

# Periodic Table of the Elements

MAIN-GROUP ELEMENTS

MAIN-GROUP ELEMENTS

- Metals (main-group)
- Metals (transition)
- Metals (inner transition)
- Metalloids
- Nonmetals

	TRANSITION ELEMENTS																																					
	1A (1)			2A (2)		8B (9)										7A (17)		8A (18)																				
1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18																				
2	H 1.008	He 4.003	Li 6.941	Be 9.012	B 10.81	C 12.01	N 14.01	O 16.00	F 19.00	Ne 20.18	Na 22.99	Mg 24.31	Al 26.98	Si 28.09	P 30.97	S 32.07	Cl 35.45	Ar 39.95																				
3			Na 22.99	Mg 24.31	Al 26.98	Si 28.09	P 30.97	S 32.07	Cl 35.45	Ar 39.95	K 39.10	Ca 40.08	Sc 44.96	Ti 47.88	V 50.94	Cr 52.00	Mn 54.94	Fe 55.85	Cobalt 58.93	Ni 58.69	Cu 63.55	Zn 65.41	Ga 69.72	Ge 72.61	As 74.92	Se 78.96	Br 79.90	Kr 83.80										
4			K 39.10	Ca 40.08	Sc 44.96	Ti 47.88	V 50.94	Cr 52.00	Mn 54.94	Fe 55.85	Cobalt 58.93	Ni 58.69	Cu 63.55	Zn 65.41	Ga 69.72	Ge 72.61	As 74.92	Se 78.96	Br 79.90	Kr 83.80	Rb 85.47	Sr 87.62	Y 88.91	Zr 91.22	Nb 92.91	Mo 95.94	Tc 98	Ru 101.1	Rh 102.9	Pd 106.4	Ag 107.9	Cd 112.4	In 114.8	Sn 118.7	Sb 121.8	Te 127.6	I 126.9	Xe 131.3
5			Rb 85.47	Sr 87.62	Y 88.91	Zr 91.22	Nb 92.91	Mo 95.94	Tc 98	Ru 101.1	Rh 102.9	Pd 106.4	Ag 107.9	Cd 112.4	In 114.8	Sn 118.7	Sb 121.8	Te 127.6	I 126.9	Xe 131.3	Cs 132.9	Ba 137.3	La 138.9	Ce 140.1	Pr 140.9	Nd 144.2	Pm 145	Sm 150.4	Eu 152.0	Gd 157.3	Tb 158.9	Dy 162.5	Ho 164.9	Er 167.3	Tm 168.9	Yb 173.0	Lu 175.0	
6			Cs 132.9	Ba 137.3	La 138.9	Ce 140.1	Pr 140.9	Nd 144.2	Pm 145	Sm 150.4	Eu 152.0	Gd 157.3	Tb 158.9	Dy 162.5	Ho 164.9	Er 167.3	Tm 168.9	Yb 173.0	Lu 175.0	Hf 178.5	Ta 180.9	W 183.9	Re 186.2	Os 190.2	Ir 192.2	Pt 195.1	Au 197.0	Hg 200.6	Tl 204.4	Pb 207.2	Bi 209.0	Po 209	At 210	Rn 222				
7			Fr (223)	Ra (226)	Ac (227)	Th 232.0	Pa (231)	U 238.0	Np (237)	Pu (242)	Am (243)	Cm (247)	Bk (247)	Cf (251)	Es (252)	Fm (257)	Md (258)	No (259)	Lr (260)	Rf (263)	Db (262)	Sg (266)	Bh (267)	Hs (277)	Mt (268)	Ds (281)	Rg (272)	Cn (285)	Fl (286)	Mc (288)	Lv (289)	Ts (294)	Og (294)					

Period

As of late 2011, elements 113 through 116 and 118 had not been named, and the synthesis of element 117 has not been confirmed.

## INNER TRANSITION ELEMENTS

6	Lanthanides	58	Ce 140.1	59	Pr 140.9	60	Nd 144.2	61	Pm (145)	62	Sm 150.4	63	Eu 152.0	64	Gd 157.3	65	Tb 158.9	66	Dy 162.5	67	Ho 164.9	68	Er 167.3	69	Tm 168.9	70	Yb 173.0	71	Lu 175.0
7	Actinides	90	Th 232.0	91	Pa (231)	92	U 238.0	93	Np (237)	94	Pu (242)	95	Am (243)	96	Cm (247)	97	Bk (247)	98	Cf (251)	99	Es (252)	100	Fm (257)	101	Md (258)	102	No (259)	103	Lr (260)

## The Elements

Name	Symbol	Atomic Number	Atomic Mass*	Name	Symbol	Atomic Number	Atomic Mass*
Actinium	Ac	89	(227)	Mercury	Hg	80	200.6
Aluminum	Al	13	26.98	Molybdenum	Mo	42	95.94
Americium	Am	95	(243)	Neodymium	Nd	60	144.2
Antimony	Sb	51	121.8	Neon	Ne	10	20.18
Argon	Ar	18	39.95	Neptunium	Np	93	(244)
Arsenic	As	33	74.92	Nickel	Ni	28	58.70
Astatine	At	85	(210)	Niobium	Nb	41	92.91
Barium	Ba	56	137.3	Nitrogen	N	7	14.01
Berkelium	Bk	97	(247)	Nobelium	No	102	(253)
Beryllium	Be	4	9.012	Osmium	Os	76	190.2
Bismuth	Bi	83	209.0	Oxygen	O	8	16.00
Bohrium	Bh	107	(267)	Palladium	Pd	46	106.4
Boron	B	5	10.81	Phosphorus	P	15	30.97
Bromine	Br	35	79.90	Platinum	Pt	78	195.1
Cadmium	Cd	48	112.4	Plutonium	Pu	94	(242)
Calcium	Ca	20	40.08	Polonium	Po	84	(209)
Californium	Cf	98	(249)	Potassium	K	19	39.10
Carbon	C	6	12.01	Praseodymium	Pr	59	140.9
Cerium	Ce	58	140.1	Promethium	Pm	61	(145)
Cesium	Cs	55	132.9	Protactinium	Pa	91	(231)
Chlorine	Cl	17	35.45	Radium	Ra	88	(226)
Chromium	Cr	24	52.00	Radon	Rn	86	(222)
Cobalt	Co	27	58.93	Rhenium	Re	75	186.2
Copernicium	Cn	112	(285)	Rhodium	Rh	45	102.9
Copper	Cu	29	63.55	Roentgenium	Rg	111	(272)
Curium	Cm	96	(247)	Rubidium	Rb	37	85.47
Darmstadtium	Ds	110	(281)	Ruthenium	Ru	44	101.1
Dubnium	Db	105	(262)	Rutherfordium	Rf	104	(263)
Dysprosium	Dy	66	162.5	Samarium	Sm	62	150.4
Einsteinium	Es	99	(254)	Scandium	Sc	21	44.96
Erbium	Er	68	167.3	Seaborgium	Sg	106	(266)
Europium	Eu	63	152.0	Selenium	Se	34	78.96
Fermium	Fm	100	(253)	Silicon	Si	14	28.09
Fluorine	F	9	19.00	Silver	Ag	47	107.9
Francium	Fr	87	(223)	Sodium	Na	11	22.99
Gadolinium	Gd	64	157.3	Strontium	Sr	38	87.62
Gallium	Ga	31	69.72	Sulfur	S	16	32.07
Germanium	Ge	32	72.61	Tantalum	Ta	73	180.9
Gold	Au	79	197.0	Technetium	Tc	43	(98)
Hafnium	Hf	72	178.5	Tellurium	Te	52	127.6
Hassium	Hs	108	(277)	Terbium	Tb	65	158.9
Helium	He	2	4.003	Thallium	Tl	81	204.4
Holmium	Ho	67	164.9	Thorium	Th	90	232.0
Hydrogen	H	1	1.008	Thulium	Tm	69	168.9
Indium	In	49	114.8	Tin	Sn	50	118.7
Iodine	I	53	126.9	Titanium	Ti	22	47.88
Iridium	Ir	77	192.2	Tungsten	W	74	183.9
Iron	Fe	26	55.85	Uranium	U	92	238.0
Krypton	Kr	36	83.80	Vanadium	V	23	50.94
Lanthanum	La	57	138.9	Xenon	Xe	54	131.3
Lawrencium	Lr	103	(257)	Ytterbium	Yb	70	173.0
Lead	Pb	82	207.2	Yttrium	Y	39	88.91
Lithium	Li	3	6.941	Zinc	Zn	30	65.41
Lutetium	Lu	71	175.0	Zirconium	Zr	40	91.22
Magnesium	Mg	12	24.31			113**	(284)
Manganese	Mn	25	54.94			114	(289)
Meitnerium	Mt	109	(268)			115	(288)
Mendelevium	Md	101	(256)			116	(292)
						118	(294)

\*All atomic masses are given to four significant figures (also see the footnote on p. 45). Values in parentheses represent the mass number of the most stable isotope.  
 \*\*The names and symbols for elements 113 through 116 and 118 have not yet been chosen.