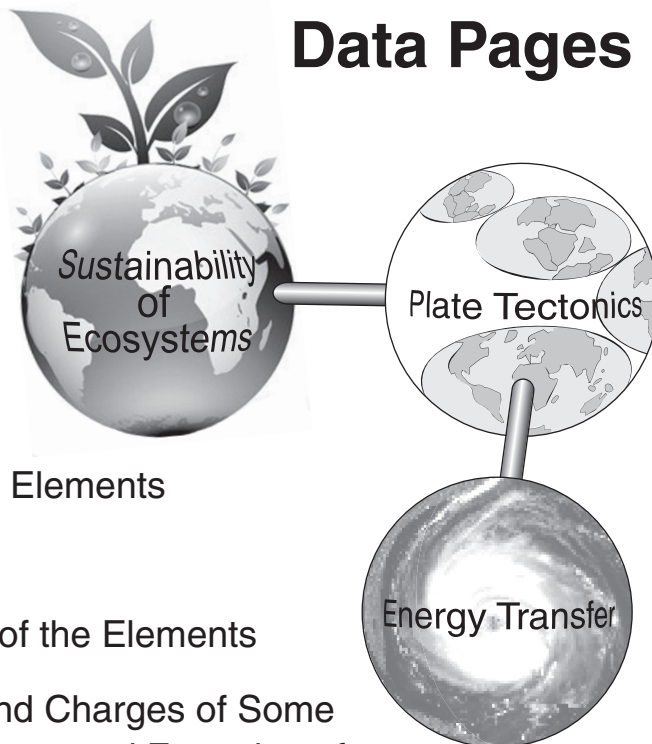
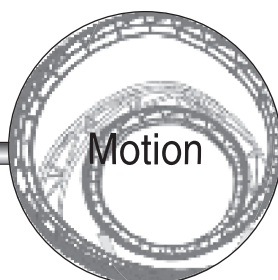
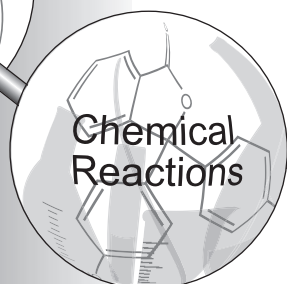
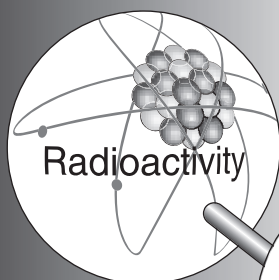


SCIENCE 10

Data Pages



Page 1	Table of Contents
Page 2	Periodic Table of the Elements
Page 3	pH Scale
Page 4	Alphabetical Listing of the Elements
Page 5	Names, Formulae and Charges of Some Polyatomic Ions; Names and Formulae of Common Acids; Prefixes
Page 6	Map of the Pacific Coast of North America
Page 7	World Tectonic Plate Boundaries Map
Page 8	The Carbon Cycle
Page 9	The Phosphorus Cycle
Page 10	Biomes of the World
Page 11	The Nitrogen Cycle
Page 12	Common Isotope Pairs Chart; Radioactivity Symbols; Units and Abbreviations; Equations of Motion



* These Science 10 Data Pages may be retained for classroom use. They **do not** need to be returned to the Ministry with the completed examinations.

PERIODIC TABLE OF THE ELEMENTS

1 H Hydrogen 1.0		NON-METALS																18 0 He Helium 4.0																																																																																																																																																																																																																																																																															
3 Li Lithium 6.9		4 Be Beryllium 9.0		11 Na Sodium 23.0		12 Mg Magnesium 24.3		13 B Boron 10.8		14 C Carbon 12.0		15 N Nitrogen 14.0		16 O Oxygen 16.0		17 F Fluorine 19.0		18 0 Ne Neon 20.2																																																																																																																																																																																																																																																																															
19 K Potassium 39.1		20 Ca Calcium 40.1		39 Y Yttrium 88.9		38 Sr Strontium 87.6		55 Cs Cesium 132.9		56 Ba Barium 137.3		87 Fr Francium (223)		88 Ra Radium (226)		89 Ac Actinium (227)		86 Rn Radon (222)		85 At Astatine (210)		84 Po Polonium (209)		83 Bi Bismuth 209.0		82 Pb Lead 207.2		81 Tl Thallium 204.4		80 Hg Mercury 200.6		79 Au Gold 197.0		78 Pt Platinum 195.1		77 Ir Iridium 192.2		76 Os Osmium 190.2		75 Re Rhenium 186.2		74 W Tungsten 183.8		73 Ta Tantalum 180.9		72 Hf Hafnium 178.5		71 La Lanthanum 138.9		70 Yb Ytterbium 173.0		69 Tm Thulium 168.9		68 Er Erbium 167.3		67 Ho Holmium 164.9		66 Dy Dysprosium 162.5		65 Tb Terbium 158.9		64 Gd Gadolinium 157.3		63 Eu Europium 152.0		62 Sm Samarium 150.4		61 Pm Promethium (145)		60 Nd Neodymium 144.2		59 Pr Praseodymium 140.9		58 Ce Cerium 140.1		101 Md Mendelevium (258)		102 No Nobelium (259)		103 Lr Lawrencium (262)		102 Fm Fermium (257)		101 Md Mendelevium (258)		100 Fm Fermium (257)		99 Es Einsteinium (252)		98 Cf Californium (251)		97 Bk Berkelium (247)		96 Cm Curium (247)		95 Am Americium (243)		94 Pu Plutonium (244)		93 Np Neptunium (237)		92 U Uranium 238.0		91 Pa Protactinium 231.0		90 Th Thorium 232.0		90 Th Thorium 232.0		89 Ac Actinium (227)		88 Ra Radium (226)		87 Fr Francium (223)		86 Rn Radon (222)		85 At Astatine (210)		84 Po Polonium (209)		83 Bi Bismuth 209.0		82 Pb Lead 207.2		81 Tl Thallium 204.4		80 Hg Mercury 200.6		79 Au Gold 197.0		78 Pt Platinum 195.1		77 Ir Iridium 192.2		76 Os Osmium 190.2		75 Re Rhenium 186.2		74 W Tungsten 183.8		73 Ta Tantalum 180.9		72 Hf Hafnium 178.5		71 La Lanthanum 138.9		70 Yb Ytterbium 173.0		69 Tm Thulium 168.9		68 Er Erbium 167.3		67 Ho Holmium 164.9		66 Dy Dysprosium 162.5		65 Tb Terbium 158.9		64 Gd Gadolinium 157.3		63 Eu Europium 152.0		62 Sm Samarium 150.4		61 Pm Promethium (145)		60 Nd Neodymium 144.2		59 Pr Praseodymium 140.9		58 Ce Cerium 140.1		57 La Lanthanum 138.9		56 Ba Barium 137.3		55 Cs Cesium 132.9		54 Xe Xenon 131.3		53 I Iodine 126.9		52 Te Tellurium 127.6		51 Sb Antimony 121.8		50 Sn Tin 118.7		49 In Indium 114.8		48 Cd Cadmium 112.4		47 Ag Silver 107.9		46 Pd Palladium 106.4		45 Rh Rhodium 102.9		44 Ru Ruthenium 101.1		43 Tc Technetium (98)		42 Mo Molybdenum 95.9		41 Nb Niobium 92.9		40 Zr Zirconium 91.2		39 Y Yttrium 88.9		38 Sr Strontium 87.6		37 Rb Rubidium 85.5		36 Kr Krypton 83.8		35 Br Bromine 79.9		34 Se Selenium 79.0		33 As Arsenic 74.9		32 Ge Germanium 72.6		31 Ga Gallium 69.7		30 Zn Zinc 65.4		29 Cu Copper 63.5		28 Ni Nickel 58.7		27 Co Cobalt 58.9		26 Fe Iron 55.8		25 Mn Manganese 54.9		24 Cr Chromium 52.0		23 V Vanadium 50.9		22 Ti Titanium 47.9		21 Sc Scandium 45.0		20 Ca Calcium 40.1		19 K Potassium 39.1		18 Ar Argon 39.9		17 Cl Chlorine 35.5		16 S Sulfur 32.1		15 P Phosphorus 31.0		14 Si Silicon 28.1		13 Al Aluminum 27.0		12 Mg Magnesium 24.3		11 Na Sodium 23.0		10 Ne Neon 20.2		9 F Fluorine 19.0		8 O Oxygen 16.0		7 N Nitrogen 14.0		6 C Carbon 12.0		5 B Boron 10.8		4 Be Beryllium 9.0		3 Li Lithium 6.9		2 He Helium 4.0		1 H Hydrogen 1.0		0 He Helium 4.0	

Atomic Number → 22
Symbol → **Ti**
Name → Titanium
Atomic Mass → 47.9

Ion charge(s) → 4+ 3+

METALS ← → NON-METALS

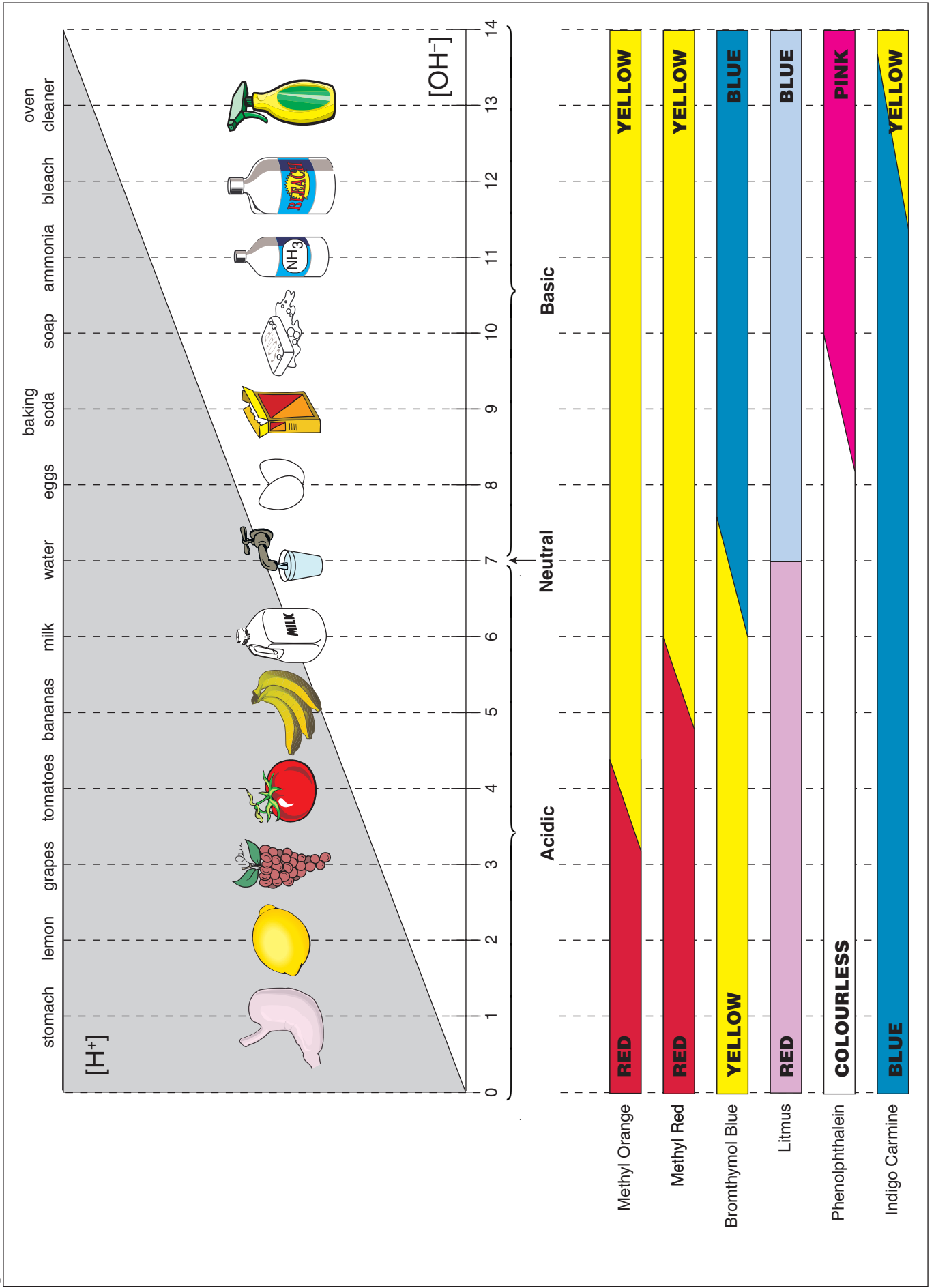
Alkali Metals
Alkaline Earth Metals

Halogens
Noble Gases

Based on mass of C-12 at 12.00.

Any value in parentheses is the mass of the most stable or best known isotope for elements which do not occur naturally.

pH SCALE



ALPHABETICAL LISTING OF THE ELEMENTS

Element	Symbol	Atomic Number	Element	Symbol	Atomic Number
Actinium	Ac	89	Mendelevium	Md	101
Aluminium	Al	13	Mercury	Hg	80
Americium	Am	95	Molybdenum	Mo	42
Antimony	Sb	51	Neodymium	Nd	60
Argon	Ar	18	Neon	Ne	10
Arsenic	As	33	Neptunium	Np	93
Astatine	At	85	Nickel	Ni	28
Barium	Ba	56	Niobium	Nb	41
Berkelium	Bk	97	Nitrogen	N	7
Beryllium	Be	4	Nobelium	No	102
Bismuth	Bi	83	Osmium	Os	76
Bohrium	Bh	107	Oxygen	O	8
Boron	B	5	Palladium	Pd	46
Bromine	Br	35	Phosphorus	P	15
Cadmium	Cd	48	Platinum	Pt	78
Calcium	Ca	20	Plutonium	Pu	94
Californium	Cf	98	Polonium	Po	84
Carbon	C	6	Potassium	K	19
Cerium	Ce	58	Praseodymium	Pr	59
Cesium	Cs	55	Promethium	Pm	61
Chlorine	Cl	17	Protactinium	Pa	91
Chromium	Cr	24	Radium	Ra	88
Cobalt	Co	27	Radon	Rn	86
Copper	Cu	29	Rhenium	Re	75
Curium	Cm	96	Rhodium	Rh	45
Darmstadtium	Ds	110	Roentgenium	Rg	111
Dubnium	Db	105	Rubidium	Rb	37
Dysprosium	Dy	66	Ruthenium	Ru	44
Einsteinium	Es	99	Rutherfordium	Rf	104
Erbium	Er	68	Samarium	Sm	62
Europium	Eu	63	Scandium	Sc	21
Fermium	Fm	100	Seaborgium	Sg	106
Fluorine	F	9	Selenium	Se	34
Francium	Fr	87	Silicon	Si	14
Gadolinium	Gd	64	Silver	Ag	47
Gallium	Ga	31	Sodium	Na	11
Germanium	Ge	32	Strontium	Sr	38
Gold	Au	79	Sulfur	S	16
Hafnium	Hf	72	Tantalum	Ta	73
Hassium	Hs	108	Technetium	Tc	43
Helium	He	2	Tellurium	Te	52
Holmium	Ho	67	Terbium	Tb	65
Hydrogen	H	1	Thallium	Tl	81
Indium	In	49	Thorium	Th	90
Iodine	I	53	Thulium	Tm	69
Iridium	Ir	77	Tin	Sn	50
Iron	Fe	26	Titanium	Ti	22
Krypton	Kr	36	Tungsten	W	74
Lanthanum	La	57	Uranium	U	92
Lawrencium	Lr	103	Vanadium	V	23
Lead	Pb	82	Xenon	Xe	54
Lithium	Li	3	Ytterbium	Yb	70
Lutetium	Lu	71	Yttrium	Y	39
Magnesium	Mg	12	Zinc	Zn	30
Manganese	Mn	25	Zirconium	Zr100	40
Meitnerium	Mt	109			

NAMES, FORMULAE AND CHARGES OF SOME POLYATOMIC IONS

Positive Ions	Negative Ions
NH_4^+ Ammonium	CH_3COO^- Acetate
	CO_3^{2-} Carbonate
	ClO_3^- Chlorate
	ClO_2^- Chlorite
	CrO_4^{2-} Chromate
	CN^- Cyanide
	$\text{Cr}_2\text{O}_7^{2-}$ Dichromate
	HCO_3^- Hydrogen carbonate, bicarbonate
	HSO_4^- Hydrogen sulfate, bisulfate
	HS^- Hydrogen sulfide, bisulfide
	HSO_3^- Hydrogen sulfite, bisulfite
	OH^- Hydroxide
	ClO^- Hypochlorite
	NO_3^- Nitrate
	NO_2^- Nitrite
	ClO_4^- Perchlorate
	MnO_4^- Permanganate
	PO_4^{3-} Phosphate
	PO_3^{3-} Phosphite
	SO_4^{2-} Sulfate
	SO_3^{2-} Sulfite

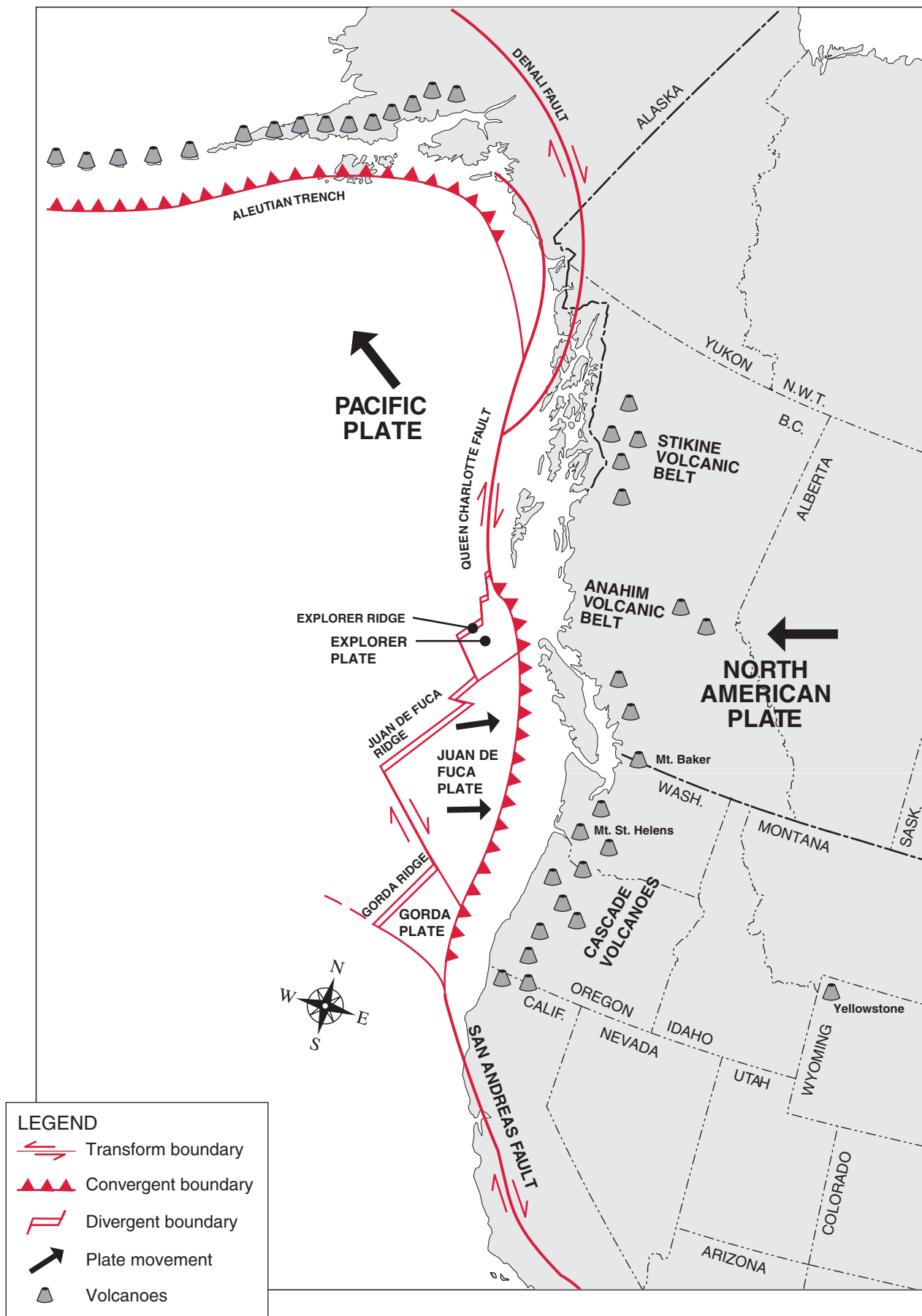
NAMES AND FORMULAE OF COMMON ACIDS

Hydrochloric acid	HCl
Sulfuric acid	H_2SO_4
Nitric acid	HNO_3
Acetic acid	HCH_3COO

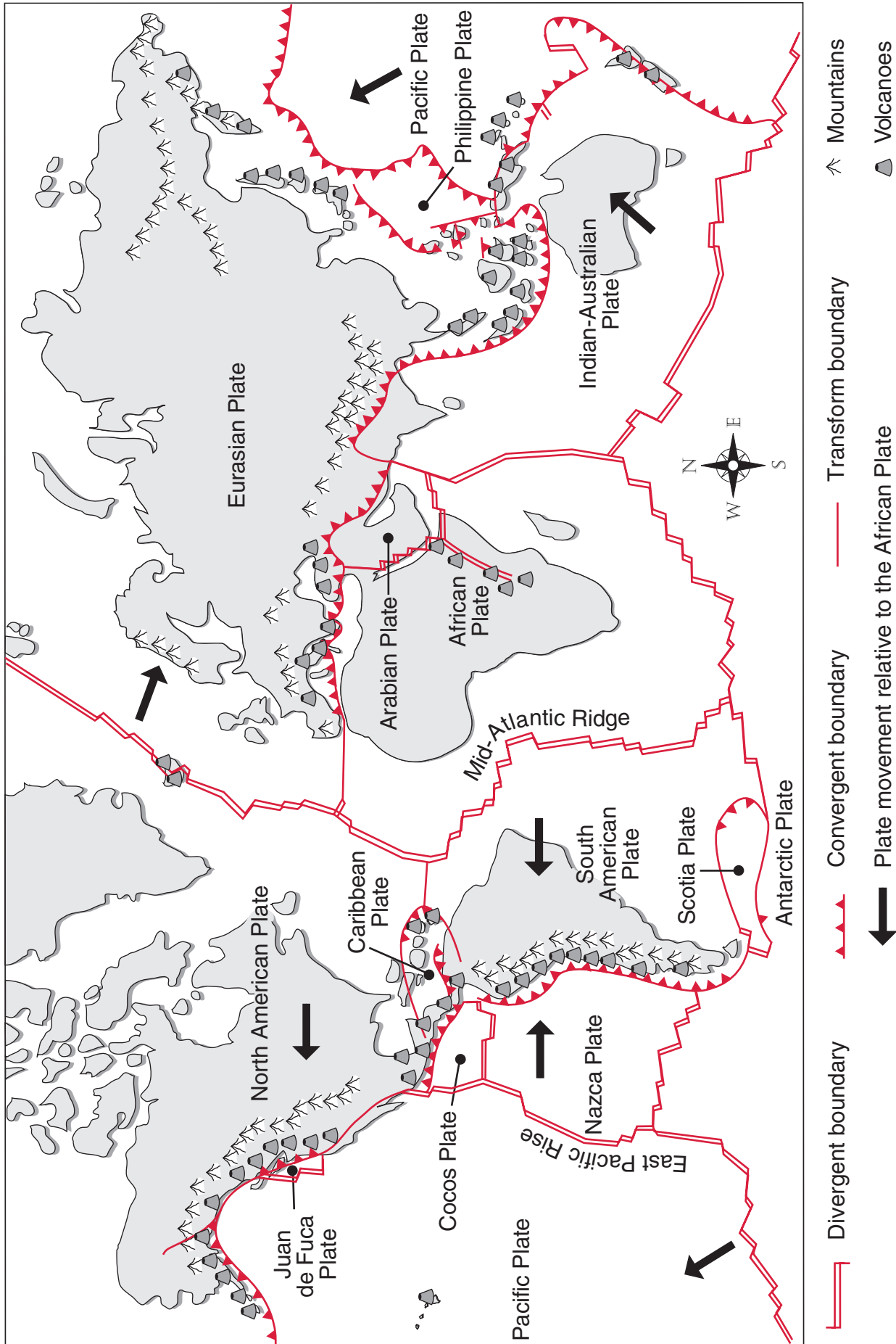
PREFIXES

1	mono
2	di
3	tri
4	tetra
5	penta
6	hexa
7	hepta
8	octa
9	nona
10	deca

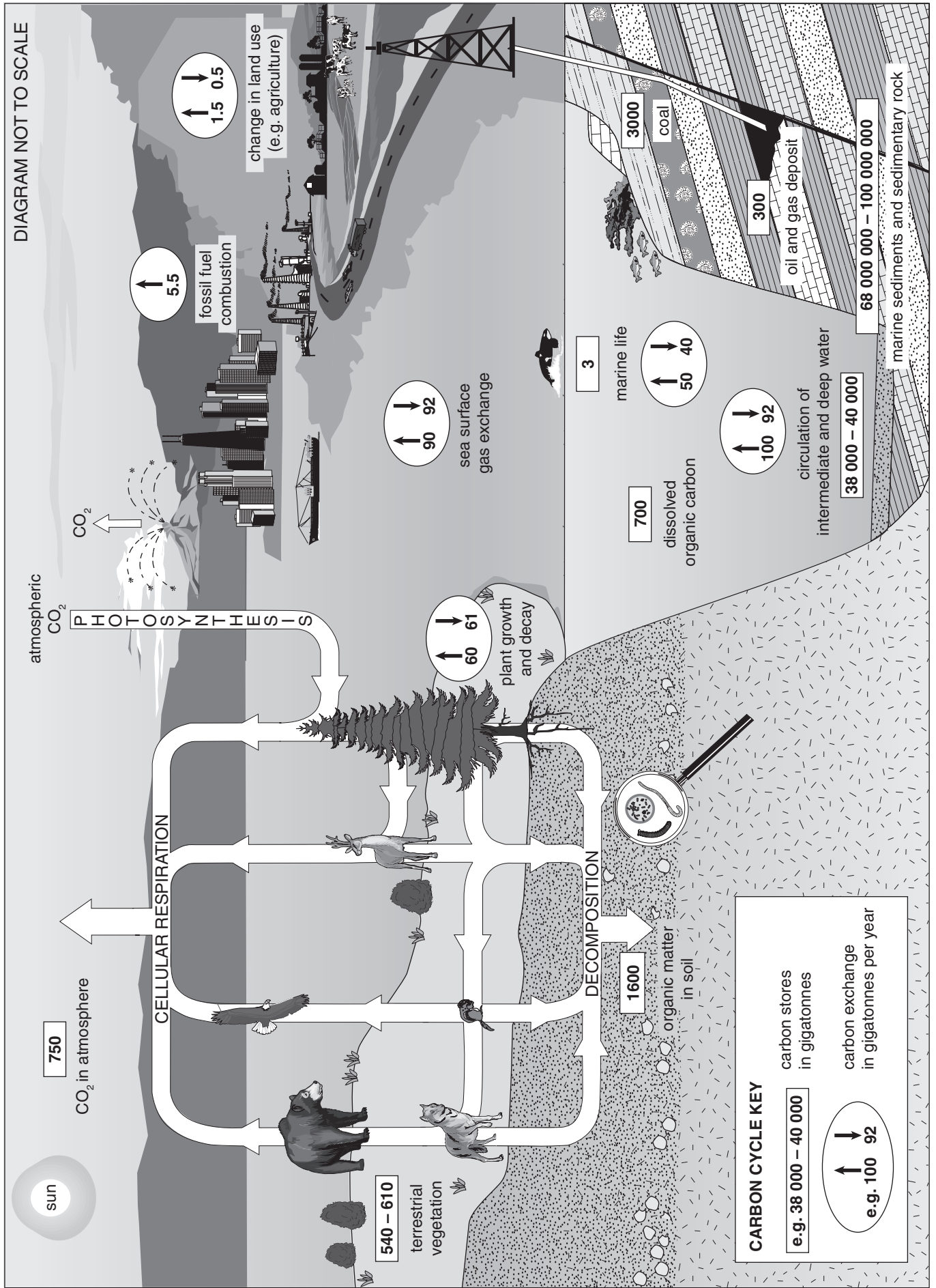
MAP OF THE PACIFIC COAST OF NORTH AMERICA



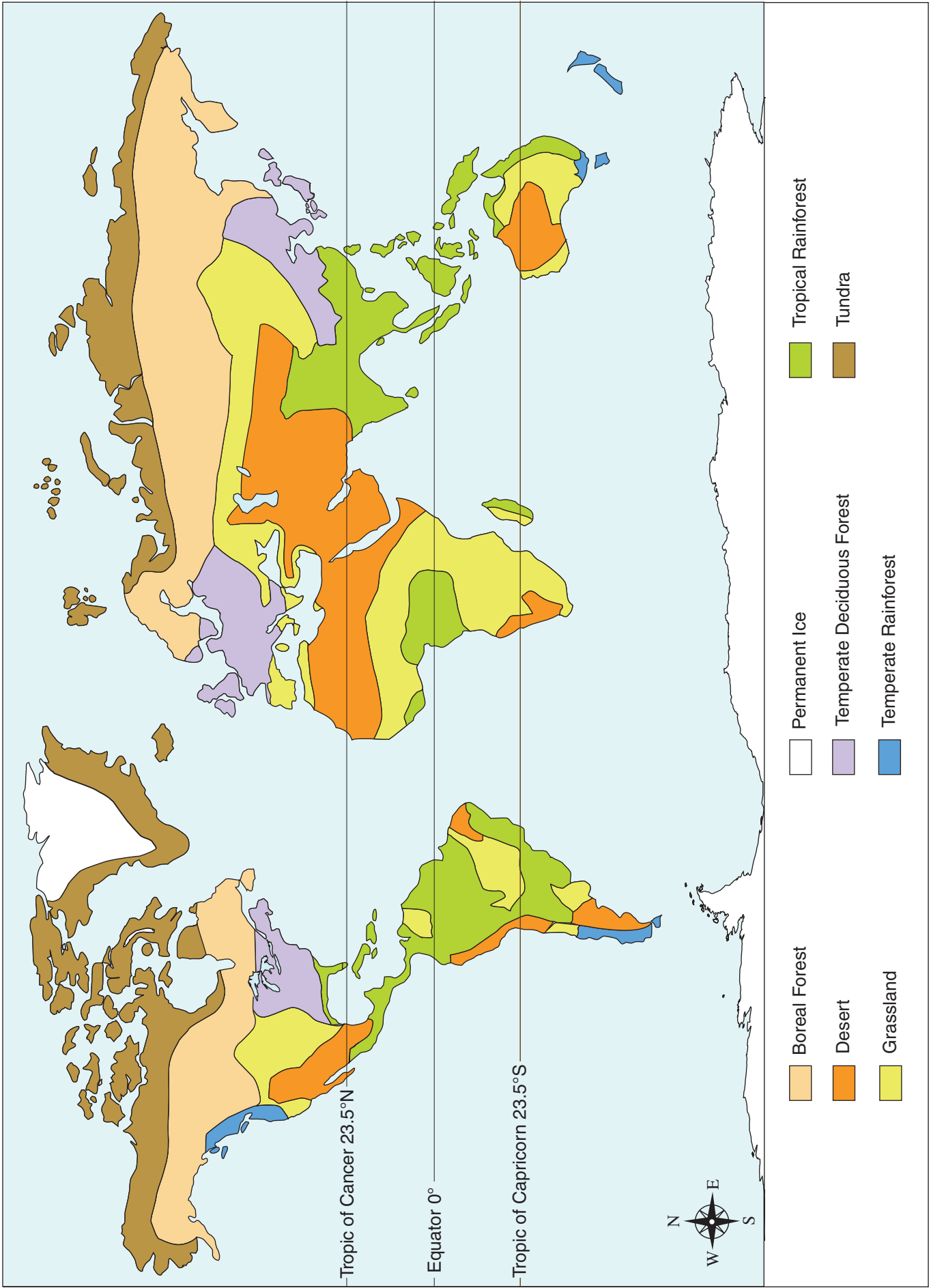
WORLD TECTONIC PLATE BOUNDARIES MAP



THE CARBON CYCLE

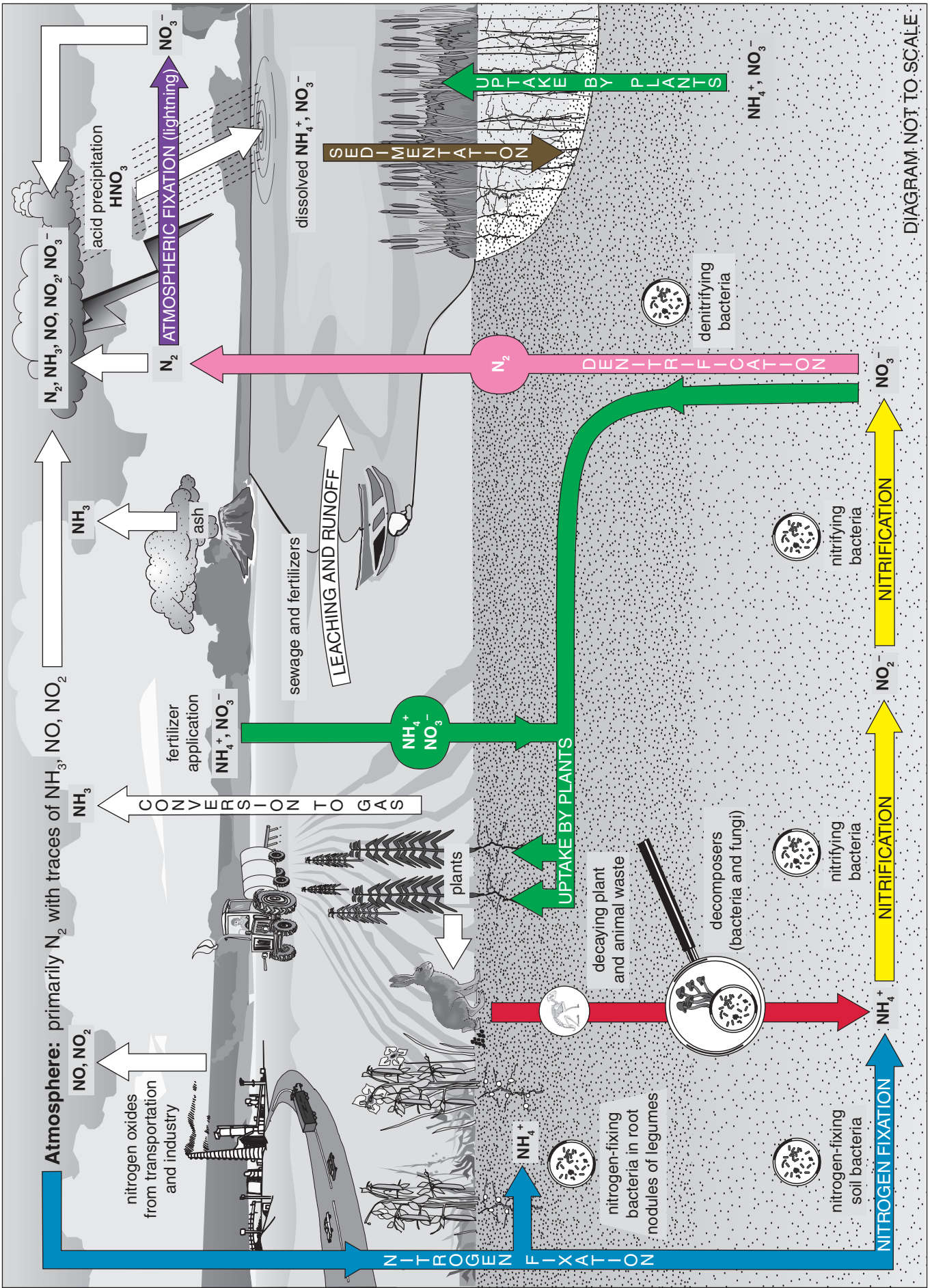


BIOMES OF THE WORLD



Different sources will provide varying information.

THE NITROGEN CYCLE



COMMON ISOTOPE PAIRS CHART

Isotope		Half-life of Parent (years)
<i>Parent</i>	<i>Daughter</i>	
Carbon-14	Nitrogen-14	5730
Uranium-235	Lead-207	710 million
Potassium-40	Argon-40	1.3 billion
Uranium-238	Lead-206	4.5 billion
Thorium-235	Lead-208	14 billion
Rubidium-87	Strontium-87	47 billion

RADIOACTIVITY SYMBOLS

${}^4_2\alpha, {}^4_2\text{He}$	${}^0_{-1}\beta, {}^0_{-1}e$	${}^0_0\gamma$
1_0n	${}^1_1p, {}^1_1\text{H}$	

UNITS AND ABBREVIATIONS

Quantity	Unit	Symbol
distance (d)	metre	m
time (t)	second	s
	minute	min
	hour	h
	year	a

EQUATIONS OF MOTION

$v_{av} = \frac{\Delta d}{\Delta t}$	$a = \frac{\Delta v}{\Delta t}$	$\Delta v = v_f - v_i$
$\Delta d = v_{av} \Delta t$	$\Delta v = a \Delta t$	$v_i = v_f - \Delta v$
$\Delta t = \frac{\Delta d}{v_{av}}$	$\Delta t = \frac{\Delta v}{a}$	$v_f = v_i + \Delta v$