



# Lanark Grammar School Mathematics Department

## S3 Course Outline Level 4+

(Intermediate 2/Credit Book 1)

# S3

Skills and Understanding	Suggested Topic Workbook Resources	Textbook	Revised
<b>Pythagoras' Theorem</b>			
Introduction to Pythagoras ( $c^2 = a^2 + b^2$ & $a^2 = c^2 - b^2$ )	N5 Pythagoras' Theorem	Pg. 18 - 19, Ex. 2·1	
The Converse of Pythagoras' Theorem	N5 Pythagoras' Theorem	Pg. 26, Ex. 2·6	
2D Problem Questions	N5 Pythagoras' Theorem	Pg. 20 - 21, Ex. 2·2	
Distance Between Two Points	N5 Pythagoras' Theorem	Pg. 25, Ex. 2·5	
3D Pythagoras: Space Diagonals	N5 Pythagoras' Theorem	<b>Worksheet</b>	
3D Problem Questions	N5 Pythagoras' Theorem	<b>Worksheet</b>	
<b>Algebraic Expressions</b>			
Simplifying expressions	N5 Brackets	Pg. 88, Ex. 9·1	
Expanding Single Brackets	N5 Brackets	Pg. 89 - 90, Ex. 9·2	
Expanding Double Brackets	N5 Brackets	Pg. 90 - 91, Ex. 9·3 Q1-6	
Expanding Square Brackets	N5 Brackets	Pg. 92, Ex. 9·3 Q7	
Factorising: Common Factor	N5 Factorising	Pg. 94, Ex. 9·5	
Factorising: Difference of Two Squares	N5 Factorising	Pg. 95, Ex. 9·6	
Factorising: Trinomials	N5 Factorising	Pg. 96 - 97, Ex. 9·7	
Order of factorising	N5 Factorising	Pg. 97, Ex. 9·8	
<b>Volumes of Solids</b>			
Volume of Cone, Sphere and Pyramid	N5 Volume	Pg. 83 - 84, Ex. 8·5 Pg. 86, Ex. 8·7	

Compound Shapes	N5 Volume	Pg. 84, Q 12 and 13 Pg. 86, Q 5 to 7	
Surface Area	N5 Volume	Pg. 85, Ex. 8-6	
Problem Questions	N5 Volume	Pg.87, Topic in a Nutshell	

<b>Rounding</b>			
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Rounding to decimal places with unrounded answer	N5 Significant Figures	Pg. 2, Chapter 0	
Rounding to Significant Figures	N5 Significant Figures	Pg. 15, Ex. 1-7	

<b>Equations &amp; Inequalities</b>			
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Equations with Brackets	N5 Linear Equations & Inequations	Pg. 137, Ex. 12·1 Q6-9	
Equations with Fractions	N5 Linear Equations & Inequations	Pg. 139, Ex. 12·3	
Harder Equations with Brackets + Fractions	N5 Linear Equations & Inequations	Pg. 138, Ex. 12·2 Pg. 139, Ex. 12·4	
Inequality Signs + Solving Inequations	N5 Linear Equations & Inequations	Pg. 141 - 142, Ex. 12·5	

<b>Simultaneous Equations</b>			
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Graphical Solutions	N5 Simultaneous Equations	Pg. 163, Ex. 15·2	
Basic Elimination Method	N5 Simultaneous Equations	Pg. 164, Ex. 15·3	
Further Elimination Method	N5 Simultaneous Equations	Pg. 165, Ex. 15·4	
Problem Questions	N5 Simultaneous Equations	Pg. 167 - 169, Ex. 15·5	

<b>Fractions</b>			
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Simplifying Fractions	N5 Fractions	Pg. 171 - 172, Ex. 16·1	
Mixed Numbers/Improper Fractions	N5 Fractions	Pg. 171 - 172, Ex. 16·1	
Adding/Subtracting basic	N5 Fractions	Pg. 172 - 173, Ex. 16·2	
Adding/Subtracting mixed numbers	N5 Fractions	Pg. 174 - 175, Ex. 16·3	

Multiplying	N5 Fractions	Pg. 176, Ex. 16·4	
Dividing	N5 Fractions	Pg. 177, Ex. 16·5	
Fractions of a Quantity	N5 Fractions	Pg. 2, Chapter 0, Q11	
<b>Percentages</b>			
% of a Quantity (Non Calculator)	N5 Percentages	Pg. 7, Ex. 1·1 Q2	
% of a Quantity (Calculator)	N5 Percentages	Pg. 8, Ex. 1·1 Q7	
Reverse Problems	N5 Percentages	Pg. 14, Ex. 1·6	
Compound Interest (Non Calculator)	N5 Percentages	<b>Worksheet</b>	
Compound Interest (Calculator)	N5 Percentages	Pg. 11, Ex. 1·4	
Appreciation/Depreciation (Non Calculator)	N5 Percentages	Pg. 12, Ex. 1·5, Q1-3	
Appreciation/Depreciation (Calculator)	N5 Percentages	Pg. 12, Ex. 1·5, Q4-8	
Problem Questions	N5 Percentages	Pg.16, Topic in a Nutshell	

<b>Scatter Graphs and Line of Best Fit</b>			
Drawing Scatter Graphs + Correlation	N5 Line of Best Fit	Pg. 150 - 151, Ex. 13·5	
Line of Best Fit	N5 Line of Best Fit	Pg. 150 - 151, Ex. 13·5	
<b>Statistics</b>			
Mean, Median, Mode, Range	N5 Statistics & Comparing Data Sets	Pg. 181 - 183, Ex. 17·1	
5 Figure Summary with Box Plot, IQR, SIQR	N5 Statistics & Comparing Data Sets	Pg. 188 - 189, Ex. 17·4 Pg. 190, Ex. 17·5 Pg. 191 - 192, Ex. 17·6	
Comparing data	N5 Statistics & Comparing Data Sets	Pg. 196, Ex. 17·7, Q7	
Stem and Leaf	N5 Statistics & Comparing Data Sets	Pg. 152 - 153, Ex. 13·6	
Standard Deviation	N5 Statistics & Comparing Data Sets	Pg. 194 - 196, Ex. 17·7	

<b>Sine and Cosine Rules</b>			
Area of a Triangle	N5 Triangle Trigonometry	Pg. 200 - 202, Ex. 18-1	
Sine Rule - Missing Side	N5 Triangle Trigonometry	Pg. 203 - 205, Ex. 18-2	
Sine Rule - Missing Angle	N5 Triangle Trigonometry	Pg. 206 - 207, Ex. 18-3	
Cosine Rule - Missing Side	N5 Triangle Trigonometry	Pg. 208 - 210, Ex. 18-4	
Cosine Rule - Missing Angle	N5 Triangle Trigonometry	Pg. 211, Ex. 18-5	
Choosing the correct Rule	N5 Triangle Trigonometry	Pg. 214 - 215, Ex. 18-7	
Problem Questions including Bearings	N5 Triangle Trigonometry	Pg. 212 - 213, Ex. 18-6	
<b>Gradient</b>			
Gradient Formula	N5 Calculating the Gradient of a Line	Pg. 55 - 56, Ex. 6-1 Pg. 57 - 58, EX. 6-2	
<b>Straight Line Graphs</b>			
Equation $y = mx + c$	N5 Find the Equation of a Straight Line	Pg. 60, Ex. 6-4 Q1-5	
Equation $y - b = m(x - a)$	N5 Find the Equation of a Straight Line	Pg. 61, Ex. 6-4 Q6-11	
Rearranging Equations	N5 Find the Equation of a Straight Line	Pg. 63, Ex. 6-5	
<b>Vectors</b>			
Column Vectors and Vector Diagrams	N5 Vectors	<b>Worksheet</b>	
Multiplying a Vector	N5 Vectors	<b>Worksheet</b>	
Vectors in Opposite Directions	N5 Vectors	<b>Worksheet</b>	
Magnitude of a Vector	N5 Vectors	<b>Worksheet</b>	
Resultant Vector	N5 Vectors	<b>Worksheet</b>	
3D Vectors	N5 Vectors	<b>Worksheet</b>	
Problem Questions	N5 Vectors	<b>Worksheet</b>	

Properties of Shapes			
Angles and Triangles	N5 Properties of Shape	Pg. 106, Ex. 10·6 Q1-3 Pg. 108 Ex. 10·7 Q1-2	
Quadrilaterals, Parallel Lines and Angles	N5 Properties of Shape	Pg. 158 - 160, Ex. 14·1	
Circle Properties (Chords, Semi-Circle, Perpendicular Bisectors)	N5 Properties of Shape	Pg. 107, Ex. 10·6 Q4-11 Pg. 109 Ex. 10·7 Q3-8	
Circle Tangent Problems (inc. Pythagoras, Tangent Kite)	N5 Properties of Shape	Pg. 110, Ex. 10·8 Pg. 112 Ex. 10·9	
<b>S3 Exam</b>			