



presenting ...

# Metals, Nonmetals, and Metalloids

**Metals:** list two facts

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A periodic table where elements are color-coded: red for metals, blue for nonmetals, and black for metalloids. The metalloids form a diagonal line from Boron (B) to Astatine (At). The lanthanide and actinide series are shown in red below the main table.

**Nonmetals:** list two facts

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**Metalloids:** list two facts

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Label Metals, Nonmetals, and Metalloids on this periodic table:

A blank periodic table with a grid of colored squares. The first two columns are orange, the rest of the main body is green, and the transition metal block (columns 13-18) is purple. Three empty boxes with arrows point to the top-left, the middle-right, and the bottom-right areas of the table.



presenting the ...

# Alkali Metal Family

PERIODIC CHART OF THE ELEMENTS

IA	IIA	IIIB	IVB	VB	VIB	VIIIB	VIII	IB	IIB	IIIA	IVA	VA	VIA	VIIA	VIIIA	INERT GASES	
1	2											1	2				
H	He											H	He				
3	4											5	6	7	8	9	10
Li	Be											B	C	N	O	F	Ne
6.941	9.0122											10.811	12.0112	14.0067	15.9994	18.9984	20.183
11	12											13	14	15	16	17	18
Na	Mg											Al	Si	P	S	Cl	Ar
22.990	24.372											26.9815	28.086	30.9738	32.06	35.453	39.948
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
39.102	40.08	44.956	47.90	50.942	51.996	54.938	55.847	58.9332	58.71	63.54	65.37	69.72	72.56	74.9216	78.96	79.904	83.80
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
85.47	87.62	88.905	91.22	92.906	95.94	(95)	101.07	102.905	106.9	107.87	112.40	114.82	118.71	121.75	127.60	126.904	131.30
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
132.90	137.34	138.91	178.49	180.948	183.85	186.2	190.2	192.2	195.09	196.967	200.59	204.37	207.19	208.980	(210)	(210)	(222)
87	88	89	104	105	106	107	108	109	110	111	112						
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	?	?	?						
(223)	(226)	(227)	(261)	(262)	(263)	(264)	(265)	(266)	(271)	(272)	(273)						

Write at least one **FACT** and one **USE** for each element.

3	6.941	Li	Lithium
11	22.990	Na	Sodium
19	39.098	K	Potassium
37	85.468	Rb	Rubidium
55	132.91	Cs	Cesium
87	(223)	Fr	Francium

Facts about the <i>Alkali Metal Family</i> .													
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**Pick one Demonstration:** write a brief description of what you observed and include a balanced chemical equation from the presentation, from Google, equation calculator, or balance it yourself).

presenting the ...

# Alkaline Earth Metal Family

Write at least one **FACT** and one **USE** for *each element*.

**PERIODIC CHART OF THE ELEMENTS**

1A	2A	3A	4A	5A	6A	7A	8A	9A	10A	11A	12A
1	2	3	4	5	6	7	8	9	10	11	12
H	He										
1.00794	4.00260										
3	4			5	6	7	8	9	10		
Li	Be			B	C	N	O	F	Ne		
6.941	9.0122			10.811	12.0112	14.0067	15.9994	18.9984	20.1898		
11	12			13	14	15	16	17	18		
Na	Mg			Al	Si	P	S	Cl	Ar		
22.98976928	24.304			26.9815385	28.0855	30.973761998	32.065	35.453	39.948		
19	20	21	22	23	24	25	26	27	28	29	30
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn
39.0983	40.078	44.955912	47.88	50.9415	51.9961	54.938045	55.845	58.933195	58.6934	63.546	65.38
37	38	39	40	41	42	43	44	45	46	47	48
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd
85.4678	87.62	88.90584	91.224	92.90638	95.94	(98)	101.07	102.9055	106.4	107.8682	112.404
55	56	57	72	73	74	75	76	77	78	79	80
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg
132.90545196	137.327	138.90471	178.49	180.94788	183.85	186.207	190.23	192.222	195.084	196.966569	200.59
87	88	89	104	105	106	107	108	109	110	111	112
Fr	Ra	Ac	Rf	Db	Sg	Bh	Hs	Mt	?	?	?
(223)	(226)	(227)	(261)	(262)	(263)	(264)	(265)	(266)	(271)	(272)	(277)

Numbers in parentheses are mass numbers of most stable or most common isotope.  
Atomic weights corrected to conform to the 1963 values of the Commission on Atomic Weights.  
The group designations used here are the former Chemical Abstract Service numbers.

4	9.0122	<b>Be</b> Beryllium
12	24.305	<b>Mg</b> Magnesium
20	40.078	<b>Ca</b> Calcium
38	87.62	<b>Sr</b> Strontium
56	137.33	<b>Ba</b> Barium
88	(226)	<b>Ra</b> Radium

**Facts about the Alkaline Earth Metal Family.**

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**Pick one Demonstration:** write a brief description of what you observed and include a balanced chemical equation from the presentation, from Google, equation calculator, or balance it yourself).

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# Carbon Family

Write at least one **FACT** and one **USE** for *each element*.

PERIODIC CHART OF THE ELEMENTS

IA	IIA	IIIB	IVB	VB	VIB	VIIIB	VIII	IB	IIB	IIIA	IVA	VA	VIA	VIIA	INERT GASES		
1	2											1	2				
H 1.00797	He 4.0026											H 1.00797	He 4.0026				
3	4											5	6	7	8	9	10
Li 6.939	Be 9.0122											B 10.811	C 12.0112	N 14.0067	O 15.9994	F 18.9984	Ne 20.183
11	12											13	14	15	16	17	18
Na 22.98976	Mg 24.304											Al 26.981538	Si 28.0855	P 30.97376	S 32.06	Cl 35.453	Ar 39.948
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
K 39.0983	Ca 40.078	Sc 44.95591	Ti 47.88	V 50.9415	Cr 51.9961	Mn 54.93804	Fe 55.845	Co 58.93319	Ni 58.71	Cu 63.546	Zn 65.38	Ga 69.723	Ge 72.630	As 74.9216	Se 78.96	Br 79.904	Kr 83.80
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Rb 85.4678	Sr 87.62	Y 88.90584	Zr 91.224	Nb 92.90638	Mo 95.94	Tc (98)	Ru 101.07	Rh 102.9055	Pd 106.42	Ag 107.8682	Cd 112.4118	In 114.818	Sn 118.710	Sb 121.757	Te 127.60	I 126.90547	Xe 131.29
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
Cs 132.90545	Ba 137.327	La 138.90487	Hf 178.49	Ta 180.94788	W 183.84	Re 186.207	Os 190.23	Ir 192.222	Pt 195.084	Au 196.96657	Hg 200.59	Tl 204.3833	Pb 207.2	Bi 208.9804	Po (209)	At (210)	Rn (222)
87	88	89	104	105	106	107	108	109	110	111	112						
Fr (223)	Ra (226)	Ac (227)	Rf (261)	Db (262)	Sg (263)	Bh (264)	Hs (265)	Mt (266)	?	?	?						

Numbers in parenthesis are mass numbers of most stable or most common isotopes.  
Atomic weights corrected to conform to the 1963 values of the Commission on Atomic Weights.  
The group designations used here are the former Chemical Abstract Service numbers.

Lanthanide Series:  
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  
140.12 140.907 144.24 (147) 150.35 151.96 157.25 158.924 162.50 164.930 167.26 168.934 173.04 174.967

Actinide Series:  
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  
232.038 (231) 238.03 (237) (242) (243) (247) (247) (249) (254) (259) (263) (263) (267)

6	12.011	C	Carbon
14	28.086	Si	Silicon
32	72.64	Ge	Germanium
50	118.71	Sn	Tin
82	207.2	Pb	Lead
114	(289)	Uuq	Ununquadium

Google this one

Facts about *the Carbon Family*:

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**Pick one Demonstration:** write a brief description of what you observed and include a balanced chemical equation from the presentation, from Google, equation calculator, or balance it yourself).

# Presenting the ... Nitrogen Family



PERIODIC CHART OF THE ELEMENTS

IA	IIA	IIIB	IVB	VB	VIB	VII B	VIII	IB	IIB	IIIA	IVA	VA	VIA	VIIA	INERT GASES				
1	2											3	4	5	6	7	8	9	10
H 1.00797	He 4.0026											B 10.811	C 12.011	N 14.0067	O 15.9994	F 18.9984	Ne 20.183		
3	4											11	12	13	14	15	16	17	18
Li 6.939	Be 9.0122											Al 26.9815	Si 28.086	P 30.9738	S 32.06	Cl 35.453	Ar 39.948		
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
K 39.102	Ca 40.08	Sc 44.956	Ti 47.88	V 50.942	Cr 51.996	Mn 54.938	Fe 55.947	Co 58.9332	Ni 58.71	Cu 63.54	Zn 65.37	Ga 69.72	Ge 72.59	As 74.9216	Se 78.96	Br 79.909	Kr 83.80		
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54		
Rb 85.47	Sr 87.62	Y 88.905	Zr 91.22	Nb 92.906	Mo 95.94	Tc (99)	Ru 101.07	Rh 102.905	Pd 106.4	Ag 107.870	Cd 112.40	In 114.82	Sn 118.710	Sb 121.75	Te 127.60	I 126.904	Xe 131.30		
55	56	*57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86		
Cs 132.905	Ba 137.34	La 138.91	Hf 178.49	Ta 180.948	W 183.85	Re 186.2	Os 190.2	Ir 192.22	Pt 195.08	Au 196.967	Hg 200.59	Tl 204.37	Pb 207.19	Bi 208.980	Po (210)	At (210)	Rn (222)		
87	88	89	104	105	106	107	108	109	110	111	112								
Fr (223)	Ra (226)	Ac (227)	Rf (261)	Db (262)	Sg (263)	Bh (264)	Hs (265)	Mt (266)	? (271)	? (272)	? (277)								

Numbers in parenthesis are mass numbers of most stable or most common isotope.  
Atomic weights corrected to conform to the 1963 values of the Commission on Atomic Weights.  
\* Lanthanide Series  
† Actinide Series  
The group designations used here are the former Chemical Abstract Service numbers.

Write at least one **FACT** and one **USE** for each element.

7	14.007	N	Nitrogen
15	30.974	P	Phosphorus
33	74.922	As	Arsenic
51	121.76	Sb	Antimony
83	208.98	Bi	Bismuth
115	(288)	Uup	Ununpentium

Google this one

Facts about *the Nitrogen Family*.

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**Pick one Demonstration:** write a brief description of what you observed and include a balanced chemical equation from the presentation, from Google, equation calculator, or balance it yourself).

# presenting the ... Oxygen Family

Write at least one **FACT** and one **USE** for *each element*:

PERIODIC CHART OF THE ELEMENTS

IA	IIA	IIIB	IVB	VB	VIB	VII B	VIII	IB	IIB	IIIA	IVA	VA	VIA	VIIA	INERT GASES				
1	2													1	2				
H 1.00797														H 1.00797	He 4.0026				
3	4													5	6	7	8	9	10
Li 6.939	Be 9.0122													B 10.811	C 12.0112	N 14.0064	O 15.9994	F 18.9984	Ne 20.183
11	12													13	14	15	16	17	18
Na 22.9898	Mg 24.305													Al 26.9815	Si 28.086	P 30.9738	S 32.065	Cl 35.453	Ar 39.948
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
K 39.102	Ca 40.08	Sc 44.956	Ti 47.88	V 50.942	Cr 51.996	Mn 54.938	Fe 55.847	Co 58.933	Ni 58.71	Cu 63.546	Zn 65.38	Ga 69.723	Ge 72.63	As 74.922	Se 78.96	Br 79.904	Kr 83.80		
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54		
Rb 85.47	Sr 87.62	Y 88.905	Zr 91.224	Nb 92.906	Mo 95.94	Tc (98)	Ru 101.07	Rh 102.905	Pd 106.42	Ag 107.868	Cd 112.411	In 114.818	Sn 118.710	Sb 121.757	Te 127.60	I 126.905	Xe 131.29		
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86		
Cs 132.905	Ba 137.33	La 138.905	Hf 178.49	Ta 180.948	W 183.85	Re 186.207	Os 190.23	Ir 192.22	Pt 195.084	Au 196.967	Hg 200.59	Tl 204.387	Pb 207.2	Bi 208.980	Po (209)	At (210)	Rn (222)		
87	88	89	104	105	106	107	108	109	110	111	112								
Fr (223)	Ra (226)	Ac (227)	Rf (261)	Db (262)	Sg (266)	Bh (264)	Hs (265)	Mt (266)	?	?	?								

Numbers in parenthesis are mass numbers of most stable or most common isotope.  
 Atomic weights corrected to conform to the 1963 values of the Commission on Atomic Weights.  
 The group designations used here are the former Chemical Abstract Service numbers.

8	15.999	O	Oxygen
16	32.065	S	Sulphur
34	78.96	Se	Selenium
52	127.60	Te	Tellurium
84	(209)	Po	Polonium
116	(293)	Uuh	Ununhexium

Google this one

Facts about *the Oxygen Family*.

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**Pick one Demonstration:** write a brief description of what you observed and include a balanced chemical equation from the presentation, from Google, equation calculator, or balance it yourself).



Presenting the ...

# Halogen Family

PERIODIC CHART OF THE ELEMENTS

IA	IIA	IIIB	IVB	VB	VIB	VIIIB	VIII	IB	IIB	IIIA	IVA	VA	VIA	VIIA	VIIIA	INERT GASES			
1 H 1.00794	2 He 4.0026											3 Li 6.939	4 Be 9.0122	5 B 10.811	6 C 12.0112	7 N 14.0067	8 O 15.999	9 F 18.998	10 Ne 20.183
11 Na 22.9898	12 Mg 24.372											13 Al 26.9815	14 Si 28.086	15 P 30.9738	16 S 32.06	17 Cl 35.453	18 Ar 39.948		
19 K 39.102	20 Ca 40.08	21 Sc 44.956	22 Ti 47.88	23 V 50.942	24 Cr 51.996	25 Mn 54.938	26 Fe 55.847	27 Co 58.9332	28 Ni 58.71	29 Cu 63.54	30 Zn 65.37	31 Ga 69.72	32 Ge 72.59	33 As 74.9216	34 Se 78.96	35 Br 79.904	36 Kr 83.80		
37 Rb 85.47	38 Sr 87.62	39 Y 88.905	40 Zr 91.22	41 Nb 92.906	42 Mo 95.94	43 Tc (99)	44 Ru 101.07	45 Rh 102.905	46 Pd 106.4	47 Ag 107.870	48 Cd 112.40	49 In 114.82	50 Sn 118.710	51 Sb 121.75	52 Te 127.6	53 I 126.905	54 Xe 131.30		
55 Cs 132.905	56 Ba 137.34	57 La 138.91	58 Ce 140.12	59 Pr 140.907	60 Nd 144.24	61 Pm (147)	62 Sm 150.35	63 Eu 151.96	64 Gd 157.25	65 Tb 158.924	66 Dy 162.50	67 Ho 164.930	68 Er 167.26	69 Tm 168.934	70 Yb 173.04	71 Lu 174.967			
87 Fr (223)	88 Ra (226)	89 Ac (227)	90 Th (232)	91 Pa (231)	92 U (238.03)	93 Np (237)	94 Pu (242)	95 Am (243)	96 Cm (247)	97 Bk (247)	98 Cf (249)	99 Es (254)	100 Fm (253)	101 Md (258)	102 No (259)	103 Lr (261)			

Numbers in parenthesis are mass numbers of most stable or most common isotope.  
 Atomic weights corrected to conform to the 1993 values of the Commission on Atomic Weights.  
 The group designations used here are the former Chemical Abstract Service numbers.  
 \* Lanthanide Series  
 † Actinide Series

Write at least one FACT and one USE for each element.

9	18.998	F	Fluorine
17	35.453	Cl	Chlorine
35	79.904	Br	Bromine
53	126.90	I	Iodine
85	(210)	At	Astatine
117	?????	Uus	Ununseptium

Google this one

Facts about the Halogen Family:

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Pick one Demonstration: write a brief description of what you observed and include a balanced chemical equation from the presentation, from Google, equation calculator, or balance it yourself).

# presenting the ... Noble Gases

Write at least one **FACT** and one **USE** for *each element*.

2	4.0026	He	Helium
10	20.180	Ne	Neon
18	39.848	Ar	Argon
36	83.798	Kr	Krypton
54	131.29	Xe	Xenon
86	(222)	Rn	Radon
118	(294)	Uuo	Ununoctium

Google this one

PERIODIC CHART OF THE ELEMENTS

IA	IIA	IIIB	IVB	VB	VIB	VII B	VIII	IB	IIB	IIIA	IVA	VA	VIA	VIIA	VIIIA	INERT GASES	
1	2											1	2				
H 1.00797	He 4.0026											H 1.00797	He 4.0026				
3	4											5	6	7	8	9	10
Li 6.939	Be 9.0122											B 10.811	C 12.0112	N 14.0067	O 15.9994	F 18.998	Ne 20.183
11	12											13	14	15	16	17	18
Na 22.9897	Mg 24.305											Al 26.9815	Si 28.086	P 30.9738	S 32.064	Cl 35.45	Ar 39.948
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
K 39.102	Ca 40.08	Sc 44.956	Ti 47.88	V 50.942	Cr 51.996	Mn 54.938	Fe 55.847	Co 58.9332	Ni 58.71	Cu 63.54	Zn 65.37	Ga 69.72	Ge 72.59	As 74.9216	Se 78.96	Br 79.90	Kr 83.80
37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
Rb 85.47	Sr 87.62	Y 88.905	Zr 91.22	Nb 92.906	Mo 95.94	Tc (98)	Ru 101.07	Rh 102.905	Pd 106.4	Ag 107.870	Cd 112.40	In 114.82	Sn 118.69	Sb 121.75	Te 127.60	I 126.90	Xe 131.30
55	56	57	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
Cs 132.905	Ba 137.34	La 138.91	Hf 178.49	Ta 180.948	W 183.85	Re 186.2	Os 190.2	Ir 192.22	Pt 195.08	Au 196.967	Hg 200.59	Tl 204.37	Pb 207.19	Bi 208.980	Po (210)	At (210)	Rn (222)
87	88	89	104	105	106	107	108	109	110	111	112						
Fr (223)	Ra (226)	Ac (227)	Rf (261)	Db (262)	Sg (263)	Bh (264)	Hs (265)	Mt (268)	?	?	?						

Numbers in parenthesis are mass numbers of most stable or most common isotopes.  
Atomic weights corrected to conform to the 1963 values of the Commission on Atomic Weights.  
The group designations used here are the former Chemical Abstract Service numbers.

\* Lanthanide Series

58	59	60	61	62	63	64	65	66	67	68	69	70	71
Ce 140.12	Pr 140.907	Nd 144.24	Pm (147)	Sm 150.35	Eu 151.96	Gd 157.25	Tb 158.924	Dy 162.50	Ho 164.930	Er 167.26	Tm 168.934	Yb 173.04	Lu 174.97

† Actinide Series

90	91	92	93	94	95	96	97	98	99	100	101	102	103
Th 232.038	Pa (231)	U 238.03	Np (237)	Pu (242)	Am (243)	Cm (247)	Bk (247)	Cf (249)	Es (254)	Fm (253)	Md (258)	No (259)	Lr (260)

Facts about *the Noble Gases*:

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**Pick one Demonstration:** write a brief description of what you observed and include a balanced chemical equation from the presentation, from Google, equation calculator, or balance it yourself).