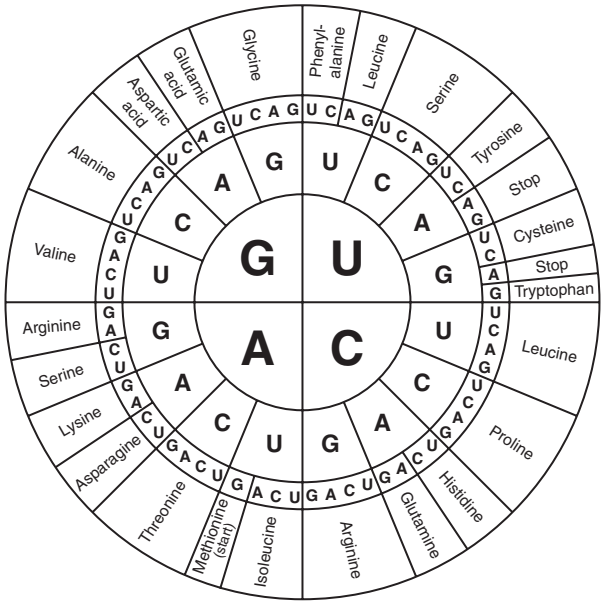
NECAP Science Grade 11 Reference Sheet

Genetic Code



Electromagnetic Spectrum

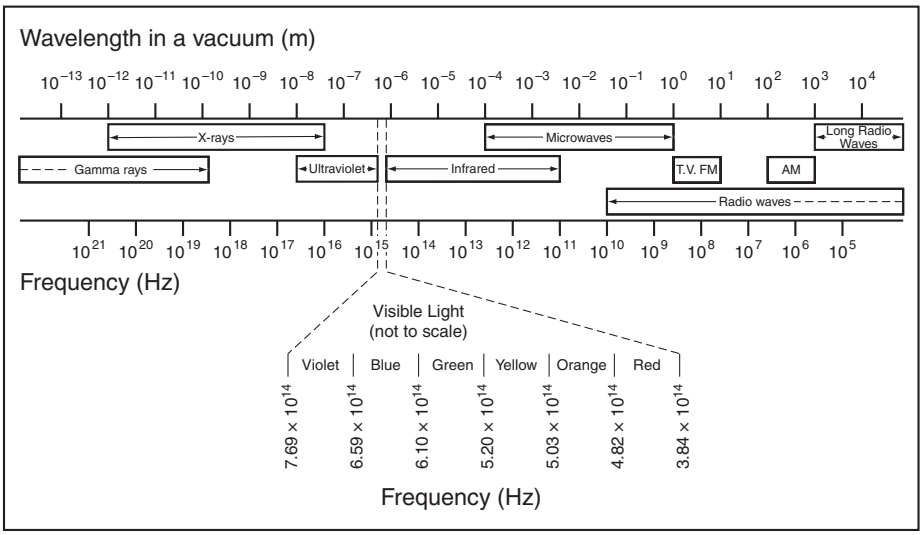
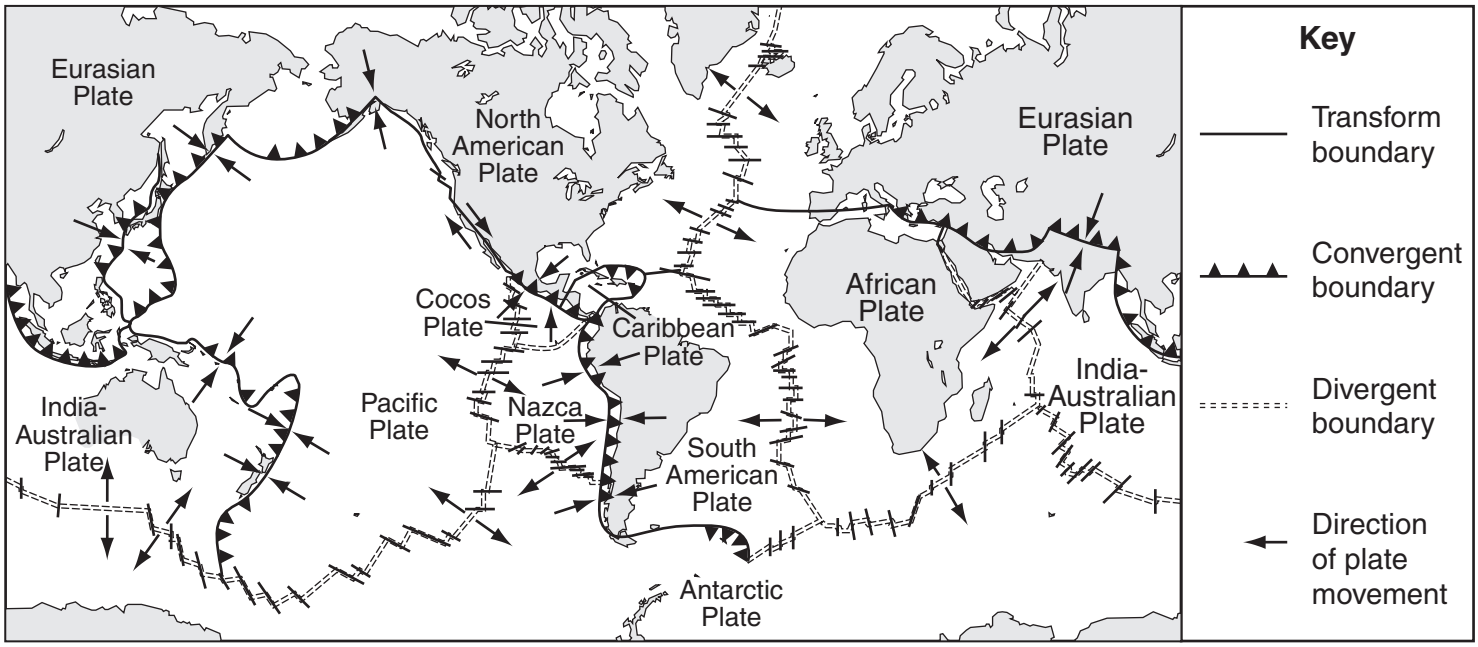


Plate Movements



Formulas

Velocity $v = \frac{x_2 - x_1}{t_2 - t_1} = \frac{\Delta x}{\Delta t}$	v = velocity x = position (x_1 initial; x_2 final) Δx = change in position t = time (t_1 initial; t_2 final) Δt = change in time
Acceleration $a = \frac{v_2 - v_1}{t_2 - t_1} = \frac{\Delta v}{\Delta t}$	a = acceleration v = velocity Δv = change in velocity t = time Δt = change in time
Constant Acceleration of Free-Falling Objects $y = \frac{1}{2} g t^2$ $v = at$	y = vertical distance traveled g = acceleration due to gravity (10 m/s^2) t = time v = velocity a = acceleration
Force $F = ma$	F = Force m = mass a = acceleration

Universal Gravitation $F_{gravity} = G \frac{m_1 m_2}{d^2}$	F = Force G = Universal Gravitational Constant (6.67×10^{-11} Nm^2/kg^2) m_1 = mass of first object m_2 = mass of second object d = distance between center of m_1 and m_2
Momentum $p = mv$	p = momentum m = mass v = velocity
Heat $Q = mc\,(T_2 - T_1) = mc\Delta T$	Q = heat transferred m = mass c = specific heat (water = 4 J/g • °C) T = temperature (T_1 initial; T_2 final) ΔT = change in temperature
Density $D = \frac{m}{V}$	D = density m = mass V = volume

PERIODIC TABLE OF THE ELEMENTS

Name — Hydrogen
Atomic Number — 1
Symbol — H
Atomic Mass — 1.008

Period \ Group	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	I A																	VIII A
1	Hydrogen 1 H 1.008	II A											III A	IV A	V A	VI A	VII A	Helium 2 He 4.003
2	Lithium 3 Li 6.941	Beryllium 4 Be 9.012											Boron 5 B 10.811	Carbon 6 C 12.011	Nitrogen 7 N 14.007	Oxygen 8 O 15.999	Fluorine 9 F 18.998	Neon 10 Ne 20.180
3	Sodium 11 Na 22.990	Magnesium 12 Mg 24.305	III B	IV B	V B	VI B	VII B	←	VIII B	→	I B	II B	Aluminum 13 Al 26.982	Silicon 14 Si 28.086	Phosphorus 15 P 30.974	Sulfur 16 S 32.066	Chlorine 17 Cl 35.453	Argon 18 Ar 39.948
4	Potassium 19 K 39.098	Calcium 20 Ca 40.078	Scandium 21 Sc 44.956	Titanium 22 Ti 47.88	Vanadium 23 V 50.942	Chromium 24 Cr 51.996	Manganese 25 Mn 54.938	Iron 26 Fe 55.847	Cobalt 27 Co 58.933	Nickel 28 Ni 58.693	Copper 29 Cu 63.546	Zinc 30 Zn 65.39	Gallium 31 Ga 69.723	Germanium 32 Ge 72.61	Arsenic 33 As 74.922	Selenium 34 Se 78.96	Bromine 35 Br 79.904	Krypton 36 Kr 83.80
5	Rubidium 37 Rb 85.468	Strontium 38 Sr 87.62	Yttrium 39 Y 88.906	Zirconium 40 Zr 91.224	Niobium 41 Nb 92.906	Molybdenum 42 Mo 95.94	Technetium 43 Tc 97.907	Ruthenium 44 Ru 101.07	Rhodium 45 Rh 102.906	Palladium 46 Pd 106.42	Silver 47 Ag 107.868	Cadmium 48 Cd 112.411	Indium 49 In 114.82	Tin 50 Sn 118.710	Antimony 51 Sb 121.757	Tellurium 52 Te 127.60	Iodine 53 I 126.904	Xenon 54 Xe 131.290
6	Cesium 55 Cs 132.905	Barium 56 Ba 137.327	Lanthanum 57 La 138.906	Hafnium 72 Hf 178.49	Tantalum 73 Ta 180.948	Tungsten 74 W 183.84	Rhenium 75 Re 186.207	Osmium 76 Os 190.2	Iridium 77 Ir 192.22	Platinum 78 Pt 195.08	Gold 79 Au 196.967	Mercury 80 Hg 200.59	Thallium 81 Tl 204.383	Lead 82 Pb 207.2	Bismuth 83 Bi 208.980	Polonium 84 Po 208.982	Astatine 85 At 209.978	Radon 86 Rn 222.018
7	Francium 87 Fr 223.020	Radium 88 Ra 226.025	Actinium 89 Ac 227.028	Rutherfordium 104 Rf (265.12)	Dubnium 105 Db (268.13)	Seaborgium 106 Sg (271.13)	Bohrium 107 Bh (270)	Hassium 108 Hs (277.15)	Meitnerium 109 Mt (276.15)	Darmstadtium 110 Ds (281.16)	Roentgenium 111 Rg (280.16)	Copernicium 112 Cn (285.17)		Flerovium 114 Fl (289.19)		Livermorium 116 Lv (293)		
Lanthanide Series				Cerium 58 Ce 140.115	Praseodymium 59 Pr 140.908	Neodymium 60 Nd 144.24	Promethium 61 Pm 144.913	Samarium 62 Sm 150.36	Europium 63 Eu 151.965	Gadolinium 64 Gd 157.25	Terbium 65 Tb 158.925	Dysprosium 66 Dy 162.50	Holmium 67 Ho 164.930	Erbium 68 Er 167.26	Thulium 69 Tm 168.934	Ytterbium 70 Yb 173.04	Lutetium 71 Lu 174.967	
Actinide Series				Thorium 90 Th 232.038	Protactinium 91 Pa 231.038	Uranium 92 U 238.029	Neptunium 93 Np 237.048	Plutonium 94 Pu 244.064	Americium 95 Am 243.061	Curium 96 Cm 247.070	Berkelium 97 Bk 247.070	Californium 98 Cf 251.080	Einsteinium 99 Es 252.083	Fermium 100 Fm 257.095	Mendelevium 101 Md 258.099	Nobelium 102 No 259.101	Lawrencium 103 Lr 262.11	