

Grade 11 FCAT Science Reference Sheet

Equations

Acceleration (a)	= $\frac{\text{change in velocity (m/s)}}{\text{time taken for this change (s)}}$	a = $\frac{v_f - v_i}{t_f - t_i}$
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Average speed (v)	= $\frac{\text{distance}}{\text{time}}$	v = $\frac{d}{t}$
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Density (D)	= $\frac{\text{mass (g)}}{\text{Volume (cm}^3\text{)}}$	D = $\frac{m}{V}$
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Percent Efficiency (e)	= $\frac{\text{Work out (J)}}{\text{Work in (J)}} \times 100$	%e = $\frac{W_{\text{out}}}{W_{\text{in}}} \times 100$
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Force (F)	= mass (kg) \times acceleration (m/s ²)	F = ma
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Frequency (f)	= $\frac{\text{number of events (waves)}}{\text{time (s)}}$	f = $\frac{n \text{ of events}}{t}$
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Momentum (p)	= mass (kg) \times velocity (m/s)	p = mv
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Pressure (P)	= $\frac{\text{Force (N)}}{\text{area (m}^2\text{)}}$	P = $\frac{F}{A}$
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Wavelength (λ)	= $\frac{\text{velocity (m/s)}}{\text{frequency (Hz)}}$	λ = $\frac{v}{f}$
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Work (W)	= Force (N) \times distance (m)	W = Fd
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Units of Measure

m = meter	g = gram	s = second
cm = centimeter	kg = kilogram	Hz = hertz (waves per second)
J = joule (newton-meter)		
N = newton (kilogram-meter per second squared)		
1 Astronomical Unit (AU) = distance between Earth and the Sun (approximately 150 million kilometers)		

Periodic Table of the Elements

(based on $^{12}_6\text{C} = 12.0000$)

Representative
Elements

18
8A

14	Atomic number
Si	Symbol
Silicon	Name
28.086	Average Atomic Mass

Period	Group 1A		Transition Metals										Representative Elements						
	1	2	3	4	5	6	7	8		9	10	11	12	13	14	15	16	17	18
1	H 1.008																		He 4.003
2	Li 6.941	Be 9.012												B 10.81	C 12.011	N 14.007	O 15.999	F 18.998	Ne 20.180
3	Na 22.990	Mg 24.305												Al 26.982	Si 28.086	P 30.974	S 32.06	Cl 35.453	Ar 39.948
4	K 39.098	Ca 40.078	Sc 44.956	Ti 47.88	V 50.942	Cr 51.996	Mn 54.938	Fe 55.847	Co 58.933	Ni 58.693	Cu 63.546	Zn 65.39		Ga 69.723	Ge 72.61	As 74.922	Se 78.96	Br 79.904	Kr 83.80
5	Rb 85.468	Sr 87.62	Y 88.906	Zr 91.224	Nb 92.906	Mo 95.94	Tc 98	Ru 101.07	Rh 102.906	Pd 106.42	Ag 107.868	Cd 112.411		In 114.82	Sn 118.710	Sb 121.757	Te 127.60	I 126.905	Xe 131.29
6	Cs 132.905	Ba 137.327	La 138.905	Hf 178.49	Ta 180.948	W 183.85	Re 186.207	Os 190.2	Ir 192.22	Pt 195.08	Au 196.967	Hg 200.59		Tl 204.383	Pb 207.2	Bi 208.980	Po 208.982	At 210	Rn 222
7	Fr 223	Ra 226.025	Ac 227.028	Rf 261	Db 262	Sg 263	Bh 264	Hs 265	Mt 268										

← Metals Nonmetals →

Inner Transition Metals

Lanthanide series

58	59	60	61	62	63	64	65	66	67	68	69	70	71
Ce Cerium 140.12	Pr Praseodymium 140.908	Nd Neodymium 144.24	Pm Promethium 144.913	Sm Samarium 150.36	Eu Europium 151.96	Gd Gadolinium 157.25	Tb Terbium 158.925	Dy Dysprosium 162.50	Ho Holmium 164.930	Er Erbium 167.26	Tm Thulium 168.934	Yb Ytterbium 173.04	Lu Lutetium 174.967
90	91	92	93	94	95	96	97	98	99	100	101	102	103
Th Thorium 232.038	Pa Protactinium 231.036	U Uranium 238.029	Np Neptunium 237.048	Pu Plutonium 244.064	Am Americium 243.061	Cm Curium 247.070	Bk Berkelium 247.070	Cf Californium 251.080	Es Einsteinium 252.083	Fm Fermium 257.095	Md Mendelevium 258.099	No Nobelium 259.101	Lr Lawrencium 260.105

Actinide series