

Periodic Table

These are the 118 currently known and officially named elements that make up the periodic table (IUPAC 2016).

The periodic table arranges the elements, with their diverse physical and chemical properties, in order of atomic number and fits them into a logical pattern. Eighteen columns divide the elements into groups with closely related physical properties. Rows list elements in order of mass and are called series or periods. Properties of elements change in a systematic way through a period.

Atomic number

The atomic number is equal to the number of protons in the nucleus.

Relative atomic mass

The ratio of the average mass of the various isotopic forms of an element to one-twelfth of the mass of a carbon-12 atom in its ground state. A number in brackets indicates that all isotopes of the element are unstable, ie radioactive.



Group 1

Alkaline earth metals

Group 2

H Hydrogen
1 1.008

Li Lithium
3 6.94

Na Sodium
11 22.990

Be Beryllium
4 9.012

Mg Magnesium
12 24.305

Transition metals

Group 3	Group 4	Group 5	Group 6	Group 7	Group 8	Group 9	Group 10	Group 11	Group 12
Sc Scandium 21 44.956	Ti Titanium 22 47.867	V Vanadium 23 50.942	Cr Chromium 24 51.996	Mn Manganese 25 54.938	Fe Iron 26 55.845	Co Cobalt 27 58.933	Ni Nickel 28 58.693	Cu Copper 29 63.546	Zn Zinc 30 65.38
Y Yttrium 39 88.906	Zr Zirconium 40 91.224	Nb Niobium 41 92.906	Mo Molybdenum 42 95.95	Tc Technetium 43 [98]	Ru Ruthenium 44 101.07	Rh Rhodium 45 102.906	Pd Palladium 46 106.42	Ag Silver 47 107.868	Cd Cadmium 48 112.414
La Lanthanum 57 138.905	Hf Hafnium 72 178.49	Ta Tantalum 73 180.948	W Tungsten 74 183.84	Re Rhenium 75 186.207	Os Osmium 76 190.23	Ir Iridium 77 192.227	Pt Platinum 78 195.084	Au Gold 79 196.967	Hg Mercury 80 200.592
Ac Actinium 89 [227]	Rf Rutherfordium 104 [267]	Db Dubnium 105 [268]	Sg Seaborgium 106 [269]	Bh Bohrium 107 [270]	Hs Hassium 108 [269]	Mt Meitnerium 109 [278]	Ds Darmstadtium 110 [281]	Rg Roentgenium 111 [280]	Cn Copernicium 112 [285]

Group 13 **Group 14** **Group 15** **Group 16** **Group 17** **Group 18**

Al Aluminium
13 26.982

Si Silicon
14 28.085

P Phosphorus
15 30.974

S Sulfur
16 32.06

Cl Chlorine
17 35.45

Ar Argon
18 39.95

Ga Gallium
31 69.723

Ge Germanium
32 72.630

As Arsenic
33 74.922

Se Selenium
34 78.971

Br Bromine
35 79.904

Kr Krypton
36 83.798

In Indium
49 114.818

Sn Tin
50 118.710

Sb Antimony
51 121.760

Te Tellurium
52 127.60

I Iodine
53 126.904

Xe Xenon
54 131.293

Cs Caesium
55 132.905

Ba Barium
56 137.327

La Lanthanum
57 138.905

Hf Hafnium
72 178.49

Ta Tantalum
73 180.948

W Tungsten
74 183.84

Re Rhenium
75 186.207

Os Osmium
76 190.23

Ir Iridium
77 192.227

Pt Platinum
78 195.084

Au Gold
79 196.967

Hg Mercury
80 200.592

Tl Thallium
81 204.38

Pb Lead
82 207.2

Bi Bismuth
83 208.980

Po Polonium
84 [209]

At Astatine
85 [210]

Rn Radon
86 [222]

Fr Francium
87 [223]

Ra Radium
88 [226]

Ac Actinium
89 [227]

Rf Rutherfordium
104 [267]

Db Dubnium
105 [268]

Sg Seaborgium
106 [269]

Bh Bohrium
107 [270]

Hs Hassium
108 [269]

Mt Meitnerium
109 [278]

Ds Darmstadtium
110 [281]

Rg Roentgenium
111 [280]

Cn Copernicium
112 [285]

Nh Nihonium
113 [286]

Fl Flerovium
114 [289]

Mc Moscovium
115 [289]

Lv Livermorium
116 [293]

Ts Tennessine
117 [294]

Og Oganesson
118 [294]

Alkali metals

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Ce Cerium 58 140.116	Pr Praseodymium 59 140.908	Nd Neodymium 60 144.242	Pm Promethium 61 [145]	Sm Samarium 62 150.36	Eu Europium 63 151.964	Gd Gadolinium 64 157.25	Tb Terbium 65 158.925	Dy Dysprosium 66 162.500	Ho Holmium 67 164.930	Er Erbium 68 167.259	Tm Thulium 69 168.934	Yb Ytterbium 70 173.045	Lu Lutetium 71 174.967
Th Thorium 90 232.038	Pa Protactinium 91 231.036	U Uranium 92 238.029	Np Neptunium 93 [237]	Pu Plutonium 94 [244]	Am Americium 95 [243]	Cm Curium 96 [247]	Bk Berkelium 97 [247]	Cf Californium 98 [251]	Es Einsteinium 99 [252]	Fm Fermium 100 [257]	Md Mendelevium 101 [258]	No Nobelium 102 [259]	Lr Lawrencium 103 [262]

Lanthanides

Actinides



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Cu
Copper
29 [63.546]

Group 1		Transition metals										Group 13	Group 14	Group 15	Group 16	Group 17	Noble gases Group 18					
H Hydrogen 1 1.008	Li Lithium 3 6.94	Be Beryllium 4 9.012	Na Sodium 11 22.990	Mg Magnesium 12 24.305	K Potassium 19 39.098	Ca Calcium 20 40.078	Sc Scandium 21 44.956	Ti Titanium 22 47.867	V Vanadium 23 50.942	Cr Chromium 24 51.996	Mn Manganese 25 54.938	Fe Iron 26 55.845	Co Cobalt 27 58.933	Ni Nickel 28 58.693	Cu Copper 29 63.546	Zn Zinc 30 65.38	B Boron 5 10.81	C Carbon 6 12.011	N Nitrogen 7 14.007	O Oxygen 8 15.999	F Fluorine 9 18.998	Ne Neon 10 20.180
Rb Rubidium 37 85.468	Sr Strontium 38 87.62	Y Yttrium 39 88.906	Zr Zirconium 40 91.224	Nb Niobium 41 92.906	Mo Molybdenum 42 95.95	Tc Technetium 43 [98]	Ru Ruthenium 44 101.07	Rh Rhodium 45 102.906	Pd Palladium 46 106.42	Ag Silver 47 107.868	Cd Cadmium 48 112.414	In Indium 49 114.818	Sn Tin 50 118.710	Sb Antimony 51 121.760	Te Tellurium 52 127.60	I Iodine 53 126.904	Xe Xenon 54 131.293					
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Fr Francium 87 [223]	Ra Radium 88 [226]	Ac Actinium 89 [227]	Rf Rutherfordium 104 [267]	Db Dubnium 105 [268]	Sg Seaborgium 106 [269]	Bh Bohrium 107 [270]	Hs Hassium 108 [269]	Mt Meitnerium 109 [278]	Ds Darmstadtium 110 [281]	Rg Roentgenium 111 [280]	Cn Copernicium 112 [285]	Nh Nihonium 113 [286]	Fl Flerovium 114 [289]	Mc Moscovium 115 [289]	Lv Livermorium 116 [293]	Ts Tennessine 117 [294]	Og Oganesson 118 [294]					
Alkali metals		Lanthanides																Actinides				
		Ce Cerium 58 140.116	Pr Praseodymium 59 140.908	Nd Neodymium 60 144.242	Pm Promethium 61 [145]	Sm Samarium 62 150.36	Eu Europium 63 151.964	Gd Gadolinium 64 157.25	Tb Terbium 65 158.925	Dy Dysprosium 66 162.500	Ho Holmium 67 164.930	Er Erbium 68 167.259	Tm Thulium 69 168.934	Yb Ytterbium 70 173.045	Lu Lutetium 71 174.967							
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