

See back cover for an English
translation of this cover

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L1-MSCIE



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

Pūtaiao, Kaupae 1, 2022

**TE PUKAPUKA RAUEMI
mō 90940M me 90944M**

Whakamahia tēnei pukapuka ki te whakaoti i ngā tūmahi i 90940M me 90944M.

Tirohia kia kitea ai e tika ana te raupapatanga o ngā whārangi 2–5 i tēnei pukapuka, ka mutu, kāore tētahi o aua whārangi i te takoto kau.

E ĀHEI ANA TŌ PUPURI KI TĒNEI PUKAPUKA HEI TE MUTUNGA O TE WHAKAMĀTAUTAU.

90940 Te whakaatu māramatanga ki ngā āhuatanga o te pūhanga manawa

$$v = \frac{\Delta d}{\Delta t} \quad a = \frac{\Delta v}{\Delta t} \quad F_{\text{net}} = ma \quad P = \frac{F}{A} \quad \Delta E_p = mg\Delta h$$

$$E_k = \frac{1}{2}mv^2 \quad W = Fd \quad g = 10 \text{ N kg}^{-1} \quad P = \frac{W}{t}$$

90944 Te whakaatu māramatanga ki ngā āhuatanga o te waikawa me te pāpāhua

Te Tūtohi o ngā Katote

+1	+2	+3	-3	-2	-1
NH_4^+	Ca^{2+}	Al^{3+}		O^{2-}	OH^-
Na^+	Mg^{2+}	Fe^{3+}		S^{2-}	Cl^-
K^+	Cu^{2+}			CO_3^{2-}	NO_3^-
Ag^+	Pb^{2+}			SO_4^{2-}	HCO_3^-
H^+	Fe^{2+}				F^-
	Ba^{2+}				Br^-
	Zn^{2+}				I^-

90940 Demonstrate understanding of aspects of mechanics

$$v = \frac{\Delta d}{\Delta t} \quad a = \frac{\Delta v}{\Delta t} \quad F_{\text{net}} = ma \quad P = \frac{F}{A} \quad \Delta E_p = mg\Delta h$$

$$E_k = \frac{1}{2}mv^2 \quad W = Fd \quad g = 10 \text{ N kg}^{-1} \quad P = \frac{W}{t}$$

90944 Demonstrate understanding of aspects of acids and bases**Table of Ions**

+1	+2	+3	-3	-2	-1
NH ₄ ⁺	Ca ²⁺	Al ³⁺		O ²⁻	OH ⁻
Na ⁺	Mg ²⁺	Fe ³⁺		S ²⁻	Cl ⁻
K ⁺	Cu ²⁺			CO ₃ ²⁻	NO ₃ ⁻
Ag ⁺	Pb ²⁺			SO ₄ ²⁻	HCO ₃ ⁻
H ⁺	Fe ²⁺				F ⁻
	Ba ²⁺				Br ⁻
	Zn ²⁺				I ⁻

TE TAKA PŪMOTU

Te tau iraohu																	
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57	La	58	Ce	59	Pr	60	Nd	61	Pm	62	Sm	63	Eu	64	Gd	65	Tb	66	Dy	67	Ho	68	Er	69	Tm	70	Yb
89	Ac	90	Th	91	Pa	92	U	93	Np	94	Pu	95	Am	96	Cm	97	Bk	98	Cf	99	Es	100	Fm	101	Md	102	No

PERIODIC TABLE OF THE ELEMENTS

Atomic number																		1																	
																		H																	
<i>1</i>	<i>2</i>																	<i>18</i>																	
3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
Li	Be															K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr		
11	12															Na	Mg																		
19	20															Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe		
37	38															Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe		
55	56															Cs	Ba																		
87	88															Fr	Ra	Lr	Rf	Db	Sg	Bh	Hs	Mt	Ds	Rg	Cn	Nh	Fl	Mc	Lv	Ts	Og		

57	58	59	60	61	62	63	64	65	66	67	68	69	70
La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb
89	90	91	92	93	94	95	96	97	98	99	100	101	102
Ac	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No

English translation of the wording on the front cover

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Level 1 Science 2022

RESOURCE BOOKLET
for 90940M and 90944M

Refer to this booklet to answer the questions for 90940M and 90944M.

Check that this booklet has pages 2–5 in the correct order and that none of these pages is blank.

YOU MAY KEEP THIS BOOKLET AT THE END OF THE EXAMINATION.