

**Get out a Formula
sheet!!**

...and prepare for a 4!!

¹⁺¹
^A
 PE
⁺²
²
^{2A}
³
⁴
^{Li}
^{Lithium}
^{6.941}
¹
^H
^{Hydrogen}
^{1.008}
²
^{2A}
³
⁴
^{Be}
^{Beryllium}
^{9.012}
¹¹
^{Na}
^{Sodium}
^{22.99}
¹²
^{Mg}
^{Magnesium}
^{24.31}
³
^{3B}
⁴
^{4B}
⁵
^{5B}
⁶
^{6B}
⁷
^{7B}
⁸
^{8B}
⁹
^{9B}
¹⁰
^{10B}
¹¹
^{11B}
¹²
^{12B}
¹³
^{13A}
¹⁴
^{4A}
¹⁵
^{5A}
¹⁶
^{6A}
¹⁷
^{7A}
⁵
^{Boron}
^{10.81}
⁶
^{Carbon}
^{12.01}
⁷
^{Nitrogen}
^{14.01}
⁸
^{Oxygen}
^{16.00}
⁹
^{Fluorine}
^{19.00}
¹⁰
^{Neon}
^{20.18}
¹⁸
^{He}
^{Helium}
^{4.003}
¹⁹
^K
^{Potassium}
^{39.10}
²⁰
^{Ca}
^{Calcium}
^{40.08}
²¹
^{Sc}
^{Scandium}
^{44.96}
²²
^{Ti}
^{Titanium}
^{47.88}
²³
^V
^{Vanadium}
^{50.94}
²⁴
^{Cr}
^{Chromium}
^{52.00}
²⁵
^{Mn}
^{Manganese}
^{54.94}
²⁶
^{Fe}
^{Iron}
^{55.85}
²⁷
^{Co}
^{Cobalt}
^{58.93}
²⁸
^{Ni}
^{Nickel}
^{58.69}
²⁹
^{Cu}
^{Copper}
^{63.55}
³⁰
^{Zn}
^{Zinc}
^{65.39}
³¹
^{Ga}
^{Gallium}
^{69.72}
³²
^{Ge}
^{Germanium}
^{72.61}
³³
^{As}
^{Arsenic}
^{74.92}
³⁴
^{Se}
^{Selenium}
^{78.96}
³⁵
^{Br}
^{Bromine}
^{79.90}
³⁶
^{Kr}
^{Krypton}
^{83.80}
³⁷
^{Rb}
^{Rubidium}
^{85.47}
³⁸
^{Sr}
^{Strontrium}
^{87.62}
³⁹
^Y
^{Yttrium}
^{88.91}
⁴⁰
^{Zr}
^{Zirconium}
^{91.22}
⁴¹
^{Nb}
^{Niobium}
^{92.91}
⁴²
^{Mo}
^{Molybdenum}
^{95.94}
⁴³
^{Tc}
^{Ruthenium}
⁽⁹⁸⁾
⁴⁴
^{Ru}
^{Ruthenium}
^{101.1}
⁴⁵
^{Rh}
^{Rhodium}
^{102.9}
⁴⁶
^{Pd}
^{Palladium}
^{106.4}
⁴⁷
^{Ag}
^{Silver}
^{107.9}
⁴⁸
^{Cd}
^{Cadmium}
^{112.4}
⁴⁹
^{In}
^{Indium}
^{114.8}
⁵⁰
^{Sn}
^{Tin}
^{118.7}
⁵¹
^{Sb}
^{Antimony}
^{121.8}
⁵²
^{Te}
^{Tellurium}
^{127.6}
⁵³
^I
^{Iodine}
^{126.9}
⁵⁴
^{Xe}
^{Xenon}
^{131.3}
⁵⁵
^{Cs}
^{Ceasium}
^{132.}
⁵⁶
^{Ba}
^{Barium}
^{137.}
⁵⁷
^{La}
^{Lanthanum}
^{138.}
⁵⁸
^{Hf}
^{Hafnium}
^{178.}
⁵⁹
^{Ta}
^{Tantalum}
^{181.0}
⁶⁰
^W
^{Tungsten}
^{183.8}
⁶¹
^{Re}
^{Rhenium}
^{186.}
⁶²
^{Os}
^{Osmium}
^{190.2}
⁶³
^{Ir}
^{Iridium}
^{192.22}
⁶⁴
^{Pt}
^{Platinum}
^{195.08}
⁶⁵
^{Au}
^{Gold}
^{196.96}
⁶⁶
^{Hg}
^{Mercury}
^{200.59}
⁶⁷
^{Tl}
^{Thallium}
^{204.36}
⁶⁸
^{Pb}
^{Lead}
^{207.2}
⁶⁹
^{Bi}
^{Bismuth}
^{208.98}
⁷⁰
^{Po}
^{Poison}
⁽²⁰⁹⁾
⁷¹
^{At}
^{Astatine}
⁽²¹⁰⁾
⁷²
^{Rn}
^{Radon}
⁽²²²⁾
⁷³
^{Ce}
^{Cerium}
^{140.1}
⁷⁴
^{Pr}
^{Praseodymium}
^{140.9}
⁷⁵
Nd
^{Neodymium}
^{144.2}
⁷⁶
^{Pm}
^{Promethium}
⁽¹⁴⁵⁾
⁷⁷
Sm
^{Samarium}
^{150.4}
⁷⁸
^{Eu}
^{Europium}
^{152.0}
⁷⁹
^{Gd}
^{Gadolinium}
^{157.3}
⁸⁰
^{Tb}
^{Terbium}
^{158.9}
⁸¹
^{Dy}
^{Dysprosium}
^{162.5}
⁸²
^{Ho}
^{Holmium}
^{164.9}
⁸³
^{Er}
^{Erbium}
^{167.3}
⁸⁴
Tm
^{Thulium}
^{168.9}
⁸⁵
^{Yb}
^{Ytterbium}
^{173.0}
⁸⁶
^{Lu}
^{Lutetium}
^{175.0}
⁸⁷
Th
^{Thorium}
^{232.0}
⁸⁸
^{Pa}
^{Protactinium}
^{231.0}
⁸⁹
^U
^{Uranium}
^{238.0}
⁹⁰
^{Np}
^{Neptunium}
^{237.0}
⁹¹
^{Pu}
^{Plutonium}
⁽²⁴⁴⁾
⁹²
^{Am}
^{Americium}
⁽²⁴³⁾
⁹³
^{Cm}
^{Curium}
⁽²⁴⁷⁾
⁹⁴
^{Bk}
^{Berkelium}
⁽²⁴⁷⁾
⁹⁵
^{Cf}
^{Californium}
⁽²⁵¹⁾
⁹⁶
^{Es}
^{Einsteinium}
⁽²⁵²⁾
⁹⁷
^{Fm}
^{Fermium}
⁽²⁵⁷⁾
⁹⁸
^{Md}
^{Mendelevium}
⁽²⁵⁸⁾
⁹⁹
^{No}
^{Nobelium}
⁽²⁵⁹⁾
¹⁰⁰
^{Lr}
^{Lawrencium}
⁽²⁶²⁾

Bond types

PERIODIC TABLE OF THE ELEMENTS

$N + N \rightarrow C$

$M + N \rightarrow I$

$TM + NY^+ \rightarrow M$

1. How are potassium atoms and calcium atoms similar?

- A same number of valence electrons
 B same oxidation number
 C same number of protons
 D same number of energy levels

PERIODIC TABLE OF THE ELEMENTS

Periodic Table of the Elements																	
1 IA		2 IA															
1 H Hydrogen 1.008	2 He Helium 4.003	3 Li Lithium 6.941	4 Be Beryllium 9.012	5 B Boron 10.81	6 C Carbon 12.01	7 N Nitrogen 14.01	8 O Oxygen 16.00	9 F Fluorine 19.00	10 Ne Neon 20.18	11 Na Sodium 22.99	12 Mg Magnesium 24.31	13 Al Aluminum 26.98	14 Si Silicon 28.09	15 P Phosphorus 30.97	16 S Sulfur 32.07	17 Cl Chlorine 35.45	18 Ar Argon 39.95
19 K Potassium 39.09	20 Ca Calcium 40.08	21 Sc Scandium 44.96	22 Ti Titanium 47.88	23 V Vanadium 50.94	24 Cr Chromium 52.00	25 Mn Manganese 54.94	26 Fe Iron 55.85	27 Co Cobalt 58.93	28 Ni Nickel 58.69	29 Cu Copper 63.55	30 Zn Zinc 65.39	31 Ga Gallium 69.72	32 Ge Germanium 72.61	33 As Arsenic 74.92	34 Se Selenium 78.96	35 Br Bromine 79.90	36 Kr Krypton 83.80
37 Rb Rubidium 85.47	38 Sr Strontium 87.62	39 Y Yttrium 88.91	40 Zr Zirconium 91.22	41 Nb Niobium 93.91	42 Mo Molybdenum 95.94	43 Tc Technetium (98)	44 Ru Ruthenium 101.1	45 Rh Rhodium 102.9	46 Pd Palladium 106.4	47 Ag Silver 107.9	48 Cd Cadmium 112.4	49 In Indium 114.8	50 Sn Tin 118.7	51 Sb Antimony 121.8	52 Te Tellurium 127.6	53 I Iodine 126.9	54 Xe Xenon 131.3
55 Cs Cesium 132.9	56 Ba Barium 137.3	57 La Lanthanum 138.9	58 Hf Hafnium 178.	59 Tm Thulium 161.0	60 W Tungsten 183.8	61 Re Rhenium 166.	62 Os Osmium 190.2	63 Ir Iridium 192.22	64 Pt Platinum 195.08	65 Au Gold 196.96	66 Hg Mercury 200.59	67 Tl Thallium 204.38	68 Pb Lead 207.2	69 Bi Bismuth 208.98	70 Po Polonium (209)	71 At Astatine (210)	72 Rn Radon (222)
87 Fr Francium (223)	88 Ra Radium 226.0	89 Ac Actinium 227.0	104 Rf Rutherfordium (261)	105 Db Dubnium (262)	106 Ng Nobelium (263)	107 Bh Berkelium (264)	108 Hs Hassium (265)	109 Mt Meitnerium (266)	110 Uus Ununtrium (267)	111 Uuu Ununpentium (268)	112 Uus Ununhexium (269)						

54 Ca Cerium- 140.1	59 Fe Praseodymium- 140.9	60 Nd Neodymium- 144.2	61 Pm Promethium- 145.0	62 Sm Samarium- 150.4	63 Eu Europium- 152.0	64 Gd Gadolinium- 157.9	65 Tb Terbium- 158.9	66 Dy Dysprosium- (160.5)	67 Ho Holmium- 164.9	68 Er Erbium- 167.8	69 Tm Thulium- 168.9	70 Yb Ytterbium- 172.0	71 Lu Lutetium- 175.0
90 Tb Thulium- 168.0	91 Pa Protactinium- 231.0	92 U Uranium- 238.0	93 Np Neptunium- 237.0	94 Pu Plutonium- (244)	95 Am Americium- (243)	96 Cm Curium- (247)	97 Bk Berkelium- (247)	98 Cf Californium- (251)	99 Es Einsteinium- (252)	100 Fm Fermium- (257)	101 Md Mendelevium- (258)	102 No Neptunium- (259)	103 Lr Lawrencium- (260)

2. An element on the far left side of the periodic table will have what property? C

~~A~~ a tendency to avoid reactions

~~P~~ a tendency to share electrons when reacting

C a tendency to gain electrons when reacting

D ~~a~~ tendency to lose electrons when reacting

2

3+

$$\frac{3}{0} \quad \frac{2}{+1}$$

-2-

PERIODIC TABLE OF THE ELEMENTS

3. Which elements would ***most likely*** react with Group 2 (2A) metals?

~~A alkali metals~~

~~B halogens~~

~~C noble gases~~

~~D transition metals~~

PERIODIC TABLE OF THE ELEMENTS

4

1 H Hydrogen 1.008	2 He Helium 4.003	3 Li Lithium 6.941	4 Be Boron 9.012	5 B Boron 10.81	6 C Carbon 12.01	7 N Nitrogen 14.01	8 O Oxygen 16.00	9 F Fluorine 19.00	10 Ne Neon 20.18
11 Na Sodium 22.99	12 Mg Magnesium 24.31	13 Al Aluminum 26.98	14 Si Silicon 28.09	15 P Phosphorus 30.97	16 S Sulfur 32.07	17 Cl Chlorine 35.45	18 Ar Argon 39.95		
19 K Potassium 39.10	20 Ca Calcium 40.08	21 Sc Scandium 44.96	22 Ti Titanium 47.88	23 V Vanadium 50.94	24 Cr Chromium 52.00	25 Mn Manganese 54.94	26 Fe Iron 55.85	27 Co Cobalt 58.93	28 Ni Nickel 58.69
37 Rb Rubidium 85.43	38 Sr Strontium 87.62	39 Y Yttrium 88.93	40 Zr Zirconium 91.22	41 Nb Niobium 92.91	42 Mo Molybdenum 95.94	43 Tc Technetium (98)	44 Ru Ruthenium 101.1	45 Rh Rhodium 102.9	46 Pd Palladium 106.4
55 Cs Cesium 132.9	56 Ba Barium 137.3	57 La Lanthanum 138.9	58 Hf Hafnium 178.0	59 Ta Tantalum 181.0	60 W Tungsten 183.8	61 Re Rhenium 190.2	62 Os Osmium 190.2	63 Ir Iridium 192.22	64 Pt Platinum 195.08
87 Fr Francium 223.0	88 Ra Radium 226.0	89 Ac Actinium 227.0	104 Rf Rutherfordium (262)	105 Db Dubnium (262)	106 Sg Seaborgium (263)	107 Bh Berkelium (262)	108 Hs Hassium (265)	109 Mt Meitnerium (266)	110 Ds Darmstadtium (269)
88 Cs Cesium 140.1	89 Fr Francium 140.9	90 Nd Neodymium 144.2	91 Pr Praseodymium (145)	92 Sm Samarium 150.4	93 Eu Europium 152.0	94 Gd Gadolinium 157.0	95 Tb Terbium 158.9	96 Dy Dysprosium 162.5	97 Ho Holmium 164.9
90 Tb Thulium 152.0	91 Pa Protactinium 151.0	92 Lu Lutetium 154.0	93 Np Neptunium 154.0	94 Pu Plutonium (154)	95 Am Americium (155)	96 Cm Curium (157)	97 Bk Berkrium (157)	98 Cf Californium (158)	99 Es Einsteinium (158)
101 Md Mendelevium (158)	102 No Neptunium (159)	103 Lr Lawrencium (159)							

4. Which elements are in the same period?

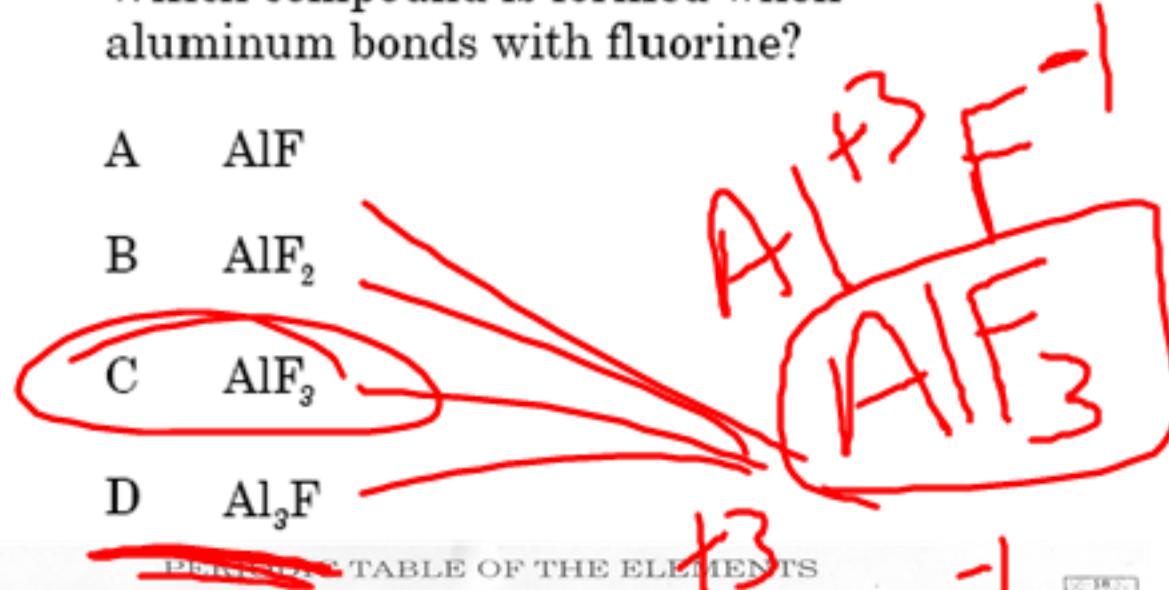
- A lead and sodium
- B oxygen and helium
- C silver and tin**
- D tin and lead

PERIODIC TABLE OF THE ELEMENTS

1A	2A	3A	4A	5A	6A	7A	18A
1 H Hydrogen 1.008	2 He						
3 Li Lithium 6.941	4 Be	Beryllium 9.012					
5 Na Sodium 22.99	6 Mg Magnesium 24.31						
7 Al Aluminum 26.98	8 Si Silicon 28.09	9 P Phosphorus 30.97	10 S Sulfur 32.07	11 Cl Chlorine 35.45	12 Ar Argon 39.95		
13 K Potassium 39.10	14 Ca Calcium 40.08	15 Sc Strontium 44.99	16 Ti Titanium 47.88	17 V Vanadium 50.94	18 Cr Chromium 52.00	19 Mn Manganese 54.94	20 Fe Iron 55.85
21 Rb Rubidium 85.47	22 Sr Strontium 87.62	23 Y YTtrium 88.93	24 Zr Zirconium 91.22	25 Nb Niobium 92.91	26 Mo Molybdenum 95.94	27 Tc Technetium 98.9	28 Ru Ruthenium 101.1
29 Cs Cesium 132.9	30 Ba Barium 137.3	31 La Lanthanum 138.9	32 Hf Hafnium 178.0	33 Ta Tantalum 183.0	34 W Tungsten 183.8	35 Re Rhodium 186.0	36 Os Osmium 190.2
37 At Francium 223.0	38 Ra Radon 226.0	39 Ac Actinium 227.0	40 Fr Radium 226.0	41 Db Darmstadtium 262.0	42 Sg Seaborgium 262.0	43 Bh Bohrium 262.0	44 Hs Hassium 265.0
45 Es Einsteinium 252.0	46 Fm Fermium 250.0	47 Md Mendelevium 253.0	48 No Nobelium 254.0	49 Ts Technetium 253.0	50 Og Oganesson 253.0	51 Rf Rutherfordium 253.0	52 Ts Technetium 253.0
53 Ts Technetium 253.0	54 Xe Xenon 131.3						

55 Cs Cesium 140.1	56 Sr Radium 140.9	57 Nd Praseodymium 144.2	58 Eu Europium 151.9	59 Tb Dysprosium 157.3	60 Dy Holmium 162.5	61 Ho Erbium 164.9	62 Er Thulium 167.3	63 Tm Ytterbium 168.9	64 Yb Lucentium 173.0	65 Lu Lutetium 175.0
66 Gd Gadolinium 157.0	67 Tb Dysprosium 158.0	68 Dy Holmium 162.5	69 Ho Erbium 164.9	70 Er Thulium 167.3	71 Tm Ytterbium 168.9	72 Yb Lucentium 173.0	73 Lu Lutetium 175.0	74 Gd Gadolinium 157.0	75 Tb Dysprosium 158.0	76 Dy Holmium 162.5

5. Which compound is formed when aluminum bonds with fluorine?



~~Periodic~~ TABLE OF THE ELEMENTS

1 IA	2 IA	3 IIA	4 IVA	5 VA	6 VIA	7 VIIA	8 VIIIA	9 VIIIA	10 VIIIA	11 VIIIA	12 VIIIA	13 VIIIA	14 VIIIA	15 VIIIA	16 VIIIA	17 VIIIA	18 VIIIA
H Hydrogen 1.008																	
Li Lithium 6.941																	
Mg Magnesium 24.31																	
Ca Calcium 40.08																	
Sc Scandium 44.96																	
Ti Titanium 47.86																	
V Vanadium 50.94																	
Cr Chromium 51.99																	
Mn Manganese 54.94																	
Fe Iron 55.85																	
Co Cobalt 58.93																	
Ni Nickel 58.69																	
Cu Copper 63.55																	
Zn Zinc 65.39																	
Al Aluminum 26.98																	
Si Silicon 28.09																	
P Phosphorus 30.97																	
S Sulfur 32.07																	
O Oxygen 16.00																	
F Fluorine 18.00																	
Ne Neon 20.18																	
Ar Argon 39.95																	
K Potassium 39.10																	
Ca Calcium 40.08																	
Sc Scandium 44.96																	
Ti Titanium 47.86																	
V Vanadium 50.94																	
Cr Chromium 51.99																	
Mn Manganese 54.94																	
Fe Iron 55.85																	
Co Cobalt 58.93																	
Ni Nickel 58.69																	
Cu Copper 63.55																	
Zn Zinc 65.39																	
Al Aluminum 26.98																	
Si Silicon 28.09																	
P Phosphorus 30.97																	
S Sulfur 32.07																	
O Oxygen 16.00																	
F Fluorine 18.00																	
Ne Neon 20.18																	
Ar Argon 39.95																	
K Potassium 39.10																	
Ca Calcium 40.08																	
Sc Scandium 44.96																	
Ti Titanium 47.86																	
V Vanadium 50.94																	
Cr Chromium 51.99																	
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Fe Iron 55.85																	
Co Cobalt 58.93																	
Ni Nickel 58.69																	
Cu Copper 63.55																	
Zn Zinc 65.39																	
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Si Silicon 28.09																	
P Phosphorus 30.97																	
S Sulfur 32.07																	
O Oxygen 16.00																	
F Fluorine 18.00																	
Ne Neon 20.18																	
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Sc Scandium 44.96																	
Ti Titanium 47.86																	
V Vanadium 50.94																	
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Mn Manganese 54.94																	
Fe Iron 55.85																	
Co Cobalt 58.93																	
Ni Nickel 58.69																	
Cu Copper 63.55																	
Zn Zinc 65.39																	
Al Aluminum 26.98																	
Si Silicon 28.09																	
P Phosphorus 30.97																	
S Sulfur 32.07																	
O Oxygen 16.00																	
F Fluorine 18.00																	
Ne Neon 20.18																	
Ar Argon 39.95																	
K Potassium 39.10																	
Ca Calcium 40.08																	
Sc Scandium 44.96																	
Ti Titanium 47.86																	
V Vanadium 50.94																	
Cr Chromium 51.99																	
Mn Manganese 54.94																	
Fe Iron 55.85																	
Co Cobalt 58.93																	
Ni Nickel 58.69																	
Cu Copper 63.55																	
Zn Zinc 65.39																	
Al Aluminum 26.98																	
Si Silicon 28.09																	
P Phosphorus 30.97																	
S Sulfur 32.07																	
O Oxygen 16.00																	
F Fluorine 18.00																	
Ne Neon 20.18																	
Ar Argon 39.95																	
K Potassium 39.10																	
Ca Calcium 40.08																	
Sc Scandium 44.96																	
Ti Titanium 47.86																	
V Vanadium 50.94																	
Cr Chromium 51.99																	
Mn Manganese 54.94																	
Fe Iron 55.85																	
Co Cobalt 58.93																	
Ni Nickel 58.69																	
Cu Copper 63.55																	
Zn Zinc 65.39																	
Al Aluminum 26.98																	
Si Silicon 28.09																	
P Phosphorus 30.97																	
S Sulfur 32.07																	
O Oxygen 16.00																	
F Fluorine 18.00																	
Ne Neon 20.18																	
Ar Argon 39.95																	
K Potassium 39.10																	
Ca Calcium 40.08																	
Sc Scandium 44.96																	
Ti Titanium 47.86																	
V Vanadium 50.94																	
Cr Chromium 51.99																	
Mn Manganese 54.94																	
Fe Iron 55.85																	
Co Cobalt 58.93																	
Ni Nickel 58.69																	
Cu Copper 63.55																	
Zn Zinc 65.39																	

6. Which pair of elements will most readily form a compound?

~~A Li and Ne~~

~~B Li and F~~

~~C Li and Be~~

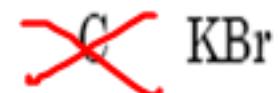
~~D Li and B~~

M + N
M + Metal

PERIODIC TABLE OF THE ELEMENTS

1		Periodic Table of the Elements																		2		
1A		Periodic Table of the Elements																		7A		
1	H Hydrogen 1.008																			7	F Fluorine 19.00	
Li Lithium 6.941	Be Beryllium 9.032																			O Oxygen 16.00	N Nitrogen 14.01	H Hydrogen 1.008
Na Sodium 22.99	Mg Magnesium 24.31	3	4	5	6	7	8	9	10	11	12								P Phosphorus 30.91	S Sulfur 32.07	Cl Chlorine 35.45	
K Potassium 39.10	Ca Calcium 40.08	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	Br Bromine 79.90	I Iodine 126.9	Radon 222.0	
Rb Rubidium 85.47	Sr Strontium 87.62	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	Xe Xenon 31.3			
Cs Cesium 132.9	Ba Barium 137.3	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71				
Fr Francium 223.0	Ra Radium 226.0	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103				
		58	Pr Praseodymium 140.9	59	Nd Neodymium 141.0	60	Eu Europium 152.0	61	Tm Thulium 158.9	62	Dy Dysprosium 162.5	63	Ho Holmium 164.9	64	Er Erbium 167.3	65	Tm Thulium 173.0	66	Yb Ytterbium 175.0	67	Lu Lucentium 175.0	
		90	Tb Terbium 158.9	91	Pa Protactinium 231.0	92	U Uranium 238.0	93	Np Neptunium 237.0	94	Pu Plutonium 239.0	95	Cm Curium 247.0	96	Hf Hafnium 260.0	97	Es Einsteinium 252.0	98	Mf Mendelevium 253.0	99	No Nobelium 255.0	
		96	Tb Terbium 158.9	97	Pa Protactinium 231.0	98	U Uranium 238.0	99	Np Neptunium 237.0	100	Pu Plutonium 239.0	101	Cm Curium 247.0	102	Hf Hafnium 260.0	103	Eh Einsteinium 252.0	104	Mf Mendelevium 253.0	105	No Nobelium 255.0	

7. Which compound is *most likely* formed using covalent bonds?



PERIODIC TABLE OF THE ELEMENTS

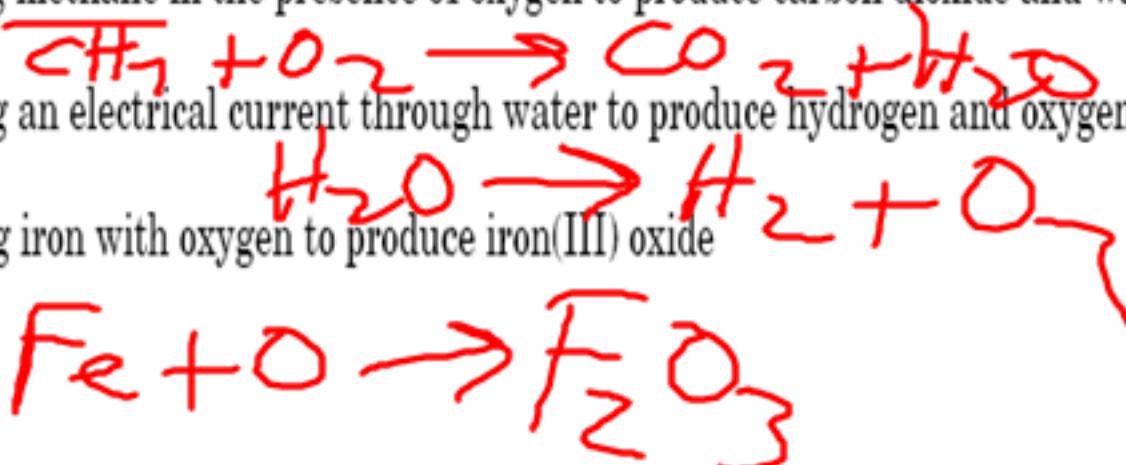
The Periodic Table of Elements is displayed in a grid format. The elements are arranged by atomic number from 1 to 118. The table includes element symbols, names, and atomic masses. Several elements are circled in red ink: A (SiO₂), C (Carbon), O (Oxygen), Si (Silicon), and Pb (Lead). The table is organized into groups and periods, with transition metals highlighted in blue.

1 IA	2 IIA	3 IIIA	4 IVIA	5 VA	6 VIA	7 VIIA	8 VIIIA	9 VIIIA	10 VIIIA	11 VIIIA	12 VIIIA	13 VIIIA	14 VIIIA	15 VIIIA	16 VIIIA	17 VIIIA	18 VIIIA	
H Hydrogen 1.008																		He Helium 4.003
Li Lithium 6.941	Be Beryllium 9.012																	Na Sodium 26.98
Na Sodium 22.99	Mg Magnesium 24.31	Al Aluminum 26.98																Cl Chlorine 35.45
K Potassium 39.10	Ca Calcium 40.08	Sc Scandium 44.96	Ti Titanium 47.88	V Vanadium 50.94	Cr Chromium 52.00	Mn Manganese 54.94	Fe Iron 55.85	Co Cobalt 58.93	Ni Nickel 58.69	Cu Copper 63.55	Zn Zinc 65.39	Ga Gallium 69.72	Ge Germanium 72.65	As Arsenic 74.92	Se Selenium 78.96	Br Bromine 79.90	Kr Krypton 83.80	
Rb Rubidium 85.47	Sr Strontium 87.62	Y Lanthanum 88.91	Zr Zirconium 91.22	Nb Niobium 93.91	Mo Molybdenum 95.94	Tc Technetium 98.0	Ru Ruthenium 101.1	Rh Rhodium 102.9	Pd Palladium 106.4	Ag Silver 107.9	Cd Cadmium 112.4	In Indium 114.8	Tl Thallium 118.7	Sb Antimony 121.8	Te Tellurium 127.6	I Iodine 126.9	Xe Xenon 131.3	
Cs Cesium 132	Ba Barium 137	La Lanthanum 138	Hf Hafnium 178	Ta Tantalum 180.0	W Tungsten 183.8	Re Rhenium 196	Os Osmium 190.2	Ir Iridium 192.22	Pt Platinum 195.08	Am Gold 196.96	Mercury 200.59	Tl Thallium 204.38	Pb Lead 207.2	Bi Bismuth 208.98	Po Polonium 209.01	At Astatine 210	Rn Radon 222	
Fr Francium 223	Ra Radon 226.0	Ac Actinium 227.0	Rf Rutherfordium 261	Ds Dubnium 262	Sg Seaborgium 263	Bh Bokunow 262	Hs Hassium 265	Mt Mendelevium 266	Un Ununtrium 272	Un Ununpentium 272	Un Ununhexium 273							
56 Ce Cerium 140.1	59 Pr Praseodymium 140.9	60 Nd Neodymium 144.2	61 Pm Promethium 147.0	62 Sm Samarium 150.4	63 Eu Europium 152.0	64 Gd Gadolinium 157.3	65 Tb Terbium 158.9	66 Dy Dysprosium 162.5	67 Ho Holmium 164.9	68 Er Erbium 167.3	69 Tm Thulium 168.9	70 Yb Ytterbium 173.0	71 Lu Lutetium 175.0					
90 Tb Thulium 132.0	91 Pa Protactinium 231.0	92 U Uranium 238.0	93 Np Neptunium 237.0	94 Pu Plutonium 244.0	95 Am Americium 243.0	96 Cm Curium 247.0	97 Bk Berkelium 247.0	98 Cf Californium 251.0	99 Es Einsteinium 252.0	100 Fm Fermium 257.0	101 Md Mendelevium 258.0	102 No Nobelium 259.0	103 Lr Lawrencium 262.0					

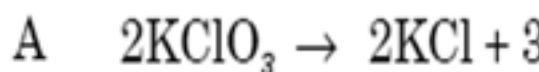
8. A teacher demonstrates a decomposition reaction. Which would be a correct demonstration?



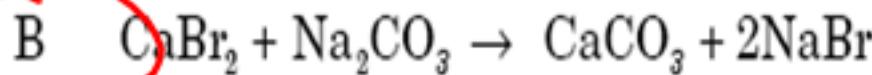
- A burning magnesium in the presence of oxygen to produce magnesium oxide
- B burning methane in the presence of oxygen to produce carbon dioxide and water
- C running an electrical current through water to produce hydrogen and oxygen
- D reacting iron with oxygen to produce iron(III) oxide



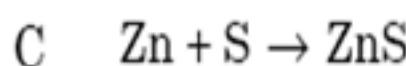
9. Which equation represents a double replacement reaction?



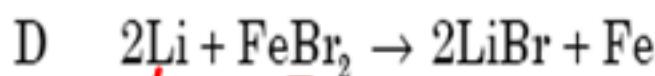
Dec.



DR

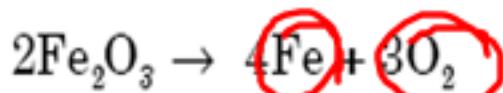


Sy/1



SF

10. A chemical reaction is represented by this equation.



What is a product of this chemical reaction?

~~E~~

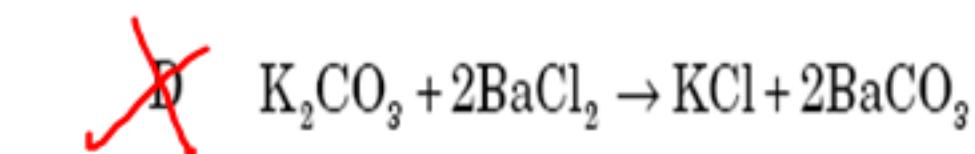
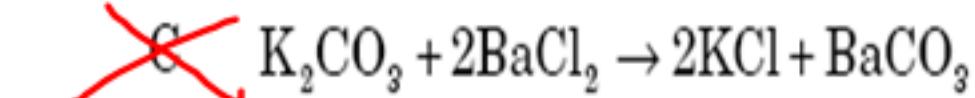
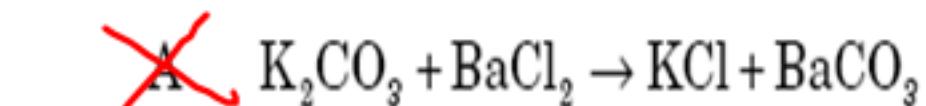
A ~~FeO~~

B ~~F~~

C ~~O₂~~

D ~~Fe₂O₃~~

11. Which is a correctly balanced chemical equation?



12. The reaction of CaO and water is exothermic. A student mixes the two chemicals in a test tube and touches the side of the test tube. Which statement describes the student's observation?

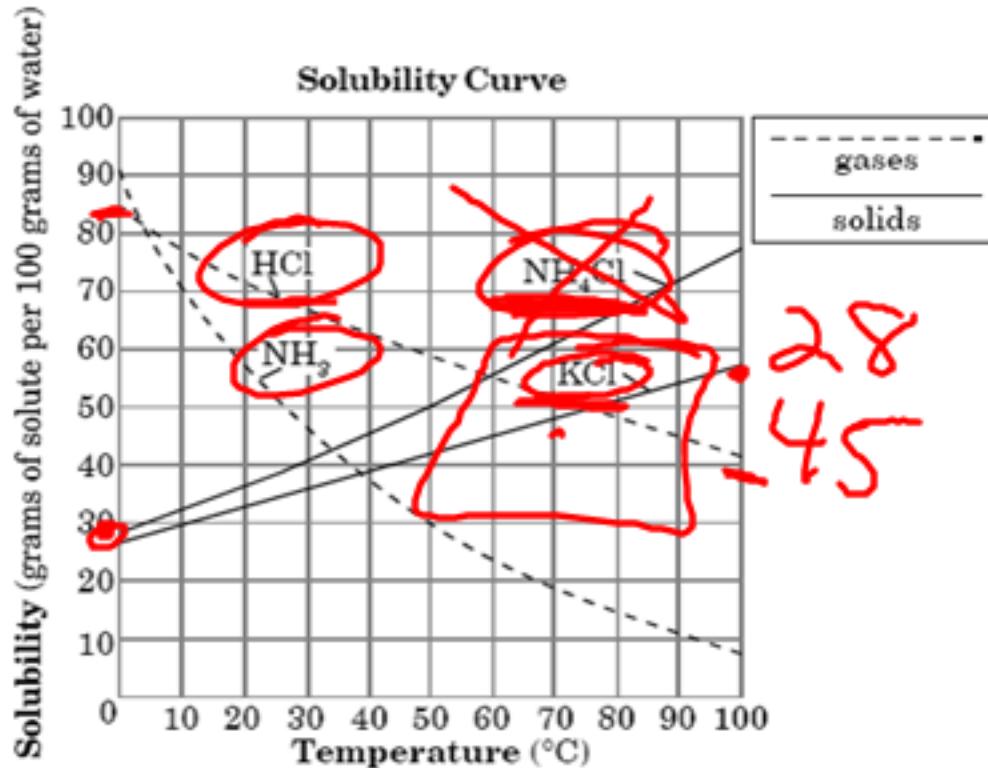
- A The test tube becomes hot as heat is released.
- B The test tube becomes hot as heat is absorbed.
- C The test tube becomes cold as heat is released.
- D The test tube becomes cold as heat is absorbed.

13. Solutions of lead(II) nitrate and potassium dichromate are mixed. The solution turns cloudy and yellow.

~~Solid yellow particles fall to the bottom of the beaker. Which statement **best** describes this reaction?~~

- A A precipitate formed.
- B A gas formed.
- C The reaction is exothermic.
- D The reaction is endothermic.

14.



Which solute exhibits the *least* response to temperature change?

A NH₄Cl

B KCl

C HCl

D NH₃

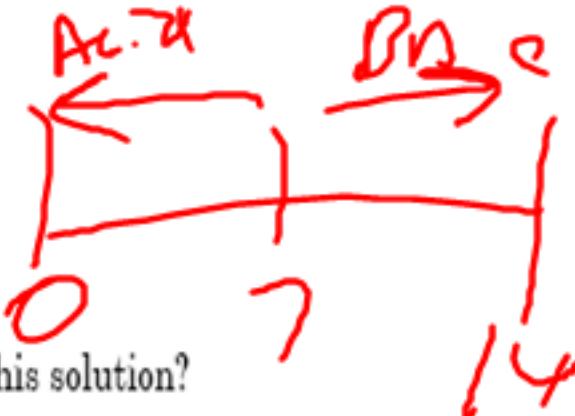
15. In an experiment, a researcher collected the following information about a solution made from a certain food:

~~• pH = 3~~

~~• taste = sour~~

~~• reactivity = reacts with metals~~

Acid



Based on the information, what *best* describes this solution?

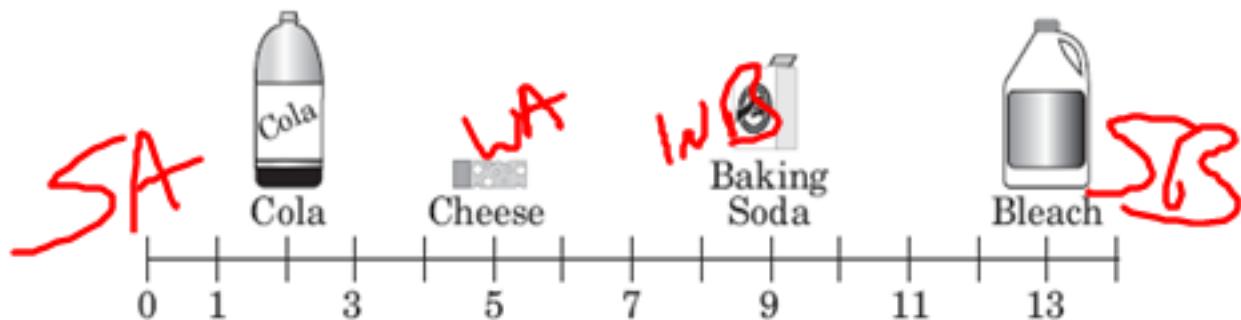
A acid

B base

C salt

D neutral

16. This is a pH chart of common materials.



Which substance is the *most basic*?

- A Cola
- B Cheese
- C Baking Soda
- D Bleach

Strongest

17. Which action would *most effectively* slow down the dissolving of a sugar cube in water?

A cooling the water

B crushing the sugar

C heating the water

D stirring the water

Speed up

" ",

" ",

18. Which substance in water will conduct electricity? _____



A corn starch

B salt

C sugar

D vegetable oil



19. The loss of an alpha particle has what effect on the atomic number and mass number of an atom?

-
- A hand-drawn diagram of a Helium atom nucleus is shown. It consists of two overlapping circles. The larger circle contains the symbol 'He'. Inside the smaller circle, there are two 'p' subscripts and two 'n' subscripts, representing two protons and two neutrons.
- A Atomic number and mass number both decrease.
 - B Atomic number increases; mass number decreases.
 - C Atomic number decreases; mass number increases.
 - D Atomic number and mass number both increase.

20. Which *best* contrasts nuclear fission and nuclear fusion?

A fission: splitting of small nuclei
fusion: joining of large nuclei

B fission: splitting of large nuclei
fusion: joining of small nuclei

C fission: joining of small nuclei
fusion: joining of large nuclei

D fission: needs extremely low temperatures
fusion: needs slightly higher temperatures than fission

