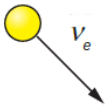
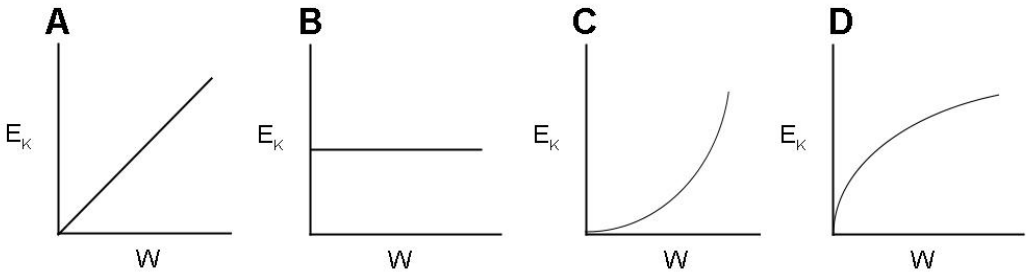
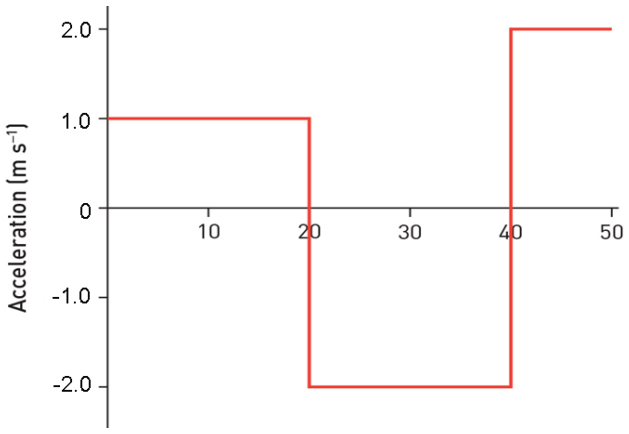
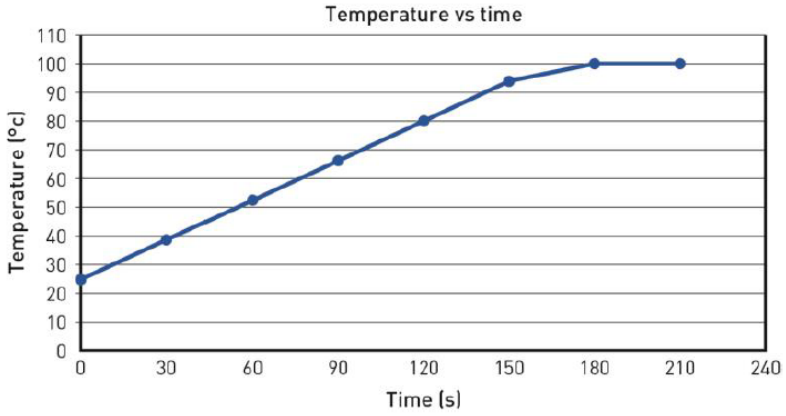
NCPQ 3ed. Corrections still to be made to student book (SB) and obook. Richard Walding 24 October 2021.

	UNIT 1&2 STUDENT BOOK
U1&2 SB P 87	Ch 1 Revision Q45. Unit for expansion coefficient is K^{-1} not $m\ K^{-1}$
U1&2 SB P 96	U1&2 Chapter 2.3 page 96 Worked Example 2.3C Answer is 26°C (2 sf)
U1&2 SB P 96	Worked Example 2.3D. Last three lines should read: $-846T_f = -58720$ $-846T_f = 69.4^{o}\text{C}$ $= 69^{o}\text{C}\,(2\text{sf})$
U1&2 P108	Chapter 2 Review Question 16. "A ~~20 000 J~~ 200 J energy supply…"
U1&2 P126	Chapter 3.5 page 126. The second line of the equation above Figure 3 should read 0 = Q + W, not 0 = Q + T.
U1&2 SB P168	Chapter 5.4 page 168 Figure 3 
U1&2 SB P170	6th line under heading "Decay Series". The symbol should be ${}^{4}_{2}He$ not ${}^{2}_{4}He$
U1&2 SB P176	Chapter
U1&2 SB p 195	Chapter 6, Q5(c): ${}^{235}_{92}\text{U} + {}^{1}_{0}\text{n} \rightarrow {}^{152}_{60}\text{Nd} + {}^{81}_{?}? + ?\,{}^{1}_{0}\text{n}$
U1&2 SB P 226	Chapter 7 Revision Q21. Change to "In moving an electron from point X to point Y …"
U1&2 SB P265	Chapter 9 Review Question 6. First column, second row should be labelled 'c'.
U1&2 SB P314	Chapter 11.3, Page 314. In margin. Mass - a characteristic of a body's resistance to *change in* motion; also called inertia
U1&2 SB P356	Chapter 13.2. To be added in the next edition. Under the equation $W = \boldsymbol{F}\,\boldsymbol{s}$ (in the middle) it is probably worth stating that The unit for work will be newton metre (N m) and this is equivalent to a joule (J).
U1&2 SB P368	Chapter 13.4, Worked example Second last line. There should be a space before "The first solution…
U1&2 SB P368	Chapter 13.4, Worked example The last line should read: "..the equation $\mathbf{v}_A = 1 - \mathbf{v}_B$ gives a value for $\mathbf{v}_A$ of -2 m s^{-1} (2 m s^{-1} to the left)".
U1&2 SB p 373	Chapter 13. Revision Questions Q2. Graph is missing. It looks like this:  Suggest you delete photo of lift (Figure 1) and replace it with the figure shown above. It should go after Q2 on page 373.
U1&2 SB P 387	Chapter 14 – CYL 14.2 Q9. Should start with "Figure 1 (page 382)…" not Figure 12.
U1&2 SB P457	Chapter 14. Middle of Figure 5. Spelling should be "principal" not "principle"
	UNIT 1&2 OBOOK
U1&2 obook	Chapter 6, Q5(c): ${}^{235}_{92}\text{U} + {}^{1}_{0}\text{n} \rightarrow {}^{152}_{60}\text{Nd} + {}^{81}_{?}? + ?\,{}^{1}_{0}\text{n}$
U1&2 obook	Chapter 7 Answers, Revision Q21. "In moving an electron from point X to point Y …"
U1&2 obook	Ch 7 Answers. Revision Q21

	$V = \frac{W}{q} = \frac{2\times10^{-20}}{1.6\times10^{-19}} = 0.125\,J$
U1&2 obook	Chapter 9 Revision Q 15. $W = \frac{V}{Q}$ $= \frac{12}{18}$ $= 0.67V$
U1&2 obook	Chapter 9 Revision Question 15. Answer: $V = \frac{W}{Q}$ $W = VQ = 12\times18$ $= 216\,\text{J}$
U1&2 obook	Chapter 10 CYL 10.5 Q2. Corrections are shown in red. a i **Calculate** the bungee jumper's displacement and distance travelled after 40 s. At 40 s, Displacement (area) $= \frac{30\times20}{2} + \frac{-20\times20}{2}$ $= 300 + -200$ $= +100$ m Distance $= 300 + 200$ $= 500$ m ii **Calculate** the bungee jumper's acceleration at 10 s, 30 s and 45 s. Acceleration at 10 s = gradient $= \frac{20}{20}$ $= 1.0\ \text{m s}^{-2}$ Acceleration at 30 s $= \frac{-20 - +20}{20}$ $= \frac{-40}{20}$ $= -2.0\ \text{m s}^{-2}$ Acceleration at 45 s $= \frac{0 - -20}{10}$ $= \frac{+20}{10}$ $= +2.0\ \text{m s}^{-2}$ iii **Sketch** an acceleration–time graph. 

U1&2 obook	U1&2 Challenge Ch 10.1 answers. Last paragraph is incomplete. Please add: Direction: D is at an elevation of 26.6° to the horizontal. If you mark a point directly under D, it will be 26.6° to the E of N. The distance between A and D is 12.2 m. Thus, the displacement BD is 12.2 m N 26.6° E at an elevation of 26.6°.
U1&2 obook	U1&2 CYL 10.4 Q3 Answer should read: Gradient = $\frac{\Delta y}{\Delta x} = \frac{20-0}{2.5-1.0} = \frac{20}{1.5}$ $= 13.3 \text{ m s}^{-1}$
U1&2 obook	CYL 10.5 Q4b. Answer: Instantaneous speed = the speed value (y-axis) at that time = 5 m s^{-1} Note: read the question carefully. The question has not asked for instantaneous acceleration at 5 s which would be the gradient to the tangent to the line at 5 s, or 1 m s^{-2}.
U1&2 obook	Chapter 11 Revision Q20 $F_{\text{total}} = F_{\text{W}} + F_{additional}$ $3\times10^4 = 2.5\times10^3 \times 9.8 + 2.5\times10^3 a$ $3\times10^4 = 2.45\times10^4 + 2.5\times10^3 a$ $5500 = 2.5\times10^3 a$ $a = 2.2 \text{ m s}^{-2}$ upwards $s = \frac{1}{2}at^2$ $t = \sqrt{\frac{2s}{a}}$] $= \sqrt{\frac{2\times500}{2.2}}$ $= 21.3\text{s}$
U1&2 obook	CYL12.2 Q7. Answer: $m_1u_1 = m_1v_1 + m_2v_2$ (let the forward direction be + direction) $6000\times355 = 5940v_1 + 60\times750$ $2\,130\,000 = 5940v_1 + 45\,000$ $2\,085\,000 = 5940v_1$ $v_1 = +351 \text{ m s}^{-1}$ (in the forward direction)
U1&2 obook	CYL12.2 Q10(a). Answer: $m_1u_1 + m_2u_2 = (m_1 + m_2)v_1$ $(0.41\times10^{-3})\times u_1 + (0.170+0.350)\times0 = ((0.41\times10^{-3}) + 0.170 + 0.350)\times0.178$ $(0.41\times10^{-3})u_1 + 0 = 0.0926$ $u_1 = \frac{0.0926}{0.41 \times 10^{-3}}$ $u_1 = +226 \text{ m s}^{-1}$
U1&2 obook	CYL 12.2 Q10(b) Fix spelling of "mas" to "mass"
U1&2 obook	Filename: NCPQ_Unit_1&2_Practice_exam.docx MC Question 6. B $^{24}_{13}\text{Al} \rightarrow {}^{24}_{12}\text{Mg} + {}^{0}_{+1}e + \nu_e$

U1&2 obook	U1&2 Practice exam. MC Question 14. Answer is (A)
U1&2 obook	U1&2 Practice exam. MC Question 22. Add: n_{water} = 1.33
U1&2 obook	U1&2 Practice exam. Short answer Q1b(i). Second line in solution: $-m_w c_w \Delta T_w = -m_{ice} c_{icewater} \Delta T_{icewater} + mL_f$ Should read: $-m_w c_w \Delta T_w = m_{ice} c_{icewater} \Delta T_{icewater} + mL_f$
	U1&2 Practice exam. Short answer Q2b. Second line in solution: $-m_w c_w \times T_w = m_{ice} \times C_{ice} \times T_{ice} + m \times L_f + m_{icewater} \times C_{icewater} \times T_{icewater}$ Should read: $-m_w c_w \times \Delta T_w = m_{ice} \times c_{ice} \times \Delta T_{ice} + m \times L_f + m_{icewater} \times c_{icewater} \times \Delta T_{icewater}$
U1&2 obook	U1&2 Practice exam. Question 9. Calculate how many electrons are required to produce a charge of -10 μC.
U1&2 obook	Unit 1&2 Practice exam. Short Answer Question 10 A particular tube of a pipe organ can most easily produce frequencies of 686 Hz, 1029 Hz and 1372 Hz. The speed of sound in the organ is 340 m s^{-1}.
U1&2 obook	Unit 1 Data Test. Dataset 2 Figure 3. Please change to this: 
U1&2 obook	Unit 1 Data Test. Dataset 3 Q10. Answers. Corrections are in red. The percentage uncertainty in the resistivity is 21.0 % (from the δ% uncertainty in the gradient). The absolute uncertainty in the resistivity is: 1.20 × 10^{-6}- Ω m ± 21.0 %, or 1.20 × 10^{-6} ± 0.3 × 10^{-6} So the range is from 0.9 × 10^{-6} Ω m to 1.5 × 10^{-6} Ω m. Absolute error: $E_a = \lvert O - A \rvert$ $= \lvert 1.20 \times 10^{-6} - 1.15 \times 10^{-6} \rvert \text{Wm}^{-1}$ $= 0.05 \times 10^{-6} \text{Wm}^{-1}$ $E\% = \frac{E_a}{A} \times 100$ $= \frac{0.05 \times 10^{-6}}{1.15 \times \times 10^{-6}} \times 100$ $= 4.35\%$ The accepted value of resistivity of 1.15 × 10^{-6} Ω m is within the experimental range of 0.9 × 10^{-6} Ω m to 1.5 × 10^{-6} Ω m. The experiment has confirmed the resistivity of nichrome wire within the experimental limitations of the equipment.
	U1&2 ASSESS QUIZZES
U1&2 obook	Assess quiz. Chapter 2 Consolidate. Q1. Add the words in red: Determine which of the following determines the direction of transfer..”

<table>
<tr><td>U1&2 obook</td><td>Assess quiz. Chapter 2 Consolidate. Q4. Add degree symbol after the 20</td></tr>
<tr><td>U1&2 obook</td><td>Assess quiz. Chapter 2 Extend. Q2.
“A 40 g piece of iron at a temperature of 120° C is placed in a container of 600 g of water…</td></tr>
<tr><td>U1&2 obook</td><td>Assess quiz. Chapter 2 Consolidate. Q4. Add degree symbol after the 20</td></tr>
<tr><td>U1&2 obook</td><td>Assess quiz. Chapter 4 Consolidate. Q5
$1.68\times10^{-11}\,J$ (correct answer)
$1.86\times10^{-28}\,J$ (incorrect answer)
$5.58\times10^{-20}\,J$ (incorrect answer)
$1.01\times10^{16}\,J$ (incorrect answer)</td></tr>
<tr><td>U1&2 obook</td><td>Quizzes Chapter 9 Extend Q 3
[correct answer] a =c, b
[incorrect answer] b, a = c
[incorrect answer] c, a, b
[incorrect answer] a, b, c</td></tr>
<tr><td>U1&2 obook</td><td>Quizzes Chapter 10 Extend Q2
[correct answer] 1.5 s
[incorrect answer] 1.0 s
[incorrect answer] 2.5 s
[incorrect answer] 5.4 s</td></tr>
<tr><td>U1&2 obook</td><td>Assess Quizzes U1&2 Chapter 13 – support – Q2
<table><tr><td>Correct answer</td><td>The force on the ball is at right angles to the ball’s motion.</td></tr><tr><td>Incorrect answer</td><td>No net force acts on the ball.</td></tr><tr><td>Incorrect answer</td><td>No potential energy is being converted to kinetic energy.</td></tr><tr><td>Incorrect answer</td><td>No distance is covered by the ball.</td></tr></table></td></tr>
<tr><td>U1&2 obook</td><td>Assess quiz. Chapter 15 Extend. Q2.
2
Calculate the wavelength of the sound in air from a piano string that has a frequency of 440 Hz, on a $25^{\circ}C$ day. The speed of sound is related to temperature by the formula: v (sound) = 331 + 0.6T, where T = temperature in $^{\circ}C$.</td></tr>
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