

# Periodic Table of Elements

1 <b>H</b> Hydrogen 1.01																	2 <b>He</b> Helium 4.00				
3 <b>Li</b> Lithium 6.94	4 <b>Be</b> Beryllium 9.01															5 <b>B</b> Boron 10.81	6 <b>C</b> Carbon 12.01	7 <b>N</b> Nitrogen 14.01	8 <b>O</b> Oxygen 16	9 <b>F</b> Fluorine 19	10 <b>Ne</b> Neon 20.18
11 <b>Na</b> Sodium 22.99	12 <b>Mg</b> Magnesium 24.31															13 <b>Al</b> Aluminum 26.98	14 <b>Si</b> Silicon 28.09	15 <b>P</b> Phosphorus 30.97	16 <b>S</b> Sulfur 32.06	17 <b>Cl</b> Chlorine 35.45	18 <b>Ar</b> Argon 39.95
19 <b>K</b> Potassium 39.10	20 <b>Ca</b> Calcium 40.08	21 <b>Sc</b> Scandium 44.96	22 <b>Ti</b> Titanium 47.87	23 <b>V</b> Vanadium 50.94	24 <b>Cr</b> Chromium 51.99	25 <b>Mn</b> Manganese 54.94	26 <b>Fe</b> Iron 55.85	27 <b>Co</b> Cobalt 58.93	28 <b>Ni</b> Nickel 58.69	29 <b>Cu</b> Copper 63.55	30 <b>Zn</b> Zinc 65.41	31 <b>Ga</b> Gallium 69.72	32 <b>Ge</b> Germanium 72.64	33 <b>As</b> Arsenic 74.92	34 <b>Se</b> Selenium 78.96	35 <b>Br</b> Bromine 79.90	36 <b>Kr</b> Krypton 83.80				
37 <b>Rb</b> Rubidium 85.47	38 <b>Sr</b> Strontium 87.62	39 <b>Y</b> Yttrium 88.91	40 <b>Zr</b> Zirconium 91.22	41 <b>Nb</b> Niobium 92.91	42 <b>Mo</b> Molybdenum 95.94	43 <b>Tc</b> Technetium (98)	44 <b>Ru</b> Ruthenium 101.07	45 <b>Rh</b> Rhodium 102.91	46 <b>Pd</b> Palladium 106.42	47 <b>Ag</b> Silver 107.87	48 <b>Cd</b> Cadmium 112.41	49 <b>In</b> Indium 114.82	50 <b>Sn</b> Tin 118.71	51 <b>Sb</b> Antimony 121.76	52 <b>Te</b> Tellurium 127.60	53 <b>I</b> Iodine 126.90	54 <b>Xe</b> Xenon 131.29				
55 <b>Cs</b> Cesium 132.91	56 <b>Ba</b> Barium 137.32	57-70 *	71 <b>Lu</b> Lutetium 174.97	72 <b>Hf</b> Hafnium 178.49	73 <b>Ta</b> Tantalum 180.95	74 <b>W</b> Tungsten 183.84	75 <b>Re</b> Rhenium 186.21	76 <b>Os</b> Osmium 190.23	77 <b>Ir</b> Iridium 192.21	78 <b>Pt</b> Platinum 195.08	79 <b>Au</b> Gold 197.97	80 <b>Hg</b> Mercury 200.59	81 <b>Tl</b> Thallium 204.38	82 <b>Pb</b> Lead 207.20	83 <b>Bi</b> Bismuth 209.98	84 <b>Po</b> Polonium (209)	85 <b>At</b> Astatine (210)	86 <b>Rn</b> Radon (222)			
87 <b>Fr</b> Francium (223)	88 <b>Ra</b> Radium (226)	89-102 ***	103 <b>Lr</b> Lawrencium (260)	104 <b>Rf</b> Rutherfordium (261)	105 <b>Db</b> Dubnium (262)	106 <b>Sg</b> Seaborgium (266)	107 <b>Bh</b> Bohrium (264)	108 <b>Hs</b> Hassium (277)	109 <b>Mt</b> Meitnerium (268)	110 <b>Ds</b> Darmstadtium (281)	111 <b>Rg</b> Roentgenium (272)	112 <b>Cn</b> Copernicium (285)	113 <b>Nh</b> Nihonium (284)	114 <b>Fl</b> Flerovium (289)	115 <b>Mc</b> Moscovium (288)	116 <b>Lv</b> Livermorium (293)	117 <b>Ts</b> Tennessine (294)	118 <b>Og</b> Oganesson (294)			

	*	57 <b>La</b> Lanthanum 138.90	58 <b>Ce</b> Cerium 140.10	59 <b>Pr</b> Praseodymium 140.90	60 <b>Nd</b> Neodymium 144.20	61 <b>Pm</b> Promethium (145)	62 <b>Sm</b> Samarium 150.40	63 <b>Eu</b> Europium 151.96	64 <b>Gd</b> Gadolinium 157.30	65 <b>Tb</b> Terbium 158.90	66 <b>Dy</b> Dysprosium 162.50	67 <b>Ho</b> Holmium 164.90	68 <b>Er</b> Erbium 167.30	69 <b>Tm</b> Thulium 168.90	70 <b>Yb</b> Ytterbium 173.05
	**	89 <b>Ac</b> Actinium (227)	90 <b>Th</b> Thorium 232.00	91 <b>Pa</b> Protactinium 231.04	92 <b>U</b> Uranium 238.03	93 <b>Np</b> Neptunium (237)	94 <b>Pu</b> Plutonium (244)	95 <b>Am</b> Americium (243)	96 <b>Cm</b> Curium (247)	97 <b>Bk</b> Berkelium (247)	98 <b>Cf</b> Californium (251)	99 <b>Es</b> Einsteinium (252)	100 <b>Fm</b> Fermium (257)	101 <b>Md</b> Mendelevium (258)	102 <b>No</b> Nobelium (259)

## Chemistry Reference Sheet

Formulas			Constants																																												
<b>Density:</b> $D = m/V$ <b>Ideal Gas Law:</b> $PV = nRT$ <b>Combined Gas Law:</b> $\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$ <b>Temperature:</b> $K = ^\circ C + 273$ <b>H<sup>+</sup> Concentration:</b> $pH = -\log[H^+]$ $K_w = [H^+][OH^-] = 10^{-14}$ <b>Calorimetry:</b> $q = m \cdot C_p \cdot \Delta T$ <b>Energy &amp; Light:</b> $E = hf$ $E = hc/\lambda$ $c = \lambda f$ <b>Concentration:</b> $M = \frac{\text{moles of solute}}{\text{liters of solution}}$ <b>Percent Error:</b> $\frac{ \text{accepted value} - \text{measured value} }{\text{accepted value}} \times 100$			<b>At STP:</b> 1 atm, 0°C <b>Gas Constant:</b> $R = 0.0821 \text{ L}\cdot\text{atm}/\text{mol}\cdot\text{K} = 62.4 \text{ L}\cdot\text{mmHg}/\text{mol}\cdot\text{K}$ <b>Specific heat of water:</b> $C_p = 4.184 \text{ J}/\text{g}\cdot^\circ\text{C} = 1 \text{ cal}/\text{g}\cdot^\circ\text{C}$ <b>Speed of light in a vacuum:</b> $c = 3.00 \times 10^8 \text{ m/s}$ <b>Planck's Constant:</b> $h = 6.63 \times 10^{-34} \text{ Js}$ <b>Density of water:</b> 1.0 g/1.0 mL																																												
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