

Blocks in Periodic Table

Element Block

An element block is a set of elements located in adjacent element groups. Charles Janet first applied the term (in French). The block names (s, p, d, f) originated from descriptions of spectroscopic lines of atomic orbitals: sharp, principal, diffuse, and fundamental. No g-block elements have been observed to date, but the letter was chosen because it is next in alphabetical order after f.

Group →	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
↓ Period																			
1	1 H																	2 He	
2	3 Li	4 Be											5 B	6 C	7 N	8 O	9 F	10 Ne	
3	11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 Cl	18 Ar	
4	19 K	20 Ca	21 Sc		22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	31 Ga	32 Ge	33 As	34 Se	35 Br	36 Kr
5	37 Rb	38 Sr	39 Y		40 Zr	41 Nb	42 Mo	43 Tc	44 Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	54 Xe
6	55 Cs	56 Ba	57 La	*	72 Hf	73 Ta	74 W	75 Re	76 Os	77 Ir	78 Pt	79 Au	80 Hg	81 Tl	82 Pb	83 Bi	84 Po	85 At	86 Rn
7	87 Fr	88 Ra	89 Ac	**	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
				*	58 Ce	59 Pr	60 Nd	61 Pm	62 Sm	63 Eu	64 Gd	65 Tb	66 Dy	67 Ho	68 Er	69 Tm	70 Yb	71 Lu	
			**		90 Th	91 Pa	92 U	93 Np	94 Pu	95 Am	96 Cm	97 Bk	98 Cf	99 Es	100 Fm	101 Md	102 No	103 Lr	

s-block p-block d-block f-block Background color shows the block of the periodic table

Block in Periodic Table – Elements in Each Block

Element blocks are named for their characteristic orbital, which is determined by the highest energy electrons:

S-block: The first two groups of the periodic table, the s-block metals:

Are either alkali metals or alkaline earth metals.

Are soft and have low melting points.

Are electropositive and chemically active.

P-block: P-block elements include the last six element groups of the periodic table, excluding helium.

The p-block elements include all of the nonmetals except for hydrogen and helium, the semimetals, and the post-transition metals. P-block elements:

Include carbon, nitrogen, oxygen, sulfur, halogens, and many other common elements.

Interact with other chemicals by losing, gaining, or sharing the valence electrons.

Mostly form covalent compounds (though the halogens form ionic compounds with s-block metals).

D-block: D-block elements are transition metals of element groups 3-12. D-Block elements:

Have valence electrons in their two outermost shells.

D-block elements behave in a manner that is somewhere between that of highly reactive electropositive alkali metals and the covalent compound forming elements (which is why they are called "transition elements").

Have high melting and boiling points.

Typically form colored salts.

Are generally good catalysts.

V·T·E																		Periodic table (Large cells)										[hide]				
1	2	3													4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
1	H																										He					
2	Li	Be																							B	C	N	O	F	Ne		
3	Na	Mg																							Al	Si	P	S	Cl	Ar		
4	K	Ca	Sc													Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr		
5	Rb	Sr	Y													Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe		
6	Cs	Ba	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
7	Fr	Ra	Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Nh	Fl	Mc	Lv	Ts	Og

Alkali metal	Alkaline earth metal	Lanthanide	Actinide	Transition metal	Post-transition metal	Metalloid	Reactive nonmetal	Noble gas	Unknown chemical properties
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F-block: Inner transition elements, usually the lanthanide and actinide series, including lanthanum and actinium. These elements are metals which have:

High melting points.

Variable oxidation states.

The ability to form colored salts.

G-block (proposed): G-block would be expected to include elements with atomic numbers higher than 118.

