

■ Hydrogen
■ Semiconductors
 (also known as *metalloids*)

Metals

■ Alkali metals
■ Alkaline-earth metals
■ Transition metals
■ Other metals

Nonmetals

■ Halogens
■ Noble gases
■ Other nonmetals

(also known as metalloids)

Metals

Alkali metals

Alkaline-earth metals

Transition metals

Other metals

Nonmetals

Halogens

Noble gases

Other nonmetals

| | | | | | | | | | | |
|--|--|---|--|--|--|--|--|---|--|---|
| | | | | | | | | | | Group 18 |
| | | | | | | | | | | <div>2</div> <div>He</div> <div>Helium</div> <div>4.002 602</div> <div>1s²</div> |
| | | | Group 13 | Group 14 | Group 15 | Group 16 | Group 17 | | | |
| | | | <div>5</div> <div>B</div> <div>Boron</div> <div>10.811</div> <div>[He]2s²2p¹</div> | <div>6</div> <div>C</div> <div>Carbon</div> <div>12.0107</div> <div>[He]2s²2p²</div> | <div>7</div> <div>N</div> <div>Nitrogen</div> <div>14.0067</div> <div>[He]2s²2p³</div> | <div>8</div> <div>O</div> <div>Oxygen</div> <div>15.9994</div> <div>[He]2s²2p⁴</div> | <div>9</div> <div>F</div> <div>Fluorine</div> <div>18.998 4032</div> <div>[He]2s²2p⁵</div> | <div>10</div> <div>Ne</div> <div>Neon</div> <div>20.1797</div> <div>[He]2s²2p⁶</div> | | |
| | | | <div>13</div> <div>Al</div> <div>Aluminum</div> <div>26.981 538</div> <div>[Ne]3s²3p¹</div> | <div>14</div> <div>Si</div> <div>Silicon</div> <div>28.0855</div> <div>[Ne]3s²3p²</div> | <div>15</div> <div>P</div> <div>Phosphorus</div> <div>30.973 761</div> <div>[Ne]3s²3p³</div> | <div>16</div> <div>S</div> <div>Sulfur</div> <div>32.065</div> <div>[Ne]3s²3p⁴</div> | <div>17</div> <div>Cl</div> <div>Chlorine</div> <div>35.453</div> <div>[Ne]3s²3p⁵</div> | <div>18</div> <div>Ar</div> <div>Argon</div> <div>39.948</div> <div>[Ne]3s²3p⁶</div> | | |
| Group 10 | Group 11 | Group 12 | | | | | | | | |
| <div>28</div> <div>Ni</div> <div>Nickel</div> <div>58.6934</div> <div>[Ar]3d⁸4s²</div> | <div>29</div> <div>Cu</div> <div>Copper</div> <div>63.546</div> <div>[Ar]3d¹⁰4s¹</div> | <div>30</div> <div>Zn</div> <div>Zinc</div> <div>65.409</div> <div>[Ar]3d¹⁰4s²</div> | <div>31</div> <div>Ga</div> <div>Gallium</div> <div>69.723</div> <div>[Ar]3d¹⁰4s²4p¹</div> | <div>32</div> <div>Ge</div> <div>Germanium</div> <div>72.64</div> <div>[Ar]3d¹⁰4s²4p²</div> | <div>33</div> <div>As</div> <div>Arsenic</div> <div>74.921 60</div> <div>[Ar]3d¹⁰4s²4p³</div> | <div>34</div> <div>Se</div> <div>Selenium</div> <div>78.96</div> <div>[Ar]3d¹⁰4s²4p⁴</div> | <div>35</div> <div>Br</div> <div>Bromine</div> <div>79.904</div> <div>[Ar]3d¹⁰4s²4p⁵</div> | <div>36</div> <div>Kr</div> <div>Krypton</div> <div>83.798</div> <div>[Ar]3d¹⁰4s²4p⁶</div> | | |
| <div>46</div> <div>Pd</div> <div>Palladium</div> <div>106.42</div> <div>[Kr]4d¹⁰5s⁰</div> | <div>47</div> <div>Ag</div> <div>Silver</div> <div>107.8682</div> <div>[Kr]4d¹⁰5s¹</div> | <div>48</div> <div>Cd</div> <div>Cadmium</div> <div>112.411</div> <div>[Kr]4d¹⁰5s²</div> | <div>49</div> <div>In</div> <div>Indium</div> <div>114.818</div> <div>[Kr]4d¹⁰5s²5p¹</div> | <div>50</div> <div>Sn</div> <div>Tin</div> <div>118.710</div> <div>[Kr]4d¹⁰5s²5p²</div> | <div>51</div> <div>Sb</div> <div>Antimony</div> <div>121.760</div> <div>[Kr]4d¹⁰5s²5p³</div> | <div>52</div> <div>Te</div> <div>Tellurium</div> <div>127.60</div> <div>[Kr]4d¹⁰5s²5p⁴</div> | <div>53</div> <div>I</div> <div>Iodine</div> <div>126.904 47</div> <div>[Kr]4d¹⁰5s²5p⁵</div> | <div>54</div> <div>Xe</div> <div>Xenon</div> <div>131.293</div> <div>[Kr]4d¹⁰5s²5p⁶</div> | | |
| <div>78</div> <div>Pt</div> <div>Platinum</div> <div>195.078</div> <div>[Xe]4f¹⁴5d⁹6s¹</div> | <div>79</div> <div>Au</div> <div>Gold</div> <div>196.966 55</div> <div>[Xe]4f¹⁴5d¹⁰6s¹</div> | <div>80</div> <div>Hg</div> <div>Mercury</div> <div>200.59</div> <div>[Xe]4f¹⁴5d¹⁰6s²</div> | <div>81</div> <div>Tl</div> <div>Thallium</div> <div>204.3833</div> <div>[Xe]4f¹⁴5d¹⁰6s²6p¹</div> | <div>82</div> <div>Pb</div> <div>Lead</div> <div>207.2</div> <div>[Xe]4f¹⁴5d¹⁰6s²6p²</div> | <div>83</div> <div>Bi</div> <div>Bismuth</div> <div>208.980 38</div> <div>[Xe]4f¹⁴5d¹⁰6s²6p³</div> | <div>84</div> <div>Po</div> <div>Polonium</div> <div>(209)</div> <div>[Xe]4f¹⁴5d¹⁰6s²6p⁴</div> | <div>85</div> <div>At</div> <div>Astatine</div> <div>(210)</div> <div>[Xe]4f¹⁴5d¹⁰6s²6p⁵</div> | <div>86</div> <div>Rn</div> <div>Radon</div> <div>(222)</div> <div>[Xe]4f¹⁴5d¹⁰6s²6p⁶</div> | | |
| <div>110</div> <div>Ds</div> <div>Darmstadtium</div> <div>(281)</div> <div>[Rn]5f¹⁴6d⁹7s¹</div> | <div>111</div> <div>Uuu*</div> <div>Unununium</div> <div>(272)</div> <div>[Rn]5f¹⁴6d¹⁰7s¹</div> | <div>112</div> <div>Uub*</div> <div>Ununbium</div> <div>(285)</div> <div>[Rn]5f¹⁴6d¹⁰7s²</div> | <div>113</div> <div>Uut*</div> <div>Ununtrium</div> <div>(284)</div> <div>[Rn]5f¹⁴6d¹⁰7s²7p¹</div> | <div>114</div> <div>Uuq*</div> <div>Ununquadium</div> <div>(289)</div> <div>[Rn]5f¹⁴6d¹⁰7s²7p²</div> | <div>115</div> <div>Uup*</div> <div>Ununpentium</div> <div>(288)</div> <div>[Rn]5f¹⁴6d¹⁰7s²7p³</div> | | | | | |

A team at Lawrence Berkeley National Laboratories reported the discovery of elements 116 and 118 in June 1999. The same team retracted the discovery in July 2001. The discovery of elements 113, 114, and 115 has been reported but not confirmed.

| | | | | | | | | |
|---|---|---|---|---|--|--|--|--|
| 63 Eu Europium 151.964 $[Xe]4f^7 6s^2$ | 64 Gd Gadolinium 157.25 $[Xe]4f^7 5d^1 6s^2$ | 65 Tb Terbium 158.925 34 $[Xe]4f^7 6s^2$ | 66 Dy Dysprosium 162.500 $[Xe]4f^7 6s^2$ | 67 Ho Holmium 164.930 32 $[Xe]4f^7 6s^2$ | 68 Er Erbium 167.259 $[Xe]4f^{12} 6s^2$ | 69 Tm Thulium 168.934 21 $[Xe]4f^{13} 6s^2$ | 70 Yb Ytterbium 173.04 $[Xe]4f^{14} 6s^2$ | 71 Lu Lutetium 174.967 $[Xe]4f^{14} 5d^1 6s^2$ |
| 95 Am Americium (243) $[Rn]5f^7 7s^2$ | 96 Cm Curium (247) $[Rn]5f^7 6d^1 7s^2$ | 97 Bk Berkelium (247) $[Rn]5f^7 7s^2$ | 98 Cf Californium (251) $[Rn]5f^7 7s^2$ | 99 Es Einsteinium (252) $[Rn]5f^7 7s^2$ | 100 Fm Fermium (257) $[Rn]5f^{12} 7s^2$ | 101 Md Mendelevium (258) $[Rn]5f^{13} 7s^2$ | 102 No Nobelium (259) $[Rn]5f^{14} 7s^2$ | 103 Lr Lawrencium (262) $[Rn]5f^{14} 6d^1 7s^2$ |

The atomic masses listed in this table reflect the precision of current measurements. (Values listed in parentheses are those of the element's most stable or most common isotope.)