



Lanark Grammar School Mathematics Department

S5-6 National 5 Mathematics One - Year Course Outline

Unit 1

Skills and Understanding	Suggested Topic Workbook Resources	Video
Expressions & Formulae: Rounding 2 periods		
Rounding to decimal places with unrounded answer	N5 Significant Figures	https://corbettmaths.com/2013/09/07/rounding-to-1-or-2-decimal-places/
Rounding to Significant Figures	N5 Significant Figures	https://corbettmaths.com/2013/09/07/rounding-significant-figures/
Relationships: Pythagoras' Theorem 4 periods		
The Converse of Pythagoras' Theorem	N5 Pythagoras' Theorem	https://corbettmaths.com/2013/06/22/showing-a-triangle-is-right-angled/
2D Problem Questions	N5 Pythagoras' Theorem	https://corbettmaths.com/2013/06/22/pythagoras-rectangles-and-isosceles-triangles/
Distance Between Two Points	N5 Pythagoras' Theorem	https://corbettmaths.com/2013/05/03/distance-between-two-coordinates/
3D Pythagoras: Space Diagonals	N5 Pythagoras' Theorem	https://corbettmaths.com/2012/08/19/3d-pythagoras/
3D Problem Questions	N5 Pythagoras' Theorem	
Relationships: Properties of shapes 7 periods		
Parallel Lines and Angles	N5 Properties of Shape	https://corbettmaths.com/2013/04/04/parallel-lines-angles/
Quadrilaterals	N5 Properties of Shape	https://corbettmaths.com/2013/03/17/angles-in-quadrilaterals/

Circle Properties	N5 Properties of Shape	https://corbettmaths.com/2014/10/02/angle-in-a-semi-circle-proof/
	N5 Properties of Shape	https://corbettmaths.com/2014/10/02/angles-at-the-centre-and-circumference-proof/
	N5 Properties of Shape	https://www.youtube.com/watch?v=J9CMVxM8QBQ
	N5 Properties of Shape	https://www.youtube.com/watch?v=xXavNS0pySU
Angles and Polygons	N5 Properties of Shape	https://www.youtube.com/watch?v=MtEmjdFm3Fs
Relationships: Similar Figures 5 periods		
Linear Scale Factor	N5 Similarity	https://www.youtube.com/watch?v=CGV18vInguw
Area & Volume Scale Factor	N5 Similarity	https://www.youtube.com/watch?v=9Ef4lgbvF9A
Similar Triangles	N5 Similarity	
Assessment Standard Relationships 1.4		
Summer Break		
Applications: Fractions 8 periods		
Simplifying Fractions	N5 Fractions	https://corbettmaths.com/2013/03/03/simplifying-fractions-2/
Mixed Numbers/Improper Fractions	N5 Fractions	https://corbettmaths.com/2013/02/15/mixed-numbers-to-improper-fractions/
	N5 Fractions	https://corbettmaths.com/2013/02/15/improper-fractions-to-mixed-numbers/
Adding/Subtracting	N5 Fractions	https://corbettmaths.com/2012/08/21/fractions-addition-and-subtraction/
Multiplying	N5 Fractions	https://corbettmaths.com/2012/08/21/multiplying-fractions-2/
Dividing	N5 Fractions	https://corbettmaths.com/2012/08/21/division-with-fractions/
Fractions of a Quantity	N5 Fractions	https://corbettmaths.com/2012/08/20/fractions-of-amounts/
S4-6 Tracking Report		
September Weekend		

Applications: Percentages 8 periods		
% of a Quantity Non Calculator	N5 Percentages	https://corbettmaths.com/2012/08/20/percentages-of-amounts-non-calculator/
% of a Quantity Calculator	N5 Percentages	https://corbettmaths.com/2013/02/15/percentages-of-an-amount-calculator/
Reverse Problems	N5 Percentages	https://corbettmaths.com/2013/02/15/reverse-percentages/
	N5 Percentages	https://www.youtube.com/watch?v=aFrqtrCRevo
Compound Interest Calculator	N5 Percentages	https://corbettmaths.com/2012/08/21/compound-interest/
Appreciation/Depreciation	N5 Percentages	https://www.youtube.com/watch?v=rDtIhMqyj7w
Assessment Standard Applications 1.3		
Expressions & Formulae: Algebraic Expressions 8 periods		
Simplifying expressions	N5 Brackets	
Expanding Single Brackets	N5 Brackets	https://corbettmaths.com/2013/12/23/expanding-brackets-video-13/
Expanding Double Brackets	N5 Brackets	https://corbettmaths.com/2013/12/23/expanding-two-brackets-video-14/
Expanding Square Brackets	N5 Brackets	https://www.youtube.com/watch?v=lhU1CzlUQMI
Factorising Common Factor	N5 Factorising	https://corbettmaths.com/2013/02/06/factorisation/
Factorising Difference of Two Squares	N5 Factorising	https://corbettmaths.com/2013/02/08/difference-between-two-squares/
Factorising Quadratics	N5 Factorising	https://corbettmaths.com/2013/02/06/factorising-quadratics-1/
	N5 Factorising	https://corbettmaths.com/2013/02/07/factorising-quadratics-2/
Order of factorising	N5 Factorising	
Completing the Square	N5 Completing the Square	https://www.youtube.com/watch?v=VS6apvTv2Rc

N5 Completing the Square

<https://corbettmaths.com/2013/12/29/completing-the-square-video-10/>

Assessment Standard Expressions & Formulae 1.2

S4-6 Tracking Report

September Weekend

Relationships: Equations & Inequalities 5 periods

Equations with Brackets	N5 Linear Equations & Inequations	https://www.youtube.com/watch?v=3kXMXj24ahQ
Equations with Fractions	N5 Linear Equations & Inequations	https://www.youtube.com/watch?v=ZZ8SacTv-JE
Inequality Signs + Solving Inequations	N5 Linear Equations & Inequations	https://www.youtube.com/watch?v=PcLovmSrNi0

Expressions & Formulae: Gradient 1 period

Gradient Introduction	N5 Calculating the Gradient of a Line	https://www.youtube.com/watch?v=xQ2inJGSGT4
	N5 Calculating the Gradient of a Line	https://www.youtube.com/watch?v=YFiQMue-0zE

Relationships: Straight line graphs 4 periods

Equation $y = mx + c$ and $y - b = m(x - a)$	N5 Find the Equation of a Straight Line	https://www.youtube.com/watch?v=syVAOtg3VrY
Rearranging Equations	N5 Find the Equation of a Straight Line	

Relationships: Simultaneous Equations 4 periods		
Graphical Solutions	N5 Simultaneous Equations	https://www.youtube.com/watch?v=jy9cRndBWk&feature=youtu.be
Substitution Method	N5 Simultaneous Equations	https://www.youtube.com/watch?v=-8vpwQa5dkk&feature=youtu.be
Elimination Method	N5 Simultaneous Equations	https://www.youtube.com/watch?v=dzZwY6eF2fA&feature=youtu.be
Problem Questions	N5 Simultaneous Equations	https://www.youtube.com/watch?v=robj1yvYw7o&feature=youtu.be
October Break		
Unit 2		
Skills and Understanding	Suggested Topic Workbook Resources	Completed
Relationships: Formulae 4 periods		
Substitution into Formulae & Functional Notation	N5 Functional Notation	https://www.youtube.com/watch?v=X0ydBv_M_jl
Change the subject basic	N5 Change the Subject of a Formula	https://www.youtube.com/watch?v=RCWoP69ooLA&feature=youtu.be
Change the subject powers and roots	N5 Change the Subject of a Formula	https://www.youtube.com/watch?v=FdB_q42PBt4&feature=youtu.be
Assessment Standard Relationships 1.1		
S4-6 Tracking Report		
Relationships: Quadratic Equations 5 periods		
Solving equations by factorising	N5 Quadratic Graphs and Equations	https://corbettmaths.com/2013/05/03/solving-quadratics-by-factorising/

The quadratic formula	N5 Quadratic Graphs and Equations	https://corbettmaths.com/2013/04/24/quadratic-formula/
Nature of Roots with discriminant	N5 Quadratic Graphs and Equations	https://www.bbc.co.uk/bitesize/guides/zcwhjty/revision/1
Problem Questions	N5 Quadratic Graphs and Equations	
Assessment Standard Relationships 1.3		
Relationships: Quadratic Functions 5 periods		
Drawing a Quadratic Function using a table	N5 Quadratic Graphs and Equations	https://corbettmaths.com/2013/06/23/drawing-quadratics/
Sketching a graphs of the form $y = k(x + p)^2 + q$	N5 Quadratic Graphs and Equations	
Sketching a graphs of the form $y = (x - a)(x - b)$	N5 Quadratic Graphs and Equations	https://corbettmaths.com/2013/06/22/sketching-quadratics/
Assessment Standard Relationships 1.2		
S4-6 Parents Evening		
Applications: Sine and Cosine Rules 7 periods		
Area of a Triangle	N5 Triangle Trigonometry	https://corbettmaths.com/2012/08/02/area-of-a-triangle-sinetrigonometry/
Sine Rule - Missing Side	N5 Triangle Trigonometry	https://corbettmaths.com/2013/05/03/sine-rule-missing-sides/
Sine Rule - Missing Angle	N5 Triangle Trigonometry	https://corbettmaths.com/2019/04/24/sine-rule-angles/
Cosine Rule - Missing Side	N5 Triangle Trigonometry	https://corbettmaths.com/2013/04/04/cosine-rule-missing-sides/
Cosine Rule - Missing Angle	N5 Triangle Trigonometry	https://corbettmaths.com/2013/04/04/cosine-rule-missing-angles/

Choosing the correct Rule	N5 Triangle Trigonometry	
Bearing Problems	N5 Triangle Trigonometry	https://www.bbc.co.uk/bitesize/guides/zqwhjty/revision/1
Assessment Standard Applications 1.1		
Expressions & Formulae: Arcs and Sectors 6 periods		
Length of an Arc	N5 Arc Length & Sector Area	https://www.youtube.com/watch?v=0q47i-q09tk&feature=youtu.be
Using Arc Length to find the diameter/radius	N5 Arc Length & Sector Area	
Area of a Sector	N5 Arc Length & Sector Area	https://www.youtube.com/watch?v=0Y0JXL0grlc&feature=youtu.be
Using Length or Area of Sector to find an angle	N5 Arc Length & Sector Area	https://www.youtube.com/watch?v=5e4jTEG1Lhk&feature=youtu.be
Using Area of Sector to find diameter/radius	N5 Arc Length & Sector Area	
Expressions & Formulae: Volumes of Solids 6 periods		
Volume of Cone, Sphere and Pyramid	N5 Volume	https://www.youtube.com/watch?v=YqDgwwH_HUs
	N5 Volume	https://www.youtube.com/watch?v=sk2giMegFXs
Compound Shapes	N5 Volume	
Surface Area	N5 Volume	https://www.youtube.com/watch?v=6A5T9K_Mw-U
Reverse Questions	N5 Volume	https://www.youtube.com/watch?v=JS5dav22vFc

Assessment Standard Expressions and Formulae 1.4

Christmas Break

Skills and Understanding	Suggested Topic Workbook Resources	Completed
Expressions & Formulae: Surds 4 periods		
What is a Surd?	N5 Surds	https://corbettmaths.com/2013/05/11/surds/
Simplifying	N5 Surds	https://www.youtube.com/watch?v=IhJ6aOmwq2U
Addition and Subtraction	N5 Surds	https://www.youtube.com/watch?v=uMrKBgTcAEs
Multiplication	N5 Surds	https://www.youtube.com/watch?v=GqpW6ohdneC
Division	N5 Surds	https://www.youtube.com/watch?v=CeyvaH4BST4
Rationalise the denominator	N5 Surds	https://corbettmaths.com/2013/05/11/rationalising-denominators/
Prelim		
Expressions & Formulae: Indices 5 periods		
Multiplying	N5 Indices	https://www.youtube.com/watch?v=pTVPXW6AlAc
Dividing	N5 Indices	https://www.youtube.com/watch?v=H42VyzLlaKs
Power of a Power	N5 Indices	https://www.youtube.com/watch?v=-mGBjP-hlPY
Power of zero/one	N5 Indices	
Negative Indices	N5 Indices	https://www.youtube.com/watch?v=HcYloI5Q8x4
Writing Scientific Notation	N5 Indices	https://corbettmaths.com/2013/04/28/standard-form/
Problems with a calculator	N5 Indices	https://corbettmaths.com/2013/04/29/standard-form-multiplication/
	N5 Indices	https://corbettmaths.com/2013/05/03/standard-form-division/

Problems without a calculator	N5 Indices	
Fractional Powers	N5 Indices	https://www.youtube.com/watch?v=n28S7o6ebg4
Assessment Standard Expressions and Formulae 1.1		
February Break		
Expressions & Formulae: Algebraic Fractions 4 periods		
Simplifying	N5 Algebraic Fractions	https://www.youtube.com/watch?v=EUrpy3MlgY&feature=youtu.be
Simplifying with factorising	N5 Algebraic Fractions	https://www.youtube.com/watch?v=J7YURrGxVdw&feature=youtu.be
Multiplying and Dividing	N5 Algebraic Fractions	https://www.youtube.com/watch?v=IVCaJzdH0zE&feature=youtu.be
Adding/Subtracting	N5 Algebraic Fractions	https://www.youtube.com/watch?v=TX5NcAVO39M&feature=youtu.be
Exam Type	N5 Algebraic Fractions	https://www.youtube.com/watch?v=SXYKPK3yniE&feature=youtu.be
S4-6 Full Report		
Assessment Standard Expressions and Formulae 1.3		
Applications: Scatter Graphs and Line of Best Fit 2 periods		
Drawing Scatter Graphs + Correlation	N5 Line of Best Fit	https://corbettmaths.com/2012/08/10/scatter-graphs/
	N5 Line of Best Fit	https://corbettmaths.com/2012/08/10/scatter-graphs-correlation/
Line of Best Fit	N5 Line of Best Fit	https://corbettmaths.com/2012/08/10/scatter-graphs/
Applications: Statistics 5 periods		
Mean, Median, Mode, Range	N5 Statistics & Comparing Data Sets	

5 Figure Summary with Box Plot, IQR, SIQR	N5 Statistics & Comparing Data Sets	https://corbettmaths.com/2013/05/15/drawing-and-reading-box-plots/
Comparing data	N5 Statistics & Comparing Data Sets	
Stem and Leaf	N5 Statistics & Comparing Data Sets	https://corbettmaths.com/2012/08/02/drawing-stem-and-leaf-diagrams/
	N5 Statistics & Comparing Data Sets	https://corbettmaths.com/2012/08/02/reading-stem-and-leaf-diagrams-video/
Standard Deviation	N5 Statistics & Comparing Data Sets	https://www.bbc.co.uk/bitesize/guides/zciv4wx/revision/2
Assessment Standard Applications 1.4		
Applications: Vectors 5 periods		
Column Vectors and Vector Diagrams	N5 Vectors	https://www.youtube.com/watch?v=CEDyDMzIRFo
Multiplying a Vector	N5 Vectors	https://www.youtube.com/watch?v=FJWfVxZ7ERY
Vectors in Opposite Directions	N5 Vectors	https://www.bbc.co.uk/bitesize/guides/zwncsr/revision/
Magnitude of a Vector	N5 Vectors	https://www.youtube.com/watch?v=xMLvDOHRD4c
Resultant Vector	N5 Vectors	https://www.bbc.co.uk/bitesize/guides/z8myrwx/revision/2
3D Vectors	N5 Vectors	https://www.bbc.co.uk/bitesize/guides/zgkx8mn/revision/1
Assessment Standard Applications 1.2		
Relationships: Trigonometric Graphs and Equations 7 periods		
Graph of Sine, Cosine and Tan $y = \sin x$, $y = \cos x$, $y = \tan x$	N5 Trig. Graphs	https://www.youtube.com/watch?v=JZGKeGdyWrs

Graph of changing period $y=\sin bx$, $y=\cos bx$	N5 Trig. Graphs	https://www.youtube.com/watch?v=f3ugUIDRxA
Graph of the form $y=asin bx +c$, $y=acos bx + c$	N5 Trig. Graphs	https://www.youtube.com/watch?v=snhuWuvwi0
Phase Angle $y=\sin(x-a)$, $y=\cos(x-a)$	N5 Trig. Graphs	https://www.youtube.com/watch?v=YBKOnbeUm-s
Basic Trig Equations	N5 Trig. Relationships, Equations & Identities	https://www.youtube.com/watch?v=aPzBZMb426Q
Further Trig Equations	N5 Trig. Relationships, Equations & Identities	https://www.youtube.com/watch?v=xhVMQXWSHjA
Trig Equations - negative	N5 Trig. Relationships, Equations & Identities	https://www.youtube.com/watch?v=XzJ5AobnPDo
Trig Identities	N5 Trig. Relationships, Equations & Identities	

Assessment Standard Applications 1.5

Supplementary Prelim (tbc)

Spring Break

Flexible Time/Revision

S5/6 Study Leave Begins

SQA National 5 Exam