

# The Periodic Table of the Elements

1.00794 1312.0 2.20 <b>H</b> Hydrogen 1s <sup>1</sup>																	4.002602 2372.3 <b>He</b> Hydrogen 1s <sup>2</sup>															
6.941 520.2 0.98 <b>Li</b> Lithium 1s <sup>2</sup> 2s <sup>1</sup>	9.012182 899.5 1.57 <b>Be</b> Beryllium 1s <sup>2</sup> 2s <sup>2</sup>																	10.811 800.6 2.04 <b>B</b> Boron 1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>1</sup>	12.0107 1086.5 2.55 <b>C</b> Carbon 1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>2</sup>	14.0067 1402.3 3.04 <b>N</b> Nitrogen 1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>3</sup>	15.9994 1313.9 3.44 <b>O</b> Oxygen 1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>4</sup>	18.998403 1681.0 3.98 <b>F</b> Fluorine 1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>5</sup>	20.1797 2080.7 <b>Ne</b> Neon 1s <sup>2</sup> 2s <sup>2</sup> 2p <sup>6</sup>									
22.98976 495.8 0.93 <b>Na</b> Sodium [Ne] 3s <sup>1</sup>	24.3050 737.7 1.31 <b>Mg</b> Magnesium [Ne] 3s <sup>2</sup>																	26.98153 577.5 1.61 <b>Al</b> Aluminium [Ne] 3s <sup>2</sup> 3p <sup>1</sup>	28.0855 786.5 1.90 <b>Si</b> Silicon [Ne] 3s <sup>2</sup> 3p <sup>2</sup>	30.97696 1011.8 2.19 <b>P</b> Phosphorus [Ne] 3s <sup>2</sup> 3p <sup>3</sup>	32.065 999.6 2.58 <b>S</b> Sulfur [Ne] 3s <sup>2</sup> 3p <sup>4</sup>	35.453 1251.2 3.16 <b>Cl</b> Chlorine [Ne] 3s <sup>2</sup> 3p <sup>5</sup>	39.948 1520.6 <b>Ar</b> Argon [Ne] 3s <sup>2</sup> 3p <sup>6</sup>									
39.0983 418.8 0.82 <b>K</b> Potassium [Ar] 4s <sup>1</sup>	40.078 589.8 1.00 <b>Ca</b> Calcium [Ar] 4s <sup>2</sup>	44.95591 633.1 1.36 <b>Sc</b> Scandium [Ar] 3d <sup>1</sup> 4s <sup>2</sup>	47.867 658.8 1.54 <b>Ti</b> Titanium [Ar] 3d <sup>2</sup> 4s <sup>2</sup>	50.9415 650.9 1.63 <b>V</b> Vanadium [Ar] 3d <sup>3</sup> 4s <sup>2</sup>	51.9962 652.9 1.66 <b>Cr</b> Chromium [Ar] 3d <sup>5</sup> 4s <sup>1</sup>	54.93804 717.3 1.55 <b>Mn</b> Manganese [Ar] 3d <sup>5</sup> 4s <sup>2</sup>	55.845 762.5 1.83 <b>Fe</b> Iron [Ar] 3d <sup>6</sup> 4s <sup>2</sup>	58.93319 760.4 1.91 <b>Co</b> Cobalt [Ar] 3d <sup>7</sup> 4s <sup>2</sup>	58.6934 737.1 1.88 <b>Ni</b> Nickel [Ar] 3d <sup>8</sup> 4s <sup>2</sup>	63.546 745.5 1.90 <b>Cu</b> Copper [Ar] 3d <sup>10</sup> 4s <sup>1</sup>	65.38 906.4 1.65 <b>Zn</b> Zinc [Ar] 3d <sup>10</sup> 4s <sup>2</sup>	69.723 578.8 1.81 <b>Ga</b> Gallium [Ar] 3d <sup>10</sup> 4s <sup>2</sup> 4p <sup>1</sup>	72.64 762.0 2.01 <b>Ge</b> Germanium [Ar] 3d <sup>10</sup> 4s <sup>2</sup> 4p <sup>2</sup>	74.92160 947.0 2.18 <b>As</b> Arsenic [Ar] 3d <sup>10</sup> 4s <sup>2</sup> 4p <sup>3</sup>	78.96 941.0 2.55 <b>Se</b> Selenium [Ar] 3d <sup>10</sup> 4s <sup>2</sup> 4p <sup>4</sup>	79.904 1139.9 2.96 <b>Br</b> Bromine [Ar] 3d <sup>10</sup> 4s <sup>2</sup> 4p <sup>5</sup>	83.798 1350.8 3.00 <b>Kr</b> Krypton [Ar] 3d <sup>10</sup> 4s <sup>2</sup> 4p <sup>6</sup>															
85.4678 403.0 0.82 <b>Rb</b> Rubidium [Kr] 5s <sup>1</sup>	87.62 549.5 0.95 <b>Sr</b> Strontium [Kr] 5s <sup>2</sup>	88.90585 600.0 1.22 <b>Y</b> Yttrium [Kr] 4d <sup>1</sup> 5s <sup>2</sup>	91.224 640.1 1.33 <b>Zr</b> Zirconium [Kr] 4d <sup>2</sup> 5s <sup>2</sup>	92.90638 652.1 1.60 <b>Nb</b> Niobium [Kr] 4d <sup>4</sup> 5s <sup>1</sup>	95.96 684.3 2.16 <b>Mo</b> Molybdenum [Kr] 4d <sup>5</sup> 5s <sup>1</sup>	(98) 702.0 1.90 <b>Tc</b> Technetium [Kr] 4d <sup>5</sup> 5s <sup>2</sup>	101.07 710.2 2.20 <b>Ru</b> Ruthenium [Kr] 4d <sup>7</sup> 5s <sup>1</sup>	102.9055 719.7 2.28 <b>Rh</b> Rhodium [Kr] 4d <sup>8</sup> 5s <sup>1</sup>	106.42 804.4 2.20 <b>Pd</b> Palladium [Kr] 4d <sup>10</sup>	107.8682 731.0 1.93 <b>Ag</b> Silver [Kr] 4d <sup>10</sup> 5s <sup>1</sup>	112.411 867.8 1.69 <b>Cd</b> Cadmium [Kr] 4d <sup>10</sup> 5s <sup>2</sup>	114.818 558.3 1.78 <b>In</b> Indium [Kr] 4d <sup>10</sup> 5s <sup>2</sup> 5p <sup>1</sup>	118.710 708.6 1.96 <b>Sn</b> Tin [Kr] 4d <sup>10</sup> 5s <sup>2</sup> 5p <sup>2</sup>	121.760 834.0 2.05 <b>Sb</b> Antimony [Kr] 4d <sup>10</sup> 5s <sup>2</sup> 5p <sup>3</sup>	127.60 869.3 2.10 <b>Te</b> Tellurium [Kr] 4d <sup>10</sup> 5s <sup>2</sup> 5p <sup>4</sup>	126.9044 1008.4 2.66 <b>I</b> Iodine [Kr] 4d <sup>10</sup> 5s <sup>2</sup> 5p <sup>5</sup>	131.293 1170.4 2.60 <b>Xe</b> Xenon [Kr] 4d <sup>10</sup> 5s <sup>2</sup> 5p <sup>6</sup>															
132.9054 375.7 0.79 <b>Cs</b> Caesium [Xe] 6s <sup>1</sup>	137.327 502.9 0.89 <b>Ba</b> Barium [Xe] 6s <sup>2</sup>																	178.49 658.5 1.30 <b>Hf</b> Hafnium [Xe] 4f <sup>14</sup> 5d <sup>2</sup> 6s <sup>2</sup>	180.9478 761.0 1.50 <b>Ta</b> Tantalum [Xe] 4f <sup>14</sup> 5d <sup>3</sup> 6s <sup>2</sup>	183.84 770.0 2.36 <b>W</b> Tungsten [Xe] 4f <sup>14</sup> 5d <sup>4</sup> 6s <sup>2</sup>	186.207 760.0 1.90 <b>Re</b> Rhenium [Xe] 4f <sup>14</sup> 5d <sup>5</sup> 6s <sup>2</sup>	190.23 840.0 2.20 <b>Os</b> Osmium [Xe] 4f <sup>14</sup> 5d <sup>6</sup> 6s <sup>2</sup>	192.217 880.0 2.20 <b>Ir</b> Iridium [Xe] 4f <sup>14</sup> 5d <sup>7</sup> 6s <sup>2</sup>	195.084 870.0 2.28 <b>Pt</b> Platinum [Xe] 4f <sup>14</sup> 5d <sup>9</sup> 6s <sup>1</sup>	196.9665 890.1 2.54 <b>Au</b> Gold [Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>1</sup>	200.59 1007.1 2.00 <b>Hg</b> Mercury [Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup>	204.3833 589.4 1.62 <b>Tl</b> Thallium [Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>1</sup>	107.2 715.6 2.33 <b>Pb</b> Lead [Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>2</sup>	208.9804 703.0 2.02 <b>Bi</b> Bismuth [Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>3</sup>	(210) 812.1 2.00 <b>Po</b> Polonium [Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>4</sup>	(210) 890.0 2.20 <b>At</b> Astatine [Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>5</sup>	(220) 1037.0 <b>Rn</b> Radon [Xe] 4f <sup>14</sup> 5d <sup>10</sup> 6s <sup>2</sup> 6p <sup>6</sup>
(223) 380.0 0.70 <b>Fr</b> Francium [Rn] 7s <sup>1</sup>	(226) 509.3 0.90 <b>Ra</b> Radium [Rn] 7s <sup>2</sup>	(261) 580.0 <b>Rf</b> Rutherfordium [Rn] 5f <sup>14</sup> 6d <sup>2</sup> 7s <sup>2</sup>	(262) <b>Db</b> Dubnium [Rn] 5f <sup>14</sup> 6d <sup>3</sup> 7s <sup>2</sup>	(266) <b>Sg</b> Seaborgium [Rn] 5f <sup>14</sup> 6d <sup>4</sup> 7s <sup>2</sup>	(264) <b>Bh</b> Bohrium [Rn] 5f <sup>14</sup> 6d <sup>5</sup> 7s <sup>2</sup>	(277) <b>Hs</b> Hassium [Rn] 5f <sup>14</sup> 6d <sup>6</sup> 7s <sup>2</sup>	(268) <b>Mt</b> Meitnerium [Rn] 5f <sup>14</sup> 6d <sup>7</sup> 7s <sup>2</sup>	(271) <b>Ds</b> Darmstadtium [Rn] 5f <sup>14</sup> 6d <sup>8</sup> 7s <sup>2</sup>	(272) <b>Rg</b> Roentgenium [Rn] 5f <sup>14</sup> 6d <sup>9</sup> 7s <sup>2</sup>	(285) <b>Uub</b> Ununbium [Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup>	(284) <b>Uut</b> Ununtrium [Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>1</sup>	(289) <b>Uuq</b> Ununquadium [Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>2</sup>	(288) <b>Uup</b> Ununpentium [Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>3</sup>	(292) <b>Uuh</b> Ununhexium [Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>4</sup>	117 <b>Uus</b> Ununseptium [Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>5</sup>	(294) <b>Uuo</b> Ununoctium [Rn] 5f <sup>14</sup> 6d <sup>10</sup> 7s <sup>2</sup> 7p <sup>6</sup>																

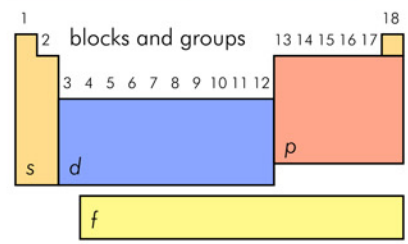
atomic mass or most stable mass number  
1st ionization energy in kJ/mol  
chemical symbol  
name  
electron configuration

55.845  
762.5 1.83  
**Fe**  
Iron  
[Ar] 3d<sup>6</sup> 4s<sup>2</sup>

atomic number  
electronegativity  
oxidation states most common are bold

26  
+6  
+5  
+4  
+3  
+2  
+1  
-1  
-2

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



- notes
- elements 112-118 have no official name designated by the IUPAC.
  - to convert kJ/mol to eV for physics, divide by 96.485.
  - all elements are implied to have oxidation states of zero.

138.9054 538.1 1.10 <b>La</b> Lanthanum [Xe] 5d <sup>1</sup> 6s <sup>2</sup>	140.116 534.4 1.12 <b>Ce</b> Cerium [Xe] 4f <sup>1</sup> 5d <sup>1</sup> 6s <sup>2</sup>	140.9076 527.0 1.13 <b>Pr</b> Praseodymium [Xe] 4f <sup>3</sup> 6s <sup>2</sup>	144.242 533.1 1.14 <b>Nd</b> Neodymium [Xe] 4f <sup>4</sup> 6s <sup>2</sup>	(145) 540.0 <b>Pm</b> Promethium [Xe] 4f <sup>5</sup> 6s <sup>2</sup>	150.36 544.5 1.17 <b>Sm</b> Samarium [Xe] 4f <sup>6</sup> 6s <sup>2</sup>	151.964 547.1 <b>Eu</b> Europium [Xe] 4f <sup>7</sup> 6s <sup>2</sup>	157.25 593.4 1.20 <b>Gd</b> Gadolinium [Xe] 4f <sup>7</sup> 5d <sup>1</sup> 6s <sup>2</sup>	158.9253 565.8 <b>Tb</b> Terbium [Xe] 4f <sup>9</sup> 6s <sup>2</sup>	162.500 573.0 1.22 <b>Dy</b> Dysprosium [Xe] 4f <sup>10</sup> 6s <sup>2</sup>	164.9303 581.0 1.23 <b>Ho</b> Holmium [Xe] 4f <sup>11</sup> 6s <sup>2</sup>	167.259 589.3 1.24 <b>Er</b> Erbium [Xe] 4f <sup>12</sup> 6s <sup>2</sup>	168.9342 596.7 1.25 <b>Tm</b> Thulium [Xe] 4f <sup>13</sup> 6s <sup>2</sup>	173.054 603.4 <b>Yb</b> Ytterbium [Xe] 4f <sup>14</sup> 6s <sup>2</sup>	174.9668 523.5 1.27 <b>Lu</b> Lutetium [Xe] 4f <sup>14</sup> 5d <sup>1</sup> 6s <sup>2</sup>
(227) 499.0 1.10 <b>Ac</b> Actinium [Rn] 6d <sup>1</sup> 7s <sup>2</sup>	232.0380 587.0 1.30 <b>Th</b> Thorium [Rn] 6d <sup>2</sup> 7s <sup>2</sup>	231.0358 568.0 1.50 <b>Pa</b> Protactinium [Rn] 5f <sup>2</sup> 6d <sup>1</sup> 7s <sup>2</sup>	238.0289 597.6 1.38 <b>U</b> Uranium [Rn] 5f <sup>3</sup> 6d <sup>1</sup> 7s <sup>2</sup>	(237) 604.5 1.36 <b>Np</b> Neptunium [Rn] 5f <sup>4</sup> 6d <sup>1</sup> 7s <sup>2</sup>	(244) 584.7 1.28 <b>Pu</b> Plutonium [Rn] 5f <sup>6</sup> 7s <sup>2</sup>	(243) 578.0 1.30 <b>Am</b> Americium [Rn] 5f <sup>7</sup> 7s <sup>2</sup>	(247) 581.0 1.30 <b>Cm</b> Curium [Rn] 5f <sup>7</sup> 6d <sup>1</sup> 7s <sup>2</sup>	(247) 601.0 1.30 <b>Bk</b> Berkelium [Rn] 5f <sup>9</sup> 7s <sup>2</sup>	(251) 608.0 1.30 <b>Cf</b> Californium [Rn] 5f <sup>10</sup> 7s <sup>2</sup>	(252) 619.0 1.30 <b>Es</b> Einsteinium [Rn] 5f <sup>11</sup> 6s <sup>2</sup>	(257) 627.0 1.30 <b>Fm</b> Fermium [Rn] 5f <sup>12</sup> 7s <sup>2</sup>	(258) 635.0 1.30 <b>Md</b> Mendelevium [Rn] 5f <sup>13</sup> 7s <sup>2</sup>	(259) 642.0 1.30 <b>No</b> Nobelium [Rn] 5f <sup>14</sup> 7s <sup>2</sup>	(262) 470.0 <b>Lr</b> Lawrencium [Rn] 5f <sup>14</sup> 7s <sup>2</sup> 7p <sup>1</sup>