium<br>78.96<br>762.0 2.01   | Br<br>Bromine<br>79.904<br>762.0 2.01   | Kr<br>Krypton<br>83.798<br>762.0 2.01  |  |  |  |  |  |  |    |
|   |  |  |  |  |  |  |  |  |  |  |  |  | 5                                       | 6   |  |  |  |   |   |   |  |   |  |  |   |   |   | 18                                      |   |  |  |  |  |  |  |  |    |
|   |  |  |  |  |  |  |  |  |  |  |  |  | Rb<br>Rubidium<br>85.4678<br>402.0 0.82 | Sr<br>Strontium<br>87.62<br>407.8 0.95    | Y<br>Yttrium<br>88.90585<br>500.0 1.28   | Zr<br>Zirconium<br>91.224<br>503.7 1.60  | Nb<br>Niobium<br>92.90638<br>604.0 1.33  | Mo<br>Molybdenum<br>95.96<br>608.4 1.66 | Tc<br>Technetium<br>98<br>720.0 1.90      | Ru<br>Ruthenium<br>101.07<br>710.2 2.20 | Rh<br>Rhodium<br>101.07<br>710.2 2.20  | Pd<br>Palladium<br>106.42<br>796.2 2.28 | Ag<br>Silver<br>107.8682<br>786.5 1.93 | Cd<br>Cadmium<br>112.41<br>726.4 2.00  | In<br>Indium<br>114.818<br>726.4 2.00     | Sn<br>Tin<br>118.710<br>726.4 2.00      | Sb<br>Antimony<br>121.760<br>726.4 2.00 | Te<br>Tellurium<br>127.60<br>726.4 2.00 | I<br>Iodine<br>126.9044<br>726.4 2.00   | Xe<br>Xenon<br>131.293<br>726.4 2.00   |  |  |  |  |  |  |    |
|   |  |  |  |  |  |  |  |  |  |  |  |  | 6                                       | 7   |  |  |  |   |   |   |  |   |  |  |   |   |   | 18                                      |   |  |  |  |  |  |  |  |    |
|   |  |  |  |  |  |  |  |  |  |  |  |  | Cs<br>Cesium<br>132.9054<br>490.0 0.79  | Ba<br>Barium<br>137.327<br>502.5 0.89     | Lu<br>Lutetium<br>174.9668<br>603.5 1.27 | Hf<br>Hafnium<br>178.49<br>603.5 1.27    | Ta<br>Tantalum<br>180.9478<br>604.0 1.30 | W<br>Tungsten<br>183.84<br>700.0 2.36   | Re<br>Rhenium<br>186.207<br>744.0 1.90    | Os<br>Osmium<br>190.23<br>844.0 2.20    | Ir<br>Iridium<br>192.222<br>881.0 2.20 | Pt<br>Platinum<br>195.084<br>879.0 2.28 | Au<br>Gold<br>196.9665<br>883.0 2.54   | Hg<br>Mercury<br>200.59<br>1000.0 2.00 | Tl<br>Thallium<br>204.3833<br>1027.0 2.00 | Pb<br>Lead<br>207.2<br>753.8 2.33       | Bi<br>Bismuth<br>208.9804<br>702.0 2.02 | Po<br>Polonium<br>209<br>209.0 2.02     | At<br>Astatine<br>210<br>210.0 2.00     | Rn<br>Radon<br>222<br>222.0 2.00       |  |  |  |  |  |  |    |
|   |  |  |  |  |  |  |  |  |  |  |  |  | 7                                       | 8   |  |  |  |   |   |   |  |   |  |  |   |   |   | 18                                      |   |  |  |  |  |  |  |  |    |
|   |  |  |  |  |  |  |  |  |  |  |  |  | Fr<br>Francium<br>223<br>381.0 0.70     | Ra<br>Radium<br>226<br>380.0 0.90         | Lr<br>Lawrencium<br>262<br>380.0 0.90    | Rf<br>Rutherfordium<br>261<br>380.0 0.90 | Db<br>Dubnium<br>262<br>380.0 0.90       | Sg<br>Seaborgium<br>266<br>380.0 0.90   | Bh<br>Bohrium<br>264<br>380.0 0.90        | Hs<br>Hassium<br>277<br>380.0 0.90      | Mt<br>Meitnerium<br>268<br>380.0 0.90  | Ds<br>Darmstadtium<br>271<br>380.0 0.90 | Rg<br>Roentgenium<br>272<br>380.0 0.90 | Cn<br>Copernicium<br>285<br>380.0 0.90 | Uut<br>Ununtrium<br>284<br>380.0 0.90     | Uuq<br>Ununquadium<br>289<br>380.0 0.90 | Uup<br>Ununpentium<br>288<br>380.0 0.90 | Uuh<br>Ununhexium<br>292<br>380.0 0.90  | Uus<br>Ununseptium<br>291<br>380.0 0.90 | Uuo<br>Ununoctium<br>294<br>380.0 0.90 |  |  |  |  |  |  |    |

atomic mass: 55.845  
 or most stable mass number: 26  
 1st ionization energy in kJ/mol: 762.5 1.83  
 electronegativity: +6, +5, +4, +3, +2, +1, -1, -2  
 chemical symbol: Fe  
 name: Iron  
 electron configuration: [Ar] 3d<sup>6</sup> 4s<sup>2</sup>

- alkali metals
- alkaline metals
- other metals
- transition metals
- lanthanoids
- actinoids
- metalloids
- nonmetals
- halogens
- noble gases
- unknown elements
- radioactive elements have masses in parenthesis



- notes
- as of yet, elements 113-118 have no official name designated by the IUPAC.
  - 1 kJ/mol ≈ 96.485 eV.
  - all elements are implied to have an oxidation state of zero.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |   |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  |    |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|---|--|---------------------------------------|---|-------------------------------------|--|--|--|--|--|--|--|--|--|----|
|  |  |  |  |  |  |  |  |  |  |  |  |  | 13   | 14  | 15   | 16                                    | 17  | 18                                  |  |  |  |  |  |  |  |  |  |    |
|  |  |  |  |  |  |  |  |  |  |  |  |  | B<br>Boron<br>10.811<br>800.6 2.04           | C<br>Carbon<br>12.0107<br>1086.5 2.55     | N<br>Nitrogen<br>14.0067<br>1402.3 3.04    | O<br>Oxygen<br>15.9994<br>1313.9 3.44 | F<br>Fluorine<br>18.998403<br>1681.0 3.98 | Ne<br>Neon<br>20.1797<br>2880.7     |  |  |  |  |  |  |  |  |  |    |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 5  | 6   | 7  | 8                                     | 9   | 10                                  |  |  |  |  |  |  |  |  |  |    |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Al<br>Aluminum<br>26.98153<br>577.5 1.61     | Si<br>Silicon<br>28.0855<br>786.5 1.90    | P<br>Phosphorus<br>30.97396<br>1011.8 2.19 | S<br>Sulfur<br>32.065<br>999.6 2.58   | Cl<br>Chlorine<br>35.453<br>1251.3 3.16   | Ar<br>Argon<br>39.948<br>769.8 1.88 |  |  |  |  |  |  |  |  |  |    |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 11   | 12  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Ga<br>Gallium<br>69.723<br>769.2 2.01        | Ge<br>Germanium<br>72.64<br>762.0 2.01    |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 19   | 20  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | K<br>Potassium<br>39.0983<br>418.8 0.82      | Ca<br>Calcium<br>40.078<br>400.0 1.00     |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 21   | 22  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Sc<br>Scandium<br>44.95591<br>504.0 1.36     | Ti<br>Titanium<br>47.867<br>488.8 1.54    |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 23   | 24  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | V<br>Vanadium<br>50.9415<br>600.9 1.63       | Cr<br>Chromium<br>51.9962<br>602.9 1.66   |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 25   | 26  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Mn<br>Manganese<br>54.93804<br>717.3 1.55    | Fe<br>Iron<br>55.845<br>762.5 1.83        |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 27   | 28  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Co<br>Cobalt<br>58.93319<br>768.4 1.88       | Ni<br>Nickel<br>58.6934<br>737.1 1.88     |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 29   | 30  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Cu<br>Copper<br>63.546<br>745.5 1.90         | Zn<br>Zinc<br>65.38<br>769.2 1.85         |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 31   | 32  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Ga<br>Gallium<br>69.723<br>769.2 2.01        | Ge<br>Germanium<br>72.64<br>762.0 2.01    |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 33   | 34  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | As<br>Arsenic<br>74.92160<br>762.0 2.01      | Se<br>Selenium<br>78.96<br>762.0 2.01     |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 35   | 36  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Br<br>Bromine<br>79.904<br>762.0 2.01        | Kr<br>Krypton<br>83.798<br>762.0 2.01     |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 37   | 38  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Rb<br>Rubidium<br>85.4678<br>402.0 0.82      | Sr<br>Strontium<br>87.62<br>407.8 0.95    |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 39   | 40  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Y<br>Yttrium<br>88.90585<br>500.0 1.28       | Zr<br>Zirconium<br>91.224<br>503.7 1.60   |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 41   | 42  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Nb<br>Niobium<br>92.90638<br>604.0 1.33      | Mo<br>Molybdenum<br>95.96<br>608.4 1.66   |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 43   | 44  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Tc<br>Technetium<br>98<br>720.0 1.90         | Ru<br>Ruthenium<br>101.07<br>710.2 2.20   |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 45   | 46  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Rh<br>Rhodium<br>101.07<br>710.2 2.20        | Pd<br>Palladium<br>106.42<br>796.2 2.28   |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 47   | 48  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Ag<br>Silver<br>107.8682<br>786.5 1.93       | Cd<br>Cadmium<br>112.41<br>726.4 2.00     |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 49   | 50  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | In<br>Indium<br>114.818<br>726.4 2.00        | Sn<br>Tin<br>118.710<br>726.4 2.00        |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 51   | 52  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Sb<br>Antimony<br>121.760<br>726.4 2.00      | Te<br>Tellurium<br>127.60<br>726.4 2.00   |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 53   | 54  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | I<br>Iodine<br>126.9044<br>726.4 2.00        | Xe<br>Xenon<br>131.293<br>726.4 2.00      |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 55   | 56  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Cs<br>Cesium<br>132.9054<br>490.0 0.79       | Ba<br>Barium<br>137.327<br>502.5 0.89     |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 57   | 58  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | La<br>Lanthanum<br>138.9054<br>503.8 1.10    | Ce<br>Cerium<br>140.116<br>504.1 1.12     |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 59   | 60  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Pr<br>Praseodymium<br>140.9076<br>507.9 1.13 | Nd<br>Neodymium<br>144.242<br>503.1 1.14  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 61   | 62  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Pm<br>Promethium<br>144.9127<br>562.0 1.13   | Sm<br>Samarium<br>150.36<br>544.5 1.17    |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 63   | 64  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Eu<br>Europium<br>151.964<br>547.1           | Gd<br>Gadolinium<br>157.25<br>593.4 1.20  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 65   | 66  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Tb<br>Terbium<br>158.9253<br>589.3           | Dy<br>Dysprosium<br>162.500<br>575.0 1.22 |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 67   | 68  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Ho<br>Holmium<br>164.9303<br>589.3 1.23      | Er<br>Erbium<br>167.259<br>589.3 1.24     |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 69   | 70  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Tm<br>Thulium<br>168.9342<br>597.1 1.25      | Yb<br>Ytterbium<br>173.054<br>603.4       |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 71   | 72  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Lu<br>Lutetium<br>174.9668<br>603.5 1.27     | Hf<br>Hafnium<br>178.49<br>603.5 1.27     |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 73   | 74  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Ta<br>Tantalum<br>180.9478<br>604.0 1.30     | W<br>Tungsten<br>183.84<br>700.0 2.36     |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 75   | 76  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Re<br>Rhenium<br>186.207<br>744.0 1.90       | Os<br>Osmium<br>190.23<br>844.0 2.20      |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 77   | 78  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Ir<br>Iridium<br>192.222<br>881.0 2.20       | Pt<br>Platinum<br>195.084<br>879.0 2.28   |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 79   | 80  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Au<br>Gold<br>196.9665<br>883.0 2.54         | Hg<br>Mercury<br>200.59<br>1000.0 2.00    |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 81   | 82  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Tl<br>Thallium<br>204.3833<br>1027.0 2.00    | Pb<br>Lead<br>207.2<br>753.8 2.33         |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 83   | 84  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Bi<br>Bismuth<br>208.9804<br>702.0 2.02      | Po<br>Polonium<br>209<br>209.0 2.02       |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 85   | 86  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | At<br>Astatine<br>210<br>210.0 2.00          | Rn<br>Radon<br>222<br>222.0 2.00          |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 87   | 88  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Fr<br>Francium<br>223<br>381.0 0.70          | Ra<br>Radium<br>226<br>380.0 0.90         |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 89   | 90  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Ac<br>Actinium<br>227<br>493.0 1.10          | Th<br>Thorium<br>232.0380<br>589.0 1.30   |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 91   | 92  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Pa<br>Protactinium<br>231.0388<br>589.0 1.30 | U<br>Uranium<br>238.0289<br>597.0 1.38    |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 93   | 94  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Np<br>Neptunium<br>237<br>604.5 1.36         | Pu<br>Plutonium<br>244<br>594.7 1.28      |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 95   | 96  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Am<br>Americium<br>243<br>578.0 1.30         | Cm<br>Curium<br>247<br>581.0 1.30         |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 97   | 98  |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Bk<br>Berkelium<br>247<br>601.0 1.30         | Cf<br>Californium<br>251<br>608.0 1.30    |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 99   | 100                                       |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Es<br>Einsteinium<br>252<br>619.0 1.30       | Fm<br>Fermium<br>257<br>627.0 1.30        |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | 101  | 102                                       |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |
|  |  |  |  |  |  |  |  |  |  |  |  |  | Md<br>Mendelevium<br>258<br>635.0 1.30       | No<br>Nobelium<br>259<br>642.0 1.30       |  |                                       |   |                                     |  |  |  |  |  |  |  |  |  | 18 |