TeeJay Publishers

SQA - National 4

* Based on Books N4-1 and N4-2

National 4 Course Planner - Following Outcome Order

This *Course Planner* for **National 4** comes in two parts :-

Part A - Each Outcome is listed, directly from the SQA site, with a reference as to how our New National 4 Books N4-1/N4-2, cover the entire contents as listed in the official documents. This Part takes the learner through the course following the Units :- Expressions & Formulae, Relationships and Numeracy.

Part B - The Chapters are listed **in order** from our New National books N4-1 and N4-2, in a more realistic way, and list references to the official SQA list of Outcomes (**A more practical course planner**)

TeeJay Publishers has produced **Part B** to assist schools in their practical preparation for a CfE **National 4** course.

Part B version of the *Planner* from **TeeJay** provides substance to what the content of each level includes, and gives an indication as to what is required at that level, with some basic examples where necessary.

It provides the basis of a course based on TeeJay's **Books N4-1 and N4-2** and because it is in electronic form, it includes a final column which will allow planners to list practical activities, ICT Resources and specific methodologies.

Expressions and Formulae (EF) page 1

Outcome	Definition	Book N4-1	Book N4-2	Comments/Methodology/Other Resources	√
Applying algebraic skills to manipulating expressions and working with formulae					
E1.1 Using the distributive law in an expression with a numerical common factor to produce a sum of terms.	*3(4x ± 2) 5(a ± 2c)* Tidying up simple expressions Multiplying out and simplify terms	*Ch 7 page 85 Ex1* *Ch 7 page 86 Ex2* *Ch 7 page 86 Ex3*	*Review Page ...*		☐ ☐ ☐
E1.2 Factorising a sum of terms with a numerical common factor.	*7x ± 21 9 ± 27x* Revision - multiply out brackets & gather like terms. See 1.1 above. Finding factors of whole numbers. HCF also Factorising eg $6x - 14 = 2(3x - 7)$ *What have I learned ?*		*Ch 17 page 231 Ex1* *Ch 17 page 232 Ex2* *Ch 17 page 233-234 Ex3* *Ch 17 page 235*		☐ ☐ ☐ ☐
E1.3 Simplifying an expression which has more than one variable.	*3a + 4b – a + 6b* Multiply out brackets and gather like terms	*Ch 7 page 87 Ex3 Q 2*			☐
E1.4 Evaluating an expression or a formulae which has more than one variable.	*Evaluate linear expressions for given variables 4w + 6t – 3k* Substitute numbers for letters in expressions Formula ... rules expressed in words Using formulae eg $V = 5PT$. Find V when $P = 2$ and $T = 3$ *What have I learned ?*		*Ch 14 page 202-203 Ex1* *Ch 14 page 204-205 Ex2* *Ch 14 page 206-208 Ex3* *Ch 14 page 211*		☐ ☐ ☐ ☐

Expressions and Formulae (EF) page 2

Outcome	Definition	Book N4-1	Book N4-2	Comments/Methodology/Other Resources	√
E1.5 Extending a straightforward number or diagrammatic pattern and determine its formula. Well known sequences	*4, 7, 10, 13, ... 4, 9, 16, 25, ...* *Extend to Fibonacci and triangular no's.* *Patterns in diagrammatic form.* *Evaluate your formula for given values.* Finding rules from tables, eg $C = 5 \times T$ Finding more complicated rules .... like $C = 5 \times T - 3$ *What have I learned ?*	*Ch 16 page 196-199 Ex1* *Ch 16 page 200-203 Ex 2* *Ch 16 page 204*	*Ch 15 page 215-220 Ex1* *Review 13 page 213*		☐ ☐ ☐ ☐
E1.6 Investigating the gradient of a straight line.	*vertical distance over horizontal dist* *positive and negative grads* *parallel lines have = grads* Calculating gradient $m = \frac{\text{vert dist}}{\text{horiz dist}}$ Gradients in a Coordinate Diagram Negative Gradients *What have I learned ?*		*Ch 4 page 53-57 Ex 1* *Ch 4 page 68-70 Ex5* *Ch 4 page 71-72 Ex6* *Ch 4 page 73-74*		☐ ☐ ☐ ☐

Expressions and Formulae (EF) page 3

Outcome	Definition	Book N4-1	Book N4-2	Comments/Methodology/Other Resources	√
Applying geometric skills to circumference, area and volume					
E2.1 Calculating the circumference and area of a circle.	*Given radius & diameter*				☐
	Drawing and naming parts of a circle	*Ch 9 page 100 Ex1*			☐
	Drawing up a table to calculate value of π.	*Ch 9 page 101 Pract*			☐
	Using $C = \pi \times D$ including simple problems	*Ch 9 page 102-105 Ex2*	*Review 9 page 158*		☐
	What have I learned ?	*Ch 9 page 106*			☐
	Revise Circumference		*Ch 11 page 159-160 Ex1*		☐
	$D = C \div \pi$		*Ch 11 page 161-162 Ex2*		☐
	Area = πr^2		*Ch 11 page 163-165 Ex3*		☐
	Areas and arcs of part circles		*Ch 11 page 166-170 Ex4*		☐
	What have I learned ?		*Ch 11 page 171*		☐
E2.2 Calculating the area of a parallelogram, kite, trapezium.	*Composite shapes by splitting into rectangles & triangles.*	*Ch 14 page 163-199 Revn* *Ch 26 page 266-276*	*Review 5 page 85*		☐
E2.3 Investigating the surface area of a prism.	*Know face, vertex, edge.* *Draw nets.* *Calculate surface area.*				
	Surface area of cube/cuboid		*Ch 6 page 87-88 Ex1*		☐
	NET of cubes/cuboids/triangular prism		*Ch 6 page 89-90 Ex2*		☐
	Surface area of 3D-Shapes		*Ch 6 page 91-96 Ex3*		☐
	What have I learned ?		*Ch 6 page 97*		☐
E2.4 Calculating the volume of a prism	*Triangular prism, cylinder, other prisms given the area of base.*		*Ch 8 page 108-114 Revn*		☐
			Ch 8 page 115-127		☐
E2.5 Using rotational symmetry.	*With straightforward linear shapes.*				
	Revise Line of Symmetry/Reflection		*Ch 3 page 43-45 Ex1*		☐
	Order of Symmetry		*Ch 3 page 46-48 Ex2*		☐
	Give shapes a half turn		*Ch 3 page 48-50 Ex3*		☐
	What have I learned ?		*Ch 3 page 51*		☐

Expressions and Formulae (EF) page 4

Outcome	Definition	Book N4-1	Book N4-2	Comments/Methodology/Other Resources	√
Applying statistical skills to representing and analysing data and to probability					
E3.1 Constructing a frequency table with Class Intervals from raw data	*Using ungrouped data*		*Ch 16 pge 226-228 Ex2*		☐
E3.2 Determining statistics of a data set.	*mean median mode range*	*Ch 12 page 144-146 Ex5*			☐
E3.3 Interpreting calculated statistics.	*Using mean, median, mode, range to compare data sets*				
	Compare mean/range from 2 data sets	*Ch 24 page 247-249 Ex 1*			
	Discuss interpolation/extrapolation	*Ch 24 page 250-251 Ex2*			
E3.4 Representing raw data in a diagram by constructing:	*Pie chart (%age and degs) Draw Pie-chart, Bar graph, Line graph*				
	Interpret Graphs, (Bar, Line, Pie Charts)	*Ch 12 page 132-137 Ex1*			☐
	Scattergraphs and Codes	*Ch 12 page 137-139 Ex2*	*Ch 16 pge 222-225 Ex1*		☐☐
	Stem-and-Leaf Diagrams	*Ch 12 page 140-142 Ex3*			☐
	Drawing Graphs	*Ch 12 page 142-144 Ex4*			☐
	Drawing Pie Charts	*Ch 24 page 252-254 Ex3*			☐
	What have I learned ?	*Ch 12 page 147-150*			☐
E3.5 Using probability.	*Calculation of probability as basic ratio. Interpret probability in the context of risk*				
	Intro to probability being a fraction between 0 and 1	*Ch 17 page 205 Ex4 Intr*			☐
	Prob = No. Fav / No. Poss	*Ch 17 page 206-207 Ex1*			☐
	What have I learned ?	*Ch 17 page 208*			☐
E4.1 Interpreting a situation where mathematics can be used and identifying a strategy.				*Can be attached to any Assessment Standard in the other outcomes to require analysis of situation*	
E4.2 Explaining a solution and relating it to context.				*Can be attached to other Assessment Standard to require explanation of the solution given*	

Outcome	Definition	Book N4-1	Book N4-2	Comments/Methodology/Other Resources	√
Applying algebraic skills to linear equations					
R1.1 Drawing and recognising a graph of a linear equation.	*Draw using table of values or chosen values of x* *$y = mx + c$, know the meaning of m & c* *Recognise/use $y = a$, $x = b$* Equation of a straight line $y = mx$. Drawing lines with equation $y = mx$. Lines with equation $y = mx + c$. Lines of the form $x = a$ and $y = b$ *What have I learned ?*		*Ch 4 page 58-59 Ex2* *Ch 4 page 60-62 Ex3* *Ch 4 page 63-65 Ex4* *Ch 4 page 76-77* *Ch 4 page 73-74*		☐ ☐ ☐ ☐ ☐
R1.2 Solving linear equations.	*$ax + b = c$* *$ax + b = cx + d$ - a, b, c, d are integers.* Solving simple equations like $x + 3 = 10$ and $2x = 10$ Solving Equations like $2x + 3 = 11$ Solving equations like $2(x + 5) = 16$ Solving equations like $5x - 2 = 2x + 10$ Extend to inequalities :- $3x + 4 \geq 19$ *What have I learned ?*	*Ch 7 page 87-88 Ex4* *Ch 7 page 88 Ex5* *Ch 7 page 89 Ex6* *Ch 7 page 89 Ex7* *Ch 22 page 237-239* *Ch 7 page 90*	*Review 12 page 200*		☐ ☐ ☐ ☐ ☐ ☐
R1.3 Changing the subject of a formula.	*Change the subject of :* *$G = x + a$* *$T = xc$* *$E = wx + k$* *$h = {}^{v}/_{n}$ to n.*		*Ch 14 page 209-211 Ex 4*		☐

Outcome	Definition	Book N4-1	Book N4-2	Comments/Methodology/Other Resources	√
Applying geometric skills to sides and angles in shapes					
R2.1 Using Pythagoras' theorem.	*Given measurements - Given coordinates* Squares, Square Numbers, Square Roots Intro to Pythagoras Pythagoras Theorem (Hypotenuse Only) Problems involving Pythagoras Finding smaller side *What have I learned ?*	*Ch 13 page 151-153 Ex1* *Ch 13 page 154-155 Ex3* *Ch 13 page 156-158 Ex4* *Ch 13 page 159-160 Ex5* *Ch 25 page 256-265 Ex1* *Ch 13 page 162*	*Review 4 page 75*		☐ ☐ ☐ ☐ ☐ ☐
R2.2 Using a fractional scale factor to enlarge or reduce a shape.	*Rectilinear, non-regular shape* Enlarge and Reduce simple shapes Scale Drawings (basic) 1 cm = 5 m etc Make Scale Drawing rectangles/triangles Scale Drawing using Angles & Bearings Meaning of "Similar" & Scale to get side Scaling to get Area Similar Triangles Scale Factor *What have I learned ?*	*Ch 5 page 50-51 Ex1* *Ch 5 page 52-54 Ex2* *Ch 5 page 55-57 Ex3* *Ch 21 pge 229-236 Ex3*	*Review 14 page 221* *Ch 9 page 147-151 Ex1* *Ch 9 page 154-156 Ex2* *Ch 9 page 151-153 Ex2* *Ch 9 page 157*		☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐
R2.3 Using properties of shapes, parallel lines, symmetry and circle properties to calculate angles	*Triangle, quad, circle Angle in semi-circle* *Relationship between tangent and radius* *Combining of angle props* Revn. suppl, compl, vert opp, 180° triangle Z and F angles and parallel lines and Quads Angle in a semi-circle = 90° Use of Pythagoras' Th in a semi-circle Use of Trigonometry in a semi-circle Tangents to a Circle + Pythagoras and Trig *What have I learned ?*	*Ch 2 pge 14-26 Ex4 Revn*	*Review 11 page 183* *Ch 7 pge 99-107* *Ch 14 pge 184-186 Ex 1/2* *Ch 14 pge 187-188 Ex3* *Ch 14 pge 189-191 Ex4* *Ch 14 pge 192-198 Ex5* *Ch 14 page 199*		☐ ☐ ☐ ☐ ☐ ☐ ☐

Relationships (Rel) page 7

Outcome	Definition	Book N4-1	Book N4-2	Comments/Methodology/Other Resources	√
Applying trigonometric skills to right angled triangles					
R3.1 Calculating a side in a right- angled triangle.	*Given a side and an angle* Intro to tangent only Opp, Adj, Hyp. Use a Sci Calc for tan Using tangent to find length of a side Use of sine to find a side Use of cosine to find a side (select) SOHCAHTOA (select)		*Ch 5 page 77-78* *Ch 5 page 79* *Ch 5 page 80-81* *Ch 9 page 131-133* *Ch 9 page 137-138* *Ch 9 page 141-144*		☐ ☐ ☐ ☐ ☐ ☐
R3.2 Calculating an angle in a right-angled triangle.	*Given two sides* Using tan to find an angle - Shift Button on calc. *What have I learned ?* Use of sin to find an angle Use of cos to find a angle (select) SOHCAHTOA (select) *What have I learned ?*		*Ch 5 page 82-83* *Ch 5 page 84* *Ch 9 page 134-136* *Ch 9 page 137-140* *Ch 9 page 141-144* *Ch 9 page 145*		☐ ☐ ☐ ☐ ☐ ☐
Applying statistical skills to representing data					
R4.1 Constructing a scattergraph.	*Given a set of data* Scattergraphs and Codes	*Ch 12 page 137-139 Ex2*			☐
R4.2 Drawing and applying a best-fitting straight line.	*The line should have roughly the same number of data points on either side. Use the line of best fit to estimate one variable given the other*		*Ch 16 page 222-225*		☐

R5.1 Interpreting a situation where mathematics can be used and identifying a strategy.	*Can be attached to any Assessment Standard in the other outcomes to require analysis of situation*
R5.2 Explaining a solution and relating it to context	*Can be attached to other Assessment Standard to require explanation of the solution given*

Outcome	Definition	Book N4-1	Book N4-2	Comments/Methodology/Other Resources	√
The learner will use numerical skills to solve straightforward real-life problems involving money/time/measurement.					
N1.1 Selecting and using appropriate numerical notation and units.	*Numerical notation should include: =, +, -, /, ÷, <, >, ( ), %, colon and decimal point* *Units should include:-* • *money (pounds and pence)* • *time (months, weeks, days, hours, minutes, seconds)* • *measurement of length (mm, cm, metre, km, mile)* • *weight (gram, kilogram)* • *volume (millilitre, litre)* • *temperature (C and F)*				
	Multiply & Divide by 10, 100, 1000	*Ch 1 page 11 Ex4/5*			☐
	Converting Decimal Units	*Ch 19 page 213-220*			☐
	Multiply & Divide by 20, 300, 4000 etc	*Ch 1 page 12 Ex6/7*			☐
	What have I learned ?	*Ch 1 page 13*			☐
	Adding / Subtracting Decimals	*Ch 3 page 32-33 Ex4*			☐
	Multiplying / Dividing by single digit	*Ch 3 page 34-36 Ex5/6*			☐
	Mult/Dividing Decimals by 10, 100, 1000	*Ch 3 page 36-39 Ex7/8*	*Review 2 page 41*		☐
	What have I learned ?	*Ch 3 page 40*			☐
	Calculating weekly pay from hourly rate	*Ch 6 page 64-65 Ex1a*			☐
	Calculating hourly rate from weekly pay	*Ch 6 page 66-67 Ex1b*			☐
	Calc. annual pay from week/month pay	*Ch 6 page 68-69 Ex2a*			☐
	Calc. week or month pay knowing annual	*Ch 6 page 70-71 Ex2b*			☐
	Overtime and Total Pay	*Ch 6 page 76-80 Ex5*			☐
	Net Pay = Gross - Deductions; payslips	*Ch 6 page 80-83 Ex6*	*Review 6 page 98*		☐
	Convert 24 hour to 12 hour & vice versa	*Ch 10 page 107 Ex1*			☐
	Time Intervals and Timetables	*Ch 10 page 108-110 Ex2*			☐

Outcome	Definition	Book N4-1	Book N4-2	Comments/Methodology/Other Resources	√
N1.1 Selecting and using appropriate numerical notation and units. (continued)	% of a quantity without calculator	*Ch 15 page 180-182 Ex1*	*Review 3 page 52*		☐
	Profit & Loss Problems.	*Ch 15 page 182-184 Ex2*			☐
	Hire Purchase. Some with % deposits.	*Ch 15 page 185-187 Ex3*			☐
	House Insurance - buildings & contents	*Ch 15 page 188-190 Ex4*			☐
	Life Insurance. Endowment policies etc.	*Ch 15 page 191-192 Ex5*			☐
	Foreign Exchange.	*Ch 15 page 193-194 Ex6*			☐
	What have I learned ?	*Ch 15 page 195*			☐
	Bank Balance ±£5, above/below sea-level,		*Ch 1 page 16-18 Ex1*		☐
	Using thermometer ..... 2° up from -4°		*Ch 1 page 19-20 Ex2*		☐
	Add/Subtract Integers		*Ch 1 page 20-21 Ex3*		☐
	Multiply/Divide Integers 2 x -9 etc		*Ch 1 page 21-22 Ex4*		☐
	The Double Negative		*Ch 1 page 25-26 Ex4*		☐
	Coordinates with negative numbers		*Ch 1 page 23 Ex5*		☐
	What have I learned ?		*Ch 1 page 29*		☐
N1.2 Selecting and carrying out calculations (involving whole numbers, fractions, decimals, percentages, ratio and propor^{n}).	• *add and subtract whole no's including negative numbers;* • *multiply whole numbers of any size, with up to 4-digit whole numbers;* • *divide whole numbers of any size, by a whole number of up to two digits;* • *round answers to nearest significant figures or 2 decimal places;* • *find simple percentages and fractions of shapes/quantities, eg 50%, 10%, 20% and 25%, 33%; 1/2, 1/3, 1/4, 1/10, 1/5* • *calculate %age increase and decrease* • *convert equivalencies between common fractions, decimals and percentages* • *calculate rate: eg miles per hour or no. of texts per month*				

Outcome	Definition	Book N4-1	Book N4-2	Comments/Methodology/Other Resources	√
N1.2 Selecting and carrying out calculations (involving whole numbers, fractions, decimals, percentages, ratio and propor^{n}). (continued)	• *calculate dist given speed and time* • *calculate time intervals using the 12/ 24 hour clock* • *calculate volume (cube/cuboid), area (rectangle and square) and perimeter (shapes with straight lines)* • *calc ratio and direct prop^{n}*				
	Rounding & Estimating	*Ch 1 page 9-10 Ex1/2/3*			☐
	What is a decimal ?	*Ch 3 page 27-28 Ex1*			☐
	Decimal Scales	*Ch 3 page 28-30 Ex2*			☐
	Rounding decimals	*Ch 3 page 30-32 Ex3*	*Review 1 pge 30*		☐
	Significant Figures and Estimating	*Ch 18 page 209-212*			☐
	Percentages to Decs, Fracts and %ages	*Ch 4 page 41-42 Ex1*			☐
	Finding a %age of a quantity with a calc	*Ch 4 page 42-43 Ex2a*			☐
	Percentage Rise - find new figure	*Ch 4 page 44-46 Ex2b*			☐
	Percentage Fall - find new figure	*Ch 4 page 47-48 Ex2c*			☐
	What have I learned ?	*Ch 4 page 49*			☐
	Express A as a %age of B	*Ch 20 page 221-223*			☐
	%age Profit/Loss	*Ch 20 page 224-225*			☐
	%age increase/decrease	*Ch 20 page 226-227*			☐
	What have I learned ?	*Ch 4 page 228*			☐
	Wage rises (percentage work)	*Ch 6 page 72-73 Ex3*			☐
	Commission	*Ch 6 page 74-75 Ex4*			☐
	Simple Interest including part years	*Ch 8 page 91-93 Ex1*			☐
	Bills including VAT	*Ch 8 page 94-96 Ex2*			☐
	Electricity Bills	*Ch 8 page 96-98 Ex3*			☐
	What have I learned ?	*Ch 8 page 99*			☐

Outcome	Definition	Book N4-1	Book N4-2	Comments/Methodology/Other Resources	√
N1.2 Selecting and carrying out calculations (involving whole numbers, fractions, decimals, percentages, ratio and proporⁿ). (continued)	Time Intervals and Timetables	*Ch 10 page 108-110 Ex2*			☐
	Time, Distance, Speed - finding distance	*Ch 10 page 111-112 Ex3*			☐
	Time, Distance, Speed - finding speed	*Ch 10 page 112-113 Ex4*			☐
	Time, Distance, Speed - finding time	*Ch 10 page 114-115 Ex5*			☐
	Time, Distance, Speed - a MIXTURE	*Ch 10 page 116-117 Ex6*			☐
	Time, Distance (Speed) Graphs	*Ch 10 page 118-121 Ex7*	*Review 8 page 146*		☐
	Time, Distance, Speed with Hrs & Mins	*Ch 23 page 240-246*			☐
	What have I learned ?	*Ch 10 page 122-123*			☐
	Simplifying Fractions	*Ch 11 page 124-126 Ex1*			☐
	Fractions of a Quantity (calculator ok)	*Ch 11 page 126-127 Ex2*			☐
	Simple Percentages as Fractions + Mental	*Ch 11 page 128-129 Ex3*			☐
	Harder (mental) %ages 75%, 40%, etc.	*Ch 11 page 129-130 Ex4*	*Review 10 page 172*		☐
	What have I learned ?	*Ch 11 page 131*			☐
	% of a quantity without calculator	*Ch 15 page 180-182 Ex1*			☐
	Area of Rectangle A = L x B	*Ch 14 page 167-168 Ex2*			☐
	Area of right angled Triangle (& formula)	*Ch 14 page 169-173 Ex3*			☐
	Area of any Triangle $A = {}^1/_2$ L x B	*Ch 14 page 174-175 Ex4*			☐
	Area of composite shapes eg rectangle with triangle on top	*Ch 14 page 176-178 Ex5*			☐
	What have I learned ?	*Ch 14 page 179*			☐
	Volume of cube & cuboid (*Revision*)		*Ch 18 page 108-114*		☐
	Direct Proportion		*Ch 2 page 36-40*		☐
	Ratios & simplifying them		*Ch 12 page 174-182*		☐
N1.3 Reading measurements using a straightforward scale on an instrument.	*use measuring instruments with straight-forward scales to measure length, weight, volume and temperature: read scales to the nearest marked, unnumbered division with a functional degree of accuracy*	**Practical**			☐

Outcome	Definition	Book N4-1	Book N4-2	Comments/Methodology/Other Resources	√
N1.4 Interpreting the measurements and the results of calculations to make decisions.	*use appropriate checking methods, eg check sums and estimation* *interpret results of measurements involving time, length, weight, volume and temperature* *recognise the interrelationship between units in the same family, eg mm/cm, cm/m, g/kg, and ml/l* *use vocabulary associated with measurement to make comparisons for length, weight, volume and temperature*	*throughout book*	*throughout book*		☐ ☐
N1.5 Explaining decisions based on the results of calculations.	*give reasons for decisions based on the results of calculations*	*throughout book*	*throughout book*		☐ ☐
The learner will interpret graphical data and situations involving probability to solve straightforward real-life problems involving money/time/measurement					
N2.1 Extracting and interpretation data from at least two different straightforward graphical forms.	*Straightforward graphical forms should include: a table with at least four categories of information a chart where the values are given or where the scale is obvious, eg pie a graph where the scale is obvious, eg bar, pie, scatter or line graph a diagram, eg stem and leaf map or plan* Stem-and-Leaf Diagrams	*throughout book* *Ch 12 page 140-142 Ex4*	*throughout book*		☐ ☐ ☐
N2.2 Making and explaining decisions based on the interpretation of data from basic graphical forms.	*make decisions based on observations of patterns and trends in data. make decisions based on calculations involving data. make decisions based on reading scales in straightforward graphical forms offer reasons for the decisions made based on the interpretation of data*				
N2.3 Making and explaining decisions based on probability.	*recognise patterns and trends and use these to state the probability of an event happening make predictions and use these predictions to make decisions*				

TeeJay Publishers

SQA - National 4

National 4 Course Planner - Following N4-1/N4-2 Order

This is a more practical version of our ***Course Planner*** going through **Books N4-1 & N4-2** in order :-

This time, we list the Chapters in order from our **N4-1/N4-2 books** , and give references to the official SQA list of Outcomes (A more practical course planner).
An assumption is made that pupils, entering a National 4 Course, would have been secure at **CfE Level 2**.

We have upgraded our 3G and 4G books and refer to them as **Books N4-1** and **N4-2**.
These have been colourised, the clip art updated, and the Extension Topics from our 3G and 4G Extension Packs have been embedded into the books - as Additional Chapters at the end of Book N4-1 and throughout Book N4-2.
We managed, in Book N4-1, to retain the exercises and examples as they were in Book 3G to allow schools to purchase new books and be able to use them effectively alongside the existing black and white versions of Book 3G.
In book 4G, though the original Chapters are untouched, the relevant extension topics have been embedded throughout.
The existing homework pack will suffice. Any Additional Homework Exercises will be free to download from our web-site.
A **National 4 Assessment Pack** will be written, similar to our CfE packs and will include individual **Outcome Assessments** to measure ongoing progress, **Cumulative Assessments** to test longer term retention skills, **Specimen Unit Assessments**, an **End of Course Diagnostic Assessment** as well as a **Specimen End of Course National 4 Exam**.

Book N4-1

Ch	Heading	Pgs	Topics	N4 Outcomes	Comments/Methodology/Assessments
0		1-8	General Revision		Possibly assess TeeJay's Level 2 Diag Assessment
1	Whole Numbers 1	9-10	Rounding & Estimating	NU 1.2	
		11	Multiply & Divide by 10, 100, 1000	NU 1.1	
		12	Multiply & Divide by 20, 300, 4000 etc	NU 1.1	
		13	**What have I learned ?** *(continued in Chapter 18)*	NU 1.1	
2	Angles	14-17	Types of Angles and Naming Angles using 3 letters	EF 2.1	
		17-20	Estimating and Measuring Angle	EF 2.1	
		20-22	Calculating the sizes of angles round a point, along a line etc.	EF 2.1	
		22-23	Drawing Triangles and Quadrilaterals accurately	EF 2.1	
		23-25	Angles in a Triangle - Isosceles, etc.	REL 2.3	
		26	**What have I learned ?**	REL 2.3	
3	Decimals 1	27-28	What is a decimal ?	NU 1.2	
		28-30	Decimal Scales	NU 1.2	
		30-32	Rounding decimals	NU 1.2	
		32-33	Adding / Subtracting Decimals	NU 1.1	
		34-36	Multiplying / Dividing by single digit	NU 1.1	
		36-39	Multiplying/Dividing Decimals by 10, 100, 1000	NU 1.1	
		40	**What have I learned ?** *(continued in Chapter 19)*	NU 1.1	
4	Percentages 1	41-42	Percentages —> Decimals and Fractions —> Percentages	NU 1.2	
		42-43	Finding a percentage of a quantity with a calculator	NU 1.2	
		44-46	Percentage Rise - find new figure	NU 1.2	
		47-48	Percentage Fall - find new figure	NU 1.2	
		49	**What have I learned ?** *(continued in Chapter 20)*	NU 1.2	
5	Enlargement 1	50-51	Enlarge and Reduce simple shapes (1 cm squared paper)	REL 2.2	
		52-54	Scale Drawings (basic) 1 cm = 5 m etc	REL 2.2	
		55-57	Making a Scale Drawing rectangles and simple triangles	REL 2.2	
		58-60	Scale Drawings using PROTRACTOR + RULER	REL 2.2	
		61-62	Compass Points and Bearings + Scale Drawings	REL 2.2	
		63	**What have I learned ?** *(continued in Chapter 21)*	REL 2.2	

Ch	Heading	Pgs	Topics	CfE Outcomes	Comments/Methodology/Assessments
6	Wages & Salaries	64-65	Calculating weekly pay knowing hourly rate	NU 1.1	
		66-67	Calculating hourly rate knowing weekly pay	NU 1.1	
		68-69	Calculating annual pay from weekly or monthly pay	NU 1.1	
		70-71	Calculating weekly or monthly pay knowing annual	NU 1.1	
		72-73	Wage rises (percentage work)	NU 1.1/1.2	
		74-75	Commission	NU 1.1/1.2	
		76-80	Overtime and Total Pay	NU 1.1	
		80-83	Net Pay = Gross – Deductions and payslips	NU 1.1	
		84	**What have I learned ?**	NU 1.1	
7	Algebra 1	85	Tidying up simple expressions	EF 1.1	
		86	Multiplying simple terms	EF 1.1	
		86-87	Multiplying out brackets	EF 1.3/REL 1.1	
		87-88	Solving simple equations like $x + 3 = 10$ and $2x = 10$	REL 1.2	
		88	Solving Equations like $2x + 3 = 11$	REL 1.2	
		89	Solving equations like $2(x + 5) = 16$	REL 1.2	
		89	Solving equations like $5x - 2 = 2x + 10$	REL 1.2	
		90	**What have I learned ?** *(continued in Chapter 22)*	NEFU 1.1/REL 1.2	
8	Money 1	91-93	Simple Interest including part years	NU 1.2	
		94-96	Bills including VAT	NU 1.2	
		96-98	Electricity Bills	NU 1.2	
		99	**What have I learned ?**	NU 1.2	
9	Circle	100	Drawing and naming parts of a circle (COMPASSES)	EF 2.1	
		101	Drawing up table to calculate value of π	EF 2.1	
		102-105	Using $C = \pi \times D$ including simple problems	EF 2.1	
		106	**What have I learned ?**	EF 2.1	
10	Time/Dist/Speed 1	107	Converting 24 hour —> 12 hour & vice versa	NU 1.1	
		108-110	Time Intervals and Timetables	NU 1.1/ NU 1.2	
		111-112	Time, Distance, Speed - Finding DISTANCE	NU 1.2	
		112-113	Time, Distance, Speed - Finding SPEED	NU 1.2	
		114-115	Time, Distance, Speed - Finding TIME	NU 1.2	

Ch	Heading	Pgs	Topics	CfE Outcomes	Comments/Methodology/Assessments
		116-117	Time, Distance, Speed - a MIXTURE	NU 1.2	
		118-121	Time, Distance (Speed) Graphs	NU 1.2	
		122-123	**What have I learned ?** *(continued in Chapter 23)*	NU 1.2	
11	Fractions	124-126	Simplifying Fractions	NU 1.2	
		126-127	Fractions of a Quantity (calculator can be used)	NU 1.2	
		128-129	Simple Percentages as Fractions + Mental Calculations	NU 1.2	
		129-130	Harder (mental) Percentages 75%, 40%, etc.	NU 1.2	
		131	**What have I learned ?**	NU 1.2	
12	Statistics 1	132-137	Interpreting Graphs, (Bar, Line, Pie Charts)	EF 3.4	
		137-139	Scattergraphs and Codes	EF 3.4 /REL 4.1	
		140-142	Stem-and-Leaf Diagrams	EF 3.4	
		142-144	Drawing Graphs (All except pie-charts)	EF 3.4	
		144-146	Mean, Median, Mode and Range	EF 3.2	
		147-150	**What have I learned ?** *(continued in Chapter 24)*	Above Outcomes	
13	Pythagoras 1	151-152	Squares and Square Numbers	REL 2.1	
		153	Square Roots	REL 2.1	
		154-155	Introduction to Pythagoras	REL 2.1	
		156 -158	Pythagoras Proper (Hypotenuse Only)	REL 2.1	
		159-160	Problems involving Pythagoras	REL 2.1	
		161	Finding a smaller side	REL 2.1	
		162	**What have I learned ?** *(continued in Chapter 25)*	REL 2.1	
14	Area 1	163-166	Count square centimetre boxes to find area	NU 1.2	
		167-168	Area of Rectangle A = L x B	NU 1.2	
		169-173	Area of right angled Triangle intro & $A = {}^1/_2$ L x B	NU 1.2	
		174-175	Area of any Triangle $A = {}^1/_2$ L x B	NU 1.2	
		176-178	Area of composite shapes eg rect. with triangle on top	NU 1.2	
		179	**What have I learned ?** *(continued in Chapter 26)*	NU 1.2	

Ch	Heading	Pgs	Topics	CfE Outcomes	Comments/Methodology/Assessments
15	Money 2	180-182	% of a quantity without calculator. Note $33\frac{1}{3}\%$ etc	NU 1.1/NU 1.2	
		182-184	Profit & Loss Problems. (sell same amount as bought)	NU 1.1	
		185-187	Hire Purchase. Some with % deposits	NU 1.1	
		188-190	House Insurance - buildings & contents	NU 1.1	
		191-192	Life Insurance. Endowment policies etc.	NU 1.1	
		193-194	Foreign Exchange. Intro to the euro	NU 1.1	
		195	**What have I learned ?**	NU 1.1	
16	Linear Patterns	196-199	Finding rules from tables .... like $C = 5 \times T$	EF 1.5	
		200-203	Finding more complicated rules .... like $C = 5 \times T - 3$	EF 1.5	
		204	**What have I learned ?**	EF 1.5	
17	Probability	205	Intro to probability being a fraction between 0 and 1	EF 3.5	
		206-207	Prob = Number of Favourable Ways ÷ Number of Possible Ways	EF 3.5	
		208	**What have I learned ?**	EF 3.5	
The original Chapter 16 (Trigonometry) in Book 3G has been moved to Book N4-2 in its entirety including Sine and Cosine work. Chapters 16 and 17 above were formerly Chapters 17 and 18 in Book 3G. The remaining Chapters, 18 to 26 were formerly part of the 3G Extension Pack. You may choose to teach them in the order shown or you may wish in some cases to teach each former extension topic following on from its associated Main Chapter.					
18	Whole Numbers 2	209-211	Significant Figures & Estimating	NU 1.2	
		212	**What have I learned ?**	NU 1.2	
19	Decimals 2	213-214	Converting lengths (mm, cm, m, km)	NU 1.1	
		215-216	Converting volumes (ml, cl. litres)	NU 1.1	
		216-217	Converting weights (mg, g, kg, tonne)	NU 1.1	
		218	**What have I learned ?**	NU 1.1	
20	Percentages 2	219-221	Express A as a percentage of B	NU 1.2	
		221-222	Percentage Profit / Loss	NU 1.2	
		222-223	Percentage Increase / Decrease	NU 1.2	
		224	**What have I learned ?**	NU 1.2	

Ch	Heading	Pgs	Topics	CfE Outcomes	Comments/Methodology/Assessments
21	Enlargement 2	225-227	Scales & Enlargements	REL 2.2	
		227-228	Calculating Lengths using Scales and Scale Factors	REL 2.2	
		228-230	Calculating model/diagram Lengths from Real Lengths	REL 2.2	
		231	**What have I learned ?**	REL 2.2	
22	Algebra 2	232-233	Inequalities	REL 1.2	
		234	**What have I learned ?**	REL 1.2	
23	Time/Dist/Speed 2	235-238	Hours & Minutes to Decimals	NU 1.2	
		238-239	Decimal Times to Hours & Minutes	NU 1.2	
		240	**What have I learned ?**	NU 1.2	
24	Statistics 2	241-243	Compare 2 Data Sets using Mean, Median, Mode and Range	EF 3.3	
		244-245	Interpret and Draw simple Pie-Charts	EF 3.4	
		246-247	Drawing more complicated Pie-Charts	EF 3.4	
		248-249	Extrapolation/Interpolation	EF 3.3	
		250-253	**What have I learned ?**	EF 3.3/3.4	
25	Pythagoras 2	254-256	Calculate a Smaller Side	REL 2.1	
		256-258	Distance between 2 points on coordinate grid	REL 2.1	
		258-260	Mixed Examples	REL 2.1	
		261	**What have I learned ?**	REL 2.1	
26	Area 2	262-264	Area of Parallelogram	EF 2.2	
		265-267	Area of Rhombus & Kite	EF 2.2	
		268	Area of Trapezium	EF 2.2	
		269	**What have I learned ?**	EF 2.2	
	ANSWERS	271-280	Answers to all exercises except the WHILs		

Ch	Heading	Pgs	Topics	CfE Outcomes	Comments/Methodology/Assessments
0	Revision	1-14	Revision	All of Book N4-1	
1	Integers	15-17	Integers in the Real World	NU 1.1	
		18-19	Studying Integers	NU 1.1	
		19-20	Adding and Subtracting Integers	NU 1.1	
		20-21	Multiplying and Dividing Integers 2 x -9 etc	NU 1.1	
		21-22	Coordinates with negative numbers	NU 1.1	
		23	Algebraic Addition/Subtraction	NU 1.1	
		24-25	The Double Negative	NU 1.1	
		25-26	Further multiplication by a Positive Integer	NU 1.1	
		27	**What have I learned ?**	NU 1.1	
		28	Review 1 on Rounding	-	
2	Proportion	29-30	Rate - m.p.h, words per minute etc.	NU 1.2	
		31-32	Direct Proportion 5 apples cost 20p. What do 7 cost ?	NU 1.2	
		33	**What have I learned ?**	NU 1.2	
		34	Review 2 on Decimals	-	
		35	Non-Calculator Revision 1	-	
3	Symmetry	36-38	Finding lines of symm. + Reflecting shapes in them	EF 2.5	
		39-43	Half Turn Symmetry and applying a Half Turn	EF 2.5	
		44	Order of Rotational Symmetry	EF 2.5	
		45	**What have I learned ?**	EF 2.5	
		46	Review 3 on Percentages	-	
4	Gradients & Lines	47-51	Gradient of a hill/road - compare	EF 1.6	
		51-53	Basic lines - equation of a line	EF 1.6/Rel1.1	
		54-56	Drawing lines of the form $y = ax$,	EF 1.6/Rel1.1	
		56-61	Drawing lines of the form $y = ax + b$ and lines of the form $y = a$ or $x = b$	EF 1.6/Rel1.1	
		62-63	Negative gradients and lines of the form $y = -ax + b$	EF 1.6	
		64-66	Gradients of lines in coordinate diagrams	EF 1.6	
		67-68	What Have I Learned ?	EF 1.6/Rel 1.1	

Ch	Heading	Pgs	Topics	CfE Outcomes	Comments/Methodology/Assessments
		69	Review 4 on Pythagoras	Rel 2.1	
		70	Non-Calculator Revision 2	Nu	
5	Trigonometry 1 	71-72	Introduction to trigonometry (trig) - Tangent only	Rel 3.1	
		73	Naming the sides in a right angled triangle	Rel 3.1	
		74-76	Using trigonometry to calculate the opposite side	Rel 3.1	
		77-78	Using trigonometry in reverse to calculate an angle	Rel 3.1	
		79	What Have I Learned ?	Rel 3.1/3.2	
		80	Review 5 on Areas	-	
		81	Non-Calculator Revision 3	-	
6	Surface Areas	82-86	Surface area of cube & cuboid	EF 2.3	
		87-88	Nets of solids	EF 2.3	
		89-91	Surface area of a triangular prism	EF 2.3	
		92-94	Curved surface area of a cylinder (*Extension*)	EF 2.3	
		95	What Have I Learned ?	EF 2.3	
		96	Review 6 on Wages & Salaries	-	
7	Angles 1	97-98	Complementary and supplementary angles	Rel 2.3	
		99	Angles round a point	Rel 2.3	
		100	Vertically opposite angles	Rel 2.3	
		101-103	Angles in a triangle	Rel 2.3	
		104	Mixed exercise	Rel 2.3	
		105-107	Corresponding angles	Rel 2.3	
		108-109	Alternate angles	Rel 2.3	
		110-111	Mixed exercise	Rel 2.3	
		112	Angles in quadrilaterals	Rel 2.3	
		113	What Have I Learned ?	Rel 2.3	
		114	Review 7 on Circumference of a Circle	EF 2.1	

Ch	Heading	Pgs	Topics	CfE Outcomes	Comments/Methodology/Assessments
8	Circles (Area)	115-116	Revise circumference $C = \pi D$	EF 2.1	
		117-118	Calculating the diameter $D = C \div \pi$	EF 2.1	
		119-121	Area of a circle = πr^2	EF 2.1	
		122-126	Problems involving areas of circles	EF 2.1	
		127	What Have I Learned ?	EF 2.1	
		128-129	Review 8 on Money	Nu 1.1	
		130	***Non Calc Revision 4***	Nu	
9	Trigonometry 2 	131-133	Using the sine of an angle to find a side	Rel 3.1	
		133-135	Using the sine of an angle to find an angle	Rel 3.2	
		136-139	Using the cosine of an angle to find sides and angles	Rel 3.1/3.2	
		140-143	SOHCAHTOA - a mixture	Rel 3.1/3.2	
		144	What Have I Learned ?	Rel 3.1/3.2	
		145	Review 9 on Time Distance Speed	Nu 1.2	
10	Similar Figures	146-150	Similar figures and enlargement/reduction factors	Rel 2.2	
		150-152	Similar triangles	Rel 2.2	
		153-155	Similar areas	Rel 2.2	
		156	What Have I Learned ?	Rel 2.2	
11	Volumes	157-160	Volumes of cubes and cuboids by counting cubes	Nu 1.2	
		160-162	Volumes of cubes and cuboids - a formula	Nu 1.2	
		162-165	Liquid volume (capacity)	Nu 1.2	
		166-169	Volume of a cylinder	EF 2.4	
		170-172	Volume of a triangular prism	EF 2.4	
		173-174	What Have I Learned ?	Nu 1.2/EF 2.4	
		175	Review 10 Fractions	Nu 1.2	
		176	***Non Calc Revision 5***	Nu	
12	Ratio	177-178	Introduction to ratio	Nu 1.2	
		179-180	Simplifying ratios	Nu 1.2	
		181-182	Ratio calculations	Nu 1.2	
		183-184	Sharing in a given ratio	Nu 1.2	
		185	What Have I Learned ?	Nu 1.2	

Ch	Heading	Pgs	Topics	CfE Outcomes	Comments/Methodology/Assessments
		186	Review 11 on Angles	Rel 2.3	
13	Angles 2	187-189	Angles in a semi-circle	Rel 2.3	
		190-192	Pythagoras' Theorem in circles	Rel 2.3	
		192-193	Trigonometry in circles	Rel 2.3	
		194-195	Tangents to circles	Rel 2.3	
		196-198	Trigonometry and Pythagoras work involved in tangents	Rel 2.3	
		199-200	What Have I Learned ?	Rel 2.3	
		201	Review 12 on Algebra	EF 1.1/1.2/Rel 1.2	
		202	*Non Calc Revision 6*	Nu	
14	Formulae	203-204	Working with expressions	EF 1.4	
		205-206	Formulae expressed in words	EF 1.4	
		207-209	Formulae expressed in symbols	EF 1.4	
		210-211	Harder formulae	EF 1.4	
		212-213	Changing the subject of a formulae	Rel 1.3	
		214	What Have I Learned ?	EF 1.4	
		215	Review 13 on Patterns	EF 1.5	
		216	*Non Calc Revision 7*	Nu	
15	Patterns	217-219	Square numbers	EF 1.5	
		219-221	Triangular numbers	EF 1.5	
		222	What Have I Learned ?	EF 1.5	
		223	Review 14 on Scale Drawings	Rel 2.2	
16	Statistics	224-227	Line of best fit	Rel 4.2	
		227-230	Frequency tables	EF 3.1	
		231-233	Range, mode and median from a frequency table	EF 3.2	
		233-234	Mean from a frequency table	EF 3.2	
		235	What Have I Learned ?	Rel 4.2/EF 3.1/3.2	
		236	Review 15 on Trigonometry	Rel 3.1	

Ch	Heading	Pgs	Topics	CfE Outcomes	Comments/Methodology/Assessments
17	Factorising	237	Revise multiplying out brackets	EF 1.1	
		238	Factors and highest common factor	EF 1.2	
		239-240	Factorising expressions like $6x + 9$, $ax + ab$, etc	EF 1.3	
		241	What Have I Learned ?	EF1.1/1.2	
18a	Revision 1	242-249	Revision of all Numeracy work	Nu	
18b	Revision 2	250-256	Revision of all Expressions and Formulae work	EF	
18c	Revision 3	257-260	Revision of all Relationships work	Rel	
	Answers	261-272	Answers to all N4-2 questions		