

NECAP Science Grade 8 Reference Sheet

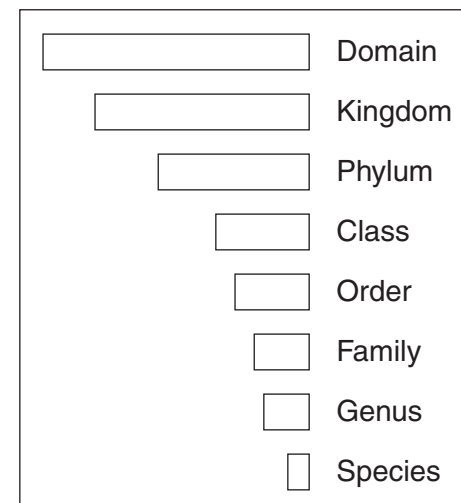
Solar System Data

Object	Mean Distance to the Sun (AU*)	Diameter Relative to Earth	Density (g/cm ³)	Gravity Relative to Earth	Rotation (days)	Orbital Period (years)	Mass Relative to Earth	Number of Moons	Planet Type
Planets	Earth	1.0	1.0	5.5	1.0	1.0	1.00	1	rocky
	Jupiter	5.2	11.2	1.3	2.4	0.4	318	16	gas
	Mars	1.5	0.5	3.9	0.4	1.0	0.108	2	rocky
	Mercury	0.4	0.4	5.4	0.4	58.4	0.0553	0	rocky
	Neptune	30.1	3.9	1.6	1.1	0.7	164.8	8	gas
	Saturn	9.6	9.4	0.7	0.9	0.5	29.5	18	gas
	Uranus	19.2	4.0	1.3	0.9	0.7	84.0	21	gas
	Venus	0.7	0.9	5.2	0.9	243.0	0.6	0	rocky
Sun	-	109.0	1.4	-	24.6	-	333000	-	-
Pluto**	39.5	0.2	2.1	0.1	6.4	248.0	0.0021	1	icy
Earth's Moon	1.0	0.3	3.3	0.2	27.5	-	0.0123	-	-

* *Astronomical Unit (AU) – the average distance between Earth and the Sun (1.5×10^{11} m)*

** *Pluto is classified as a dwarf planet.*

Biological Classification System



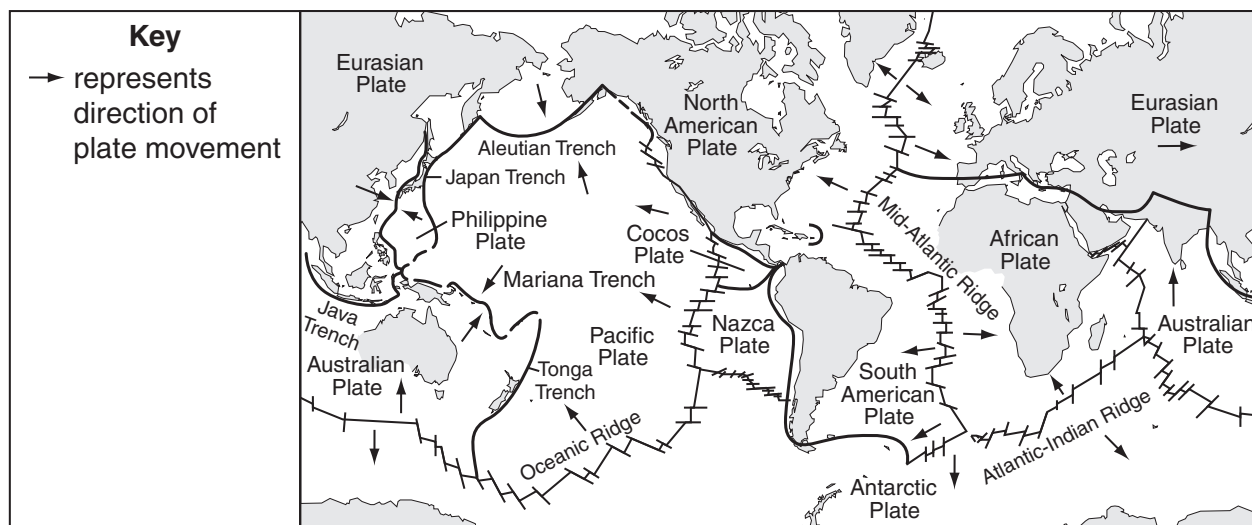
Standard Units of Measurement

Quantity	Unit (abbreviation)
mass	kilogram (kg)
volume	liter (L)
temperature	degrees Celsius (°C)
time	second (s)
distance	meter (m)
force	newton (N)
energy	joule (J)

Formulas

$F = ma$ $m = \frac{F}{a}$ $a = \frac{F}{m}$	<i>F = force</i> <i>m = mass</i> <i>a = acceleration</i>
$D = \frac{m}{V}$ $V = \frac{m}{D}$ $m = D \times V$	<i>D = density</i> <i>m = mass</i> <i>V = volume</i>
$s = \frac{d}{t}$ $t = \frac{d}{s}$ $d = st$	<i>s = speed</i> <i>d = distance</i> <i>t = time</i>
$^{\circ}\text{C} = \left(\frac{5}{9}\right) \times (^{\circ}\text{F} - 32)$ $^{\circ}\text{F} = \left(\frac{9}{5}\right) \times ^{\circ}\text{C} + 32$	

Plate Movements



PERIODIC TABLE OF THE ELEMENTS

Group	→ 1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Period	I A	II A											III A	IV A	V A	VI A	VII A	VIII A
↓ 1	Hydrogen H 1.008																	Helium He 4.003
2	Lithium Li 6.941	Beryllium Be 9.012											Boron B 10.811	Carbon C 12.011	Nitrogen N 14.007	Oxygen O 15.999	Fluorine F 18.998	Neon Ne 20.180
3	Sodium Na 22.990	Magnesium Mg 24.305	III B	IV B	V B	VI B	VII B	← VIII B →		I B	II B	Aluminum Al 26.982	Silicon Si 28.086	Phosphorus P 30.974	Sulfur S 32.066	Chlorine Cl 35.453	Argon Ar 39.948	
4	Potassium K 39.098	Calcium Ca 40.078	Scandium Sc 44.956	Titanium Ti 47.88	Vanadium V 50.942	Chromium Cr 51.996	Manganese Mn 54.938	Iron Fe 55.847	Cobalt Co 58.933	Nickel Ni 58.693	Copper Cu 63.546	Zinc Zn 65.39	Gallium Ga 69.723	Germanium Ge 72.61	Arsenic As 74.922	Selenium Se 78.96	Bromine Br 79.904	Krypton Kr 83.80
5	Rubidium Rb 85.468	Strontium Sr 87.62	Yttrium Y 88.906	Zirconium Zr 91.224	Niobium Nb 92.906	Molybdenum Mo 95.94	Technetium Tc 97.907	Ruthenium Ru 101.07	Rhodium Rh 102.906	Palladium Pd 106.42	Silver Ag 107.868	Cadmium Cd 112.411	Indium In 114.82	Tin Sn 118.710	Antimony Sb 121.757	Tellurium Te 127.60	Iodine I 126.904	Xenon Xe 131.290
6	Cesium Cs 132.905	Barium Ba 137.327	Lanthanum La 138.906	Hafnium Hf 178.49	Tantalum Ta 180.948	Tungsten W 183.84	Rhenium Re 186.207	Osmium Os 190.2	Iridium Ir 192.22	Platinum Pt 195.08	Gold Au 196.967	Mercury Hg 200.59	Thallium Tl 204.383	Lead Pb 207.2	Bismuth Bi 208.980	Polonium Po 208.982	Astatine At 209.978	Radon Rn 222.018
7	Francium Fr 223.020	Radium Ra 226.025	Actinium Ac 227.028	Rutherfordium Rf (261)	Dubnium Db (262)	Seaborgium Sg (263)	Bohrium Bh (262)	Hassium Hs (265)	Meitnerium Mt (266)									
Lanthanide Series				Cerium Ce 140.115	Praseodymium Pr 140.908	Neodymium Nd 144.24	Promethium Pm 144.913	Samarium Sm 150.36	Europium Eu 151.965	Gadolinium Gd 157.25	Terbium Tb 158.925	Dysprosium Dy 162.50	Holmium Ho 164.930	Erbium Er 167.26	Thulium Tm 168.934	Ytterbium Yb 173.04	Lutetium Lu 174.967	
Actinide Series				Thorium Th 232.038	Protactinium Pa 231.038	Uranium U 238.029	Neptunium Np 237.048	Plutonium Pu 244.064	Americium Am 243.061	Curium Cm 247.070	Berkelium Bk 247.070	Californium Cf 251.080	Einsteinium Es 252.083	Fermium Fm 257.095	Mendelevium Md 258.099	Nobelium No 259.101	Lawrencium Lr 260.105	

Name — Hydrogen

Atomic Number — 1

Symbol — **H**

Atomic Mass — 1.008