

Teacher Resource Bank

GCE Chemistry

Periodic Table and Data Sheet



1 2 3 4 5 6 7 0

	(18)	4.0	He	helium	2
	(17)	19.0	F	fluorine	9
	(16)	16.0	O	oxygen	8
	(15)	14.0	N	nitrogen	7
	(14)	12.0	C	carbon	6
	(13)	10.8	B	boron	5
		27.0	Al	aluminium	13
		28.1	Si	silicon	14
		31.0	P	phosphorus	15
		32.1	S	sulfur	16
		35.5	Cl	chlorine	17
		39.9	Ar	argon	18
		83.8	Kr	krypton	36
		131.3	Xe	xenon	54
		126.9	I	iodine	53
		127.6	Te	tellurium	52
		121.8	Sb	antimony	51
		118.7	Sn	tin	50
		114.8	In	indium	49
		112.4	Cd	cadmium	48
		107.9	Ag	silver	47
		106.4	Pd	palladium	46
		102.9	Rh	rodium	45
		101.1	Ru	ruthenium	44
		[98]	Tc	technetium	43
		96.0	Mo	molybdenum	42
		92.9	Nb	niobium	41
		91.2	Zr	zirconium	40
		88.9	Y	yttirum	39
		87.6	Sr	strontium	38
		85.5	Rb	rubidium	37
		40.1	Ca	calcium	20
		45.0	Sc	scandium	21
		47.9	Ti	titanium	22
		50.9	V	vanadium	23
		52.0	Cr	chromium	24
		54.9	Mn	manganese	25
		55.8	Fe	iron	26
		58.9	Co	cobalt	27
		58.7	Ni	nickel	28
		63.5	Cu	copper	29
		65.4	Zn	zinc	30
		69.7	Ga	gallium	31
		72.6	Ge	germanium	32
		74.9	As	arsenic	33
		79.0	Se	selenium	34
		79.9	Br	bromine	35
		83.8	Kr	krypton	36
		88.9	Y	yttrium	39
		87.6	Sr	strontium	38
		85.5	Rb	rubidium	37
		132.9	Cs	caesium	55
		137.3	Ba	barium	56
		138.9	La *	lanthanum	57
		178.5	Hf	hafnium	72
		180.9	Ta	tantalum	73
		183.8	W	tungsten	74
		186.2	Re	rhenium	75
		190.2	Os	osmium	76
		192.2	Ir	iridium	77
		195.1	Pt	platinum	78
		197.0	Au	gold	79
		200.6	Hg	mercury	80
		204.4	Tl	thallium	81
		207.2	Pb	lead	82
		209.0	Bi	bismuth	83
		[209]	Po	polonium	84
		[210]	At	astatine	85
		[222]	Rn	radon	86
		[223]	Fr	francium	87
		[226]	Ra	radium	88
		[227]	Ac †	actinium	89
		[267]	Rf	rutherfordium	104
		[268]	Db	dubnium	105
		[271]	Sg	seaborgium	106
		[272]	Bh	bohrium	107
		[270]	Hs	hassium	108
		[276]	Mt	meitnerium	109
		[281]	Ds	darmstadtium	110
		[280]	Rg	roentgenium	111
		Elements with atomic numbers 112-116 have been reported but not fully authenticated			
		Key			
		relative atomic mass symbol name atomic (proton) number			
		(3)	(4)	(5)	(6)
		(7)	(8)	(9)	(10)
		(11)	(12)		
		(1)	(2)		
		6.9	Li	lithium	3
		9.0	Be	beryllium	4
		23.0	Na	sodium	11
		24.3	Mg	magnesium	12
		1.0	H	hydrogen	1

† 90 - 103 Actinides

140.1	Ce	140.9	Pr	144.2	Nd	[145]	Pm	150.4	Sm	152.0	Eu	157.3	Gd	158.9	Tb	162.5	Dy	164.9	Ho	167.3	Er	168.9	Tm	173.1	Yb	175.0	Lu
cerium		praseodymium		neodymium		promethium		samarium		europlium		gadolinium		terbium		dysprosium		holmium		erbium		thulium		ytterbium		lutetium	
58		59		60		61		62		63		64		65		66		67		68		69		70		71	
232.0	Th	231.0	Pa	238.0	U	[237]	Np	[244]	Pu	[243]	Am	[247]	Cm	[247]	Bk	[251]	Cf	[252]	Es	[257]	Fm	[258]	Md	[259]	No	[262]	Lr
thorium		protactinium		uranium		neptunium		plutonium		americium		curium		berkelium		californium		einsteinium		fermium		mendelevium		nobelium		lawrencium	
90		91		92		93		94		95		96		97		98		99		100		101		102		103	

GCE Chemistry Data Sheet


Table 1
Infrared absorption data

Bond	Wavenumber /cm ⁻¹
N-H (amines)	3300–3500
O-H (alcohols)	3230–3550
C-H	2850–3300
O-H (acids)	2500–3000
C≡N	2220–2260
C=O	1680–1750
C=C	1620–1680
C-O	1000–1300
C-C	750–1100

Table 2
¹H n.m.r. chemical shift data

Type of proton	δ/ppm
ROH	0.5–5.0
RCH ₃	0.7–1.2
RNH ₂	1.0–4.5
R ₂ CH ₂	1.2–1.4
R ₃ CH	1.4–1.6
R-C-C- O	2.1–2.6
R-O-C- H	3.1–3.9
RCH ₂ Cl or Br	3.1–4.2
R-C-O-C- O	3.7–4.1
R-C=C- H	4.5–6.0
R-C- O	9.0–10.0
R-C- O O-H	10.0–12.0

Table 3
¹³C n.m.r. chemical shift data

Type of carbon	δ/ppm
-C-C- 	5–40
R-C-Cl or Br 	10–70
R-C-C- O	20–50
R-C-N- 	25–60
-C-O- alcohols, ethers or esters	50–90
C=C- 	90–150
R-C≡N	110–125
	110–160
R-C- O esters or acids	160–185
R-C- O aldehydes or ketones	190–220

