

Periodic Table of the Elements

1 1.0080 ±1 H 1s ¹ hydrogen	2 4.002602 0 He 1s ² helium											13 10.81 3 B [He]2s ² 2p ¹ boron	14 12.011 2,(±4) C [He]2s ² 2p ² carbon	15 14.0069 ±1,±2,(±3),4,5 N [He]2s ² 2p ³ nitrogen	16 15.9994 -2 O [He]2s ² 2p ⁴ oxygen	17 18.998403 -1 F [He]2s ² 2p ⁵ fluorine	18 20.1797 0 Ne [He]2s ² 2p ⁶ neon											19 39.0983 1 K [Ar]4s ¹ potassium	20 40.078 2 Ca [Ar]4s ² calcium	21 44.955912 3 Sc [Ar]4s ² 3d ¹ scandium	22 47.867 2,3,(4) Ti [Ar]4s ² 3d ² titanium	23 50.9415 2,3,4,(5) V [Ar]4s ² 3d ³ vanadium	24 51.9961 2,(3),6 Cr [Ar]4s ¹ 3d ⁵ chromium	25 54.938045 (2),3,4,6,7 Mn [Ar]4s ² 3d ⁵ manganese	26 55.845 2,(3) Fe [Ar]4s ² 3d ⁶ iron	27 58.933195 (2),3 Co [Ar]4s ² 3d ⁷ cobalt	28 58.6934 (2),3 Ni [Ar]4s ² 3d ⁸ nickel	29 63.546 1,(2) Cu [Ar]4s ¹ 3d ¹⁰ copper	30 65.38 2 Zn [Ar]4s ² 3d ¹⁰ zinc	31 69.723 3 Ga [Ar]4s ² 3d ¹⁰ 4p ¹ gallium	32 72.63 2,(4) Ge [Ar]4s ² 3d ¹⁰ 4p ² germanium	33 74.92160 (±3),5 As [Ar]4s ² 3d ¹⁰ 4p ³ arsenic	34 78.96 -2,(4),6 Se [Ar]4s ² 3d ¹⁰ 4p ⁴ selenium	35 79.904 (±1),5,7 Br [Ar]4s ² 3d ¹⁰ 4p ⁵ bromine	36 83.798 0 Kr [Ar]4s ² 3d ¹⁰ 4p ⁶ krypton	37 85.4678 1 Rb [Kr]5s ¹ rubidium	38 87.62 2 Sr [Kr]5s ² strontium	39 88.90585 3 Y [Kr]5s ² 4d ¹ yttrium	40 91.224 4 Zr [Kr]5s ² 4d ² zirconium	41 92.906 3,(5) Nb [Kr]5s ¹ 4d ⁴ niobium	42 95.96 2,3,4,5,(6) Mo [Kr]5s ¹ 4d ⁵ molybdenum	43 [97.9072] 4,6,(7) Tc [Kr]5s ² 4d ⁵ technetium	44 101.07 2,(3),(4),6,8 Ru [Kr]5s ¹ 4d ⁷ ruthenium	45 102.90550 2,(3),4 Rh [Kr]5s ¹ 4d ⁸ rhodium	46 106.42 (2),4 Pd [Kr]4d ¹⁰ palladium	47 107.8682 1 Ag [Kr]5s ¹ 4d ¹⁰ silver	48 112.411 2 Cd [Kr]5s ² 4d ¹⁰ cadmium	49 114.818 3 In [Kr]5s ² 4d ¹⁰ 5p ¹ indium	50 118.710 2,(4) Sn [Kr]5s ² 4d ¹⁰ 5p ² tin	51 121.760 (±3),5 Sb [Kr]5s ² 4d ¹⁰ 5p ³ antimony	52 127.60 -2,(4),6 Te [Kr]5s ² 4d ¹⁰ 5p ⁴ tellurium	53 126.90447 (±1),5,7 I [Kr]5s ² 4d ¹⁰ 5p ⁵ iodine	54 131.293 0 Xe [Kr]5s ² 4d ¹⁰ 5p ⁶ xenon	55 132.905452 1 Cs [Xe]6s ¹ cesium	56 137.327 2 Ba * [Xe]6s ² barium	57 138.90547 3 La [Xe]6s ² 5d ¹ lanthanum	58 140.116 (3),4 Ce [Xe]6s ² 4f ¹ 5d ¹ cerium	59 140.90765 (3),(4) Pr [Xe]6s ² 4f ³ praseodymium	60 144.242 3 Nd [Xe]6s ² 4f ⁴ neodymium	61 [144.9127] 3 Pm [Xe]6s ² 4f ⁶ promethium	62 150.36 2,(3) Sm [Xe]6s ² 4f ⁶ samarium	63 151.964 2,(3) Eu [Xe]6s ² 4f ⁷ europium	64 157.25 3 Gd [Xe]6s ² 4f ⁷ 5d ¹ gadolinium	65 158.925 (3),4 Tb [Xe]6s ² 4f ⁹ terbium	66 162.500 3 Dy [Xe]6s ² 4f ¹⁰ dysprosium	67 164.93032 3 Ho [Xe]6s ² 4f ¹¹ holmium	68 167.259 3 Er [Xe]6s ² 4f ¹² erbium	69 168.93421 2,(3) Tm [Xe]6s ² 4f ¹³ thulium	70 173.054 2,(3) Yb [Xe]6s ² 4f ¹⁴ ytterbium	87 [223.0197] 1 Fr [Rn]7s ¹ francium	88 [226.0254] 2 Ra ** [Rn]7s ² radium	103 [261.1096] 3 Lr [Rn]7s ² 5f ¹⁴ 6d ¹ lawrencium	104 [265.1167] 4 Rf [Rn]7s ² 5f ¹⁴ 6d ² rutherfordium	105 [268.1250] 4 Db [Rn]7s ² 5f ¹⁴ 6d ³ dubnium	106 [271.133] 4 Sg [Rn]7s ² 5f ¹⁴ 6d ⁴ seaborgium	107 [270] 4 Bh [Rn]7s ² 5f ¹⁴ 6d ⁵ bohrium	108 [277.150] 4 Hs [Rn]7s ² 5f ¹⁴ 6d ⁶ hassium	109 [276.151] 4 Mt [Rn]7s ² 5f ¹⁴ 6d ⁷ meitnerium	110 [281] 4 Ds [Rn]7s ² 5f ¹⁴ 6d ⁸ darmstadtium	111 [280.164] 4 Rg [Rn]7s ² 5f ¹⁴ 6d ⁹ roentgenium	112 [285.174] 4 Cn [Rn]7s ² 5f ¹⁴ 6d ¹⁰ copernicium	113 [285] provisional 4 Nh [Rn]7s ² 5f ¹⁴ 6d ¹⁰ 7p ¹ nihonium	114 [289.187] 4 Fl [Rn]7s ² 5f ¹⁴ 6d ¹⁰ 7p ² flerovium	115 [288] provisional 4 Mc [Rn]7s ² 5f ¹⁴ 6d ¹⁰ 7p ³ moscovium	116 [293] 4 Lv [Rn]7s ² 5f ¹⁴ 6d ¹⁰ 7p ⁴ livermorium	117 [294] provisional 4 Ts [Rn]7s ² 5f ¹⁴ 6d ¹⁰ 7p ⁵ tennessine	118 [294] provisional 4 Og [Rn]7s ² 5f ¹⁴ 6d ¹⁰ 7p ⁶ oganesson
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The diagram shows the Iron (Fe) element cell with the following components labeled:

- atomic number:** 26
- atomic mass:** 55.845
- boiling point /K:** 3134
- melting point /K:** 1808
- density /g/cm³, g/L for gases:** 7.86
- name:** iron
- common oxidation states (most stable):** 2,(3)
- symbol:** Fe (solid, liquid, gas, synthetic)
- electronic configuration:** [Ar]4s²3d⁶

All properties at 298.15 K and 1 bar unless noted.

The latest version of this document is available from www.consol.ca.

Data from www.iupac.org. For several elements, the variability in atomic mass depends substantially on whether the sample origin is organic or inorganic. For these elements, the average, with decreased precision, is reported.
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57 138.90547 3 La [Xe]6s ² 5d ¹ lanthanum	58 140.116 (3),4 Ce [Xe]6s ² 4f ¹ 5d ¹ cerium	59 140.90765 (3),(4) Pr [Xe]6s ² 4f ³ praseodymium	60 144.242 3 Nd [Xe]6s ² 4f ⁴ neodymium	61 [144.9127] 3 Pm [Xe]6s ² 4f ⁶ promethium	62 150.36 2,(3) Sm [Xe]6s ² 4f ⁶ samarium	63 151.964 2,(3) Eu [Xe]6s ² 4f ⁷ europium	64 157.25 3 Gd [Xe]6s ² 4f ⁷ 5d ¹ gadolinium	65 158.925 (3),4 Tb [Xe]6s ² 4f ⁹ terbium	66 162.500 3 Dy [Xe]6s ² 4f ¹⁰ dysprosium	67 164.93032 3 Ho [Xe]6s ² 4f ¹¹ holmium	68 167.259 3 Er [Xe]6s ² 4f ¹² erbium	69 168.93421 2,(3) Tm [Xe]6s ² 4f ¹³ thulium	70 173.054 2,(3) Yb [Xe]6s ² 4f ¹⁴ ytterbium	89 [227.0278] 3 Ac [Rn]7s ² 6d ¹ actinium	90 232.0381 4 Th [Rn]7s ² 6d ² thorium	91 [231.0359] 4,(5) Pa [Rn]7s ² 5f ⁶ 6d ¹ protactinium	92 238.02891 3,4,5,(6) U [Rn]7s ² 5f ⁶ 6d ¹ uranium	93 [237.0482] 3,4,(5),6 Np [Rn]7s ² 5f ⁶ 6d ¹ neptunium	94 [244.0642] 3,(4),5,6 Pu [Rn]7s ² 5f ⁶ plutonium	95 [243.0614] (3),4,5,6 Am [Rn]7s ² 5f ⁷ americium	96 [247.0704] (3),4 Cm [Rn]7s ² 5f ⁶ 6d ¹ curium	97 [247.0703] (3),4 Bk [Rn]7s ² 5f ⁹ berkelium	98 [251.0796] (3),4 Cf [Rn]7s ² 5f ¹⁰ californium	99 [252.0830] (2),3 Es [Rn]7s ² 5f ¹¹ einsteinium	100 [257.0951] 3 Fm [Rn]7s ² 5f ¹² fermium	101 [258.0984] 2,3 Md [Rn]7s ² 5f ¹³ mendelevium	102 [259.1010] 2,3 No [Rn]7s ² 5f ¹⁴ nobelium
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Periodic Table of the Elements

1 18

1 H 25 154 (-1) — 72.77 13.598 — 2.20																	2 He 30 — — 24.587 54.418 0																																		
3 Li 145 78 (+1) — 59.63 5.3915 75.639	4 Be 105 34 (+2) — — 9.3227 18.211											5 B 85 23 (+3) — 26.99 8.2976 25.155	6 C 70 16 (+4) — 11.03 12.01 24.383	7 N 65 171 (-3) — 14.01 14.534 29.600	8 O 60 22 (+1) — 16.00 16.00 35.117	9 F 50 133 (-1) — 18.998 17.422 34.971	10 Ne 40 — — — 21.565 40.963											11 Na 180 98 (+1) — 22.99 22.99 —	12 Mg 150 79 (+2) — 24.31 24.31 —	13 Al 125 57 (+3) — 26.98 26.98 —	14 Si 110 26 (+4) — 28.09 28.09 —	15 P 100 17 (+5) — 30.97 30.97 —	16 S 100 29 (+6) — 32.06 32.06 —	17 Cl 100 181 (-1) — 35.45 35.45 —	18 Ar 70 — — — 39.95 39.95 —																
19 K 220 133 (+1) — 39.10 39.10 —	20 Ca 180 106 (+2) — 40.08 40.08 —	21 Sc 160 63 (+3) — — — —	22 Ti 140 86 (+2) — — — —	23 V 135 79 (+2) — — — —	24 Cr 140 82 (+2) — — — —	25 Mn 140 91 (+2) — — — —	26 Fe 140 82 (+2) — — — —	27 Co 135 82 (+2) — — — —	28 Ni 135 78 (+2) — — — —	29 Cu 135 96 (+1) — — — —	30 Zn 135 63 (+2) — — — —	31 Ga 130 113 (+2) — — — —	32 Ge 125 62 (+3) — — — —	33 As 115 69 (+3) — — — —	34 Se 115 69 (+4) — — — —	35 Br 115 196 (-1) — — — —	36 Kr 90 — — — — —	37 Rb 235 149 (+1) — — — —	38 Sr 200 127 (+2) — — — —	39 Y 180 106 (+3) — — — —	40 Zr 155 109 (+2) — — — —	41 Nb 145 87 (+4) — — — —	42 Mo 145 69 (+5) — — — —	43 Tc 135 72 (+5) — — — —	44 Ru 130 65 (+4) — — — —	45 Rh 135 67 (+4) — — — —	46 Pd 140 89 (+5) — — — —	47 Ag 160 113 (+1) — — — —	48 Cd 155 103 (+2) — — — —	49 In 155 132 (+1) — — — —	50 Sn 145 93 (+2) — — — —	51 Sb 145 89 (+3) — — — —	52 Te 140 62 (+5) — — — —	53 I 140 100.93 — — — —	54 Xe 110 196 (-1) — — — —																
55 Cs 260 165 (+1) — — — —	56 Ba 215 143 (+2) — — — —	57 La 175 85 (+3) — — — —	58 Ce 155 84 (+4) — — — —	59 Pr 145 72 (+3) — — — —	60 Nd 135 64 (+5) — — — —	61 Pm 135 62 (+6) — — — —	62 Sm 135 60 (+7) — — — —	63 Eu 135 75 (+3) — — — —	64 Gd 135 70 (+4) — — — —	65 Tb 135 137 (+1) — — — —	66 Dy 150 112 (+2) — — — —	67 Ho 190 149 (+1) — — — —	68 Er 180 105 (+3) — — — —	69 Tm 160 96 (+3) — — — —	70 Yb 190 65 (+4) — — — —																																				
71 Lu 175 85 (+3) — — — —	72 Hf 155 84 (+4) — — — —	73 Ta 145 72 (+3) — — — —	74 W 135 64 (+5) — — — —	75 Re 135 62 (+6) — — — —	76 Os 135 60 (+7) — — — —	77 Ir 135 75 (+3) — — — —	78 Pt 135 70 (+4) — — — —	79 Au 135 137 (+1) — — — —	80 Hg 150 112 (+2) — — — —	81 Tl 190 149 (+1) — — — —	82 Pb 180 105 (+3) — — — —	83 Bi 160 96 (+3) — — — —	84 Po 190 65 (+4) — — — —	85 At 190 230 (-2) — — — —	86 Rn 110 196 (-1) — — — —																																				
87 Fr 180 (+1) — — — —	88 Ra 215 162 (+2) — — — —	103 Lr 88 (+3) — — — —	104 Rf — — — — — —	105 Db — — — — — —	106 Sg — — — — — —	107 Bh — — — — — —	108 Hs — — — — — —	109 Mt — — — — — —	110 Ds — — — — — —	111 Rg — — — — — —	112 Cn — — — — — —	113 Nh — — — — — —	114 Fl — — — — — —	115 Mc — — — — — —	116 Lv — — — — — —	117 Ts — — — — — —	118 Og — — — — — —																																		

26 Fe

- atomic radius / pm: 140
- ionic radius (charge) / pm: 82 (+2)
- electron affinity / (kJ/mol): 14.57
- first ionization energy / eV: 7.9028
- second ionization energy / eV: 16.188
- enthalpy of vaporization / (kJ/mol): 349.6
- enthalpy of fusion / (kJ/mol): 13.8
- molar heat capacity / (J/(mol·K)): 24.57
- thermal conductivity / (W/(m·K)): 80.2
- electrical conductivity / (10⁶/(m·Ω)): 9.93
- electronegativity (Pauling): 1.83

All properties at 298.15 K and 1 bar unless noted.

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Data from www.iupac.org. For several elements, the variability in atomic mass depends substantially on whether the sample origin is organic or inorganic. For these elements, the average, with decreased precision, is reported.

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* 195 122 (+3) — 45.35 5.5770 11.059	414 6.2 26.39 13.5 1.26 1.10	185 107 (+3) — — — —	414 5.46 26.62 11.4 1.15 1.12	185 106 (+3) — — — —	296.8 6.89 26.77 12.5 1.48 1.13	185 104 (+3) — — — —	273 7.14 27.41 13.3 1.57 1.14	185 109 (+3) — — — —	— 26.08 17.9 — — —	185 108 (+3) — — — —	166.4 8.63 30.07 13.3 0.96 1.17	185 89 (+3) — — — —	143.5 9.21 27.35 13.9 1.12 1.20	180 97 (+3) — — — —	359.4 10.05 36.17 10.6 0.74 1.20	175 81 (+4) — — — —	330.9 10.8 28.61 11.1 0.89 1.20	175 91 (+3) — — — —	230 11.06 27.63 10.7 1.08 1.22	175 89 (+3) — — — —	241 12.2 26.39 16.2 1.24 1.23	175 89 (+3) — — — —	261 19.9 28.43 14.3 1.17 1.24	175 94 (+3) — — — —	191 16.84 27.03 16.8 1.50 1.25	175 87 (+4) — — — —	191 16.84 27.03 16.8 1.50 1.10	175 113 (+2) — — — —	128.9 7.66 25.96 34.9 3.51 1.10
** 195 162 (+2) — 33.77 5.1718 12.126	— — — 12 — 1.10	180 99 (+3) — — — —	514.4 16.1 27.84 54 6.0838 1.30	180 113 (+3) — — — —	12.3 12.3 27.72 47 5.8869 1.50	175 103 (+3) — — — —	477 8.52 28.56 27.6 3.80 1.38	175 110 (+3) — — — —	— 5.19 28.45 6.3 0.82 1.36	175 108 (+3) — — — —	344 2.84 31.73 6.74 0.67 1.28	175 107 (+3) — — — —	— 14.4 26.74 10 2.20 1.3	— 15 — 10 6.0216 1.3	— 15 — 10 6.2289 1.3	— 15 — 10 6.3015 1.3	— 15 — 10 6.4155 1.3	— 15 — 10 6.4984 1.3	— 15 — 10 6.5813 1.3	— 15 — 10 6.6539 1.3	— 15 — 10 6.7265 1.3	— 15 — 10 6.8000 1.3	— 15 — 10 6.8735 1.3	— 15 — 10 6.9470 1.3	— 15 — 10 7.0205 1.3	— 15 — 10 7.0940 1.3	— 15 — 10 7.1675 1.3	— 15 — 10 7.2410 1.3	— 15 — 10 7.3145 1.3