

The Periodic Table of the Elements

1 H Hydrogen 1.00794																	2 He Helium 4.0026
3 Li Lithium 6.941	4 Be Beryllium 9.012182											5 B Boron 10.811	6 C Carbon 12.0107	7 N Nitrogen 14.00643	8 O Oxygen 15.999	9 F Fluorine 18.998403	10 Ne Neon 20.1797
11 Na Sodium 22.989769	12 Mg Magnesium 24.304											13 Al Aluminum 26.981538	14 Si Silicon 28.0855	15 P Phosphorus 30.973762	16 S Sulfur 32.06	17 Cl Chlorine 35.453	18 Ar Argon 39.948
19 K Potassium 39.0983	20 Ca Calcium 40.078	21 Sc Scandium 44.955912	22 Ti Titanium 47.88	23 V Vanadium 50.9415	24 Cr Chromium 51.9961	25 Mn Manganese 54.938045	26 Fe Iron 55.845	27 Co Cobalt 58.933195	28 Ni Nickel 58.6934	29 Cu Copper 63.546	30 Zn Zinc 65.38	31 Ga Gallium 69.723	32 Ge Germanium 72.61	33 As Arsenic 74.92160	34 Se Selenium 78.96	35 Br Bromine 79.904	36 Kr Krypton 83.80
37 Rb Rubidium 85.4678	38 Sr Strontium 87.62	39 Y Yttrium 88.90584	40 Zr Zirconium 91.224	41 Nb Niobium 92.90638	42 Mo Molybdenum 95.94	43 Tc Technetium (98)	44 Ru Ruthenium 101.07	45 Rh Rhodium 102.90550	46 Pd Palladium 106.42	47 Ag Silver 107.8682	48 Cd Cadmium 112.411	49 In Indium 114.818	50 Sn Tin 118.710	51 Sb Antimony 121.757	52 Te Tellurium 127.60	53 I Iodine 126.90447	54 Xe Xenon 131.29
55 Cs Cesium 132.90545	56 Ba Barium 137.327	57 La Lanthanum 138.9055	58 Hf Hafnium 178.49	59 Ta Tantalum 180.94788	60 W Tungsten 183.84	61 Re Rhenium 186.207	62 Os Osmium 190.23	63 Ir Iridium 192.222	64 Pt Platinum 195.078	65 Au Gold 196.96655	66 Hg Mercury 200.59	67 Tl Thallium 204.3833	68 Pb Lead 207.2	69 Bi Bismuth 208.9804	70 Po Polonium (209)	71 At Astatine (210)	72 Rn Radon (222)
87 Fr Francium (223)	88 Ra Radium (226)	89 Ac Actinium (227)	90 Rf Rutherfordium (261)	91 Db Dubnium (262)	92 Sg Seaborgium (266)	93 Bh Bohrium (264)	94 Hs Hassium (277)	95 Mt Meitnerium (268)	96 110 (269)	97 111 (272)	98 112 (277)	99 113 (284)	100 114 (289)				

58 Ce Cerium 140.12	59 Pr Praseodymium 140.90768	60 Nd Neodymium 144.24	61 Pm Promethium (145)	62 Sm Samarium 150.36	63 Eu Europium 151.964	64 Gd Gadolinium 157.25	65 Tb Terbium 158.92534	66 Dy Dysprosium 162.50	67 Ho Holmium 164.93032	68 Er Erbium 167.26	69 Tm Thulium 168.93421	70 Yb Ytterbium 173.04	71 Lu Lutetium 174.967
90 Th Thorium 232.0377	91 Pa Protactinium 231.03688	92 U Uranium 238.02891	93 Np Neptunium (237)	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 Nobelium (259)	103 Lr Lawrencium (262)







Why potassium?

- It is simple (like a noble gas and an electron)
- Since it is simple, theory is good
- Potassium has not been studied as much as the other alkalis

Alkali metals

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1 H Hydrogen (1.00794)																	2 He Helium (4.0026)				
3 Li Lithium (6.941)	4 Be Beryllium (9.012182)															5 B Boron (10.811)	6 C Carbon (12.011)	7 N Nitrogen (14.00643)	8 O Oxygen (15.999)	9 F Fluorine (18.998403)	10 Ne Neon (20.1797)
11 Na Sodium (22.98976928)	12 Mg Magnesium (24.304)															13 Al Aluminum (26.9815385)	14 Si Silicon (28.0855)	15 P Phosphorus (30.97376150)	16 S Sulfur (32.06)	17 Cl Chlorine (35.453)	18 Ar Argon (39.948)
19 K Potassium (39.0983)	20 Ca Calcium (40.078)	21 Sc Scandium (44.955912)	22 Ti Titanium (47.88)	23 V Vanadium (50.9415)	24 Cr Chromium (51.9961)	25 Mn Manganese (54.938044)	26 Fe Iron (55.845)	27 Co Cobalt (58.933195)	28 Ni Nickel (58.6934)	29 Cu Copper (63.546)	30 Zn Zinc (65.38)	31 Ga Gallium (69.723)	32 Ge Germanium (72.6)	33 As Arsenic (74.9216)	34 Se Selenium (78.96)	35 Br Bromine (79.904)	36 Kr Krypton (83.80)				
37 Rb Rubidium (85.4678)	38 Sr Strontium (87.62)	39 Y Yttrium (88.90584)	40 Zr Zirconium (91.224)	41 Nb Niobium (92.90638)	42 Mo Molybdenum (95.94)	43 Tc Technetium (98)	44 Ru Ruthenium (101.07)	45 Rh Rhodium (101.064300)	46 Pd Palladium (106.42)	47 Ag Silver (107.8682)	48 Cd Cadmium (112.411)	49 In Indium (114.818)	50 Sn Tin (118.710)	51 Sb Antimony (121.757)	52 Te Tellurium (127.60)	53 I Iodine (126.90447)	54 Xe Xenon (131.29)				
55 Cs Cesium (132.905451)	56 Ba Barium (137.327)	57 La Lanthanum (138.90547)	58 Ce Cerium (140.12)	59 Pr Praseodymium (140.90768)	60 Nd Neodymium (144.24)	61 Pm Promethium (144.9127)	62 Sm Samarium (150.36)	63 Eu Europium (151.964)	64 Gd Gadolinium (157.25)	65 Tb Terbium (158.92534)	66 Dy Dysprosium (162.50)	67 Ho Holmium (164.93032)	68 Er Erbium (167.26)	69 Tm Thulium (168.93048)	70 Yb Ytterbium (173.04)	71 Lu Lutetium (174.967)					
87 Fr Francium (223)	88 Ra Radium (226)	89 Ac Actinium (227)	90 Th Thorium (232.0377)	91 Pa Protactinium (231.036888)	92 U Uranium (238.02891)	93 Np Neptunium (237)	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 Nobelium (259)	103 Lr Lawrencium (262)					

1. Why do we study atoms?
2. What is atomic spectroscopy?
3. What is a frequency comb?
4. Why Potassium?
5. What have I done this summer?