

Topic	Content	Resources
Applying algebraic skills to algebraic fractions		
Reducing an algebraic fraction to its simplest form	<ul style="list-style-type: none"> a / b where a, b are of the form $(x + p)^n$ or $(x + p)(x + q)$ 	https://www.bbc.com/bitesize/guides/zww9y4j/revision/1 (2 sections)
Applying one of the four operations to algebraic fractions	<ul style="list-style-type: none"> $a / b * c / d$ where a, b, c, d can be simple constants or variables. *can be add, subtract, multiply or divide 	https://www.bbc.com/bitesize/guides/zgtv6yc/revision/1 (3 sections)
Applying geometric skills linked to the use of formulae		
Determining the gradient of a straight line, given two points	<ul style="list-style-type: none"> $m = \frac{y_2 - y_1}{x_2 - x_1}$ 	https://www.bbc.com/bitesize/guides/z8383k7/revision/1 (3 sections)
Determining the equation of a straight line, given the gradient	<ul style="list-style-type: none"> Use the formula $y - b = m(x - a)$ or equivalent to find the equation of a straight line, given one point and the gradient of the line Use functional notation $f(x)$ Identify gradient and y-intercept from $y = mx + c$ ➤ Identify gradient and y-intercept from various forms of the equation of a straight line 	https://www.bbc.com/bitesize/guides/z24qcj6/revision/1 (3 sections)
Calculating the length of arc or the area of a sector of a circle		https://www.bbc.com/bitesize/guides/zwcqcj6/revision/1 (4 sections)
Calculating the volume of a standard solid	<ul style="list-style-type: none"> sphere, cone, pyramid 	https://www.bbc.com/bitesize/guides/z9bdb82/revision/1 (7 sections)
(Rounding to a given number of significant figures)		https://www.bbc.com/bitesize/guides/zpc82hv/revision/1 (2 sections)

Topic	Content	Resources
Applying numerical skills to fractions and percentages		
Working with percentages	<ul style="list-style-type: none"> ◆ Use reverse percentages to calculate an original quantity ◆ Appreciation including compound interest ◆ Depreciation 	https://www.bbc.com/bitesize/guides/z8tv6yc/revision/1 (2 sections) https://www.bbc.com/bitesize/guides/z37pqhv/revision/1 (3 sections)
Working with fractions	<ul style="list-style-type: none"> ◆ Operations and combinations of operations on fractions including mixed numbers (Addition, subtraction, multiplication, division) 	https://www.bbc.com/bitesize/guides/z2b83k7/revision/1 (3 sections) Videos: https://www.bbc.com/bitesize/clips/zrgtsbk https://www.bbc.com/bitesize/clips/z4cpyrd
Applying trigonometric skills to triangles which do not have a right angle		
Calculating the area of a triangle using trigonometry	<ul style="list-style-type: none"> ◆ Area = $\frac{1}{2}ab\sin C$ 	https://www.bbc.com/bitesize/guides/zytbh39/revision/1 (2 sections)
Using the sine and cosine rules to find a side or angle	<ul style="list-style-type: none"> ◆ Sine rule for side or angle ◆ Cosine rule for side ➤ Cosine rule for angle 	https://www.bbc.com/bitesize/guides/z84297h/revision/1 (3 sections)
Using bearings with trigonometry	<ul style="list-style-type: none"> ◆ To find a distance or direction 	https://www.bbc.com/bitesize/guides/zqwhjty/revision/1 (2 sections)
Applying geometric skills to vectors		
Working with 2D vectors	<ul style="list-style-type: none"> ◆ Adding or subtracting two-dimensional vectors using directed line segments 	https://www.bbc.com/bitesize/guides/z3rqcj6/revision/1 (2 sections)
Working with 3D coordinates	<ul style="list-style-type: none"> ◆ Determining coordinates of a point from a diagram representing a 3D object 	https://www.bbc.com/bitesize/guides/zgkx8mn/revision/1 (2 sections)
Using vector components	<ul style="list-style-type: none"> ◆ Adding or subtracting two- or three- dimensional vectors using components ◆ Magnitude of a two or three dimensional vector 	https://www.bbc.com/bitesize/guides/zwncsrd/revision/1 (3 sections) https://www.bbc.com/bitesize/guides/zqykv9q/revision/1 (2 sections)

Topic	Content	Resources
Applying statistical skills to analysing data		
Comparing data sets using statistics	Compare data sets using calculated/determined: <ul style="list-style-type: none"> ◆ interquartile range ◆ standard deviation 	https://www.bbc.com/bitesize/guides/z94297h/revision/1 (5 sections)** Video: https://www.bbc.com/bitesize/clips/zfnjmp3

** Please note in section 4 the article says there are TWO formulae for Standard Deviation then lists one.

In St Thomas we use the other formula which is $SD = \sqrt{\frac{\sum x^2 - \frac{(\sum x)^2}{n}}{n-1}}$

This gets the same correct answer as the other formula but there are fewer places to drop careless marks

N5 Mathematics Course outline

November - December

November Mini Prelim		
Topic	Content	Resources
Forming a linear model from a given set of data	<ul style="list-style-type: none"> ◆ Determine the equation of a best-fitting straight line on a scattergraph and use it to estimate y given x 	https://www.bbc.com/bitesize/guides/zq7s2nb/revision/1 (2 sections)
Applying algebraic skills to linear equations		
Working with linear equations and inequations	<ul style="list-style-type: none"> ◆ Coefficients are a member of Z ◆ Solutions are a member of Q 	https://www.bbc.com/bitesize/guides/zwgdb82/revision/1 (3 sections) https://www.bbc.com/bitesize/clips/z7w3cdm

Topic	Content	Resources
Working with simultaneous equations	<ul style="list-style-type: none"> ◆ Construct from text ◆ Graphical solution ◆ Algebraic solution 	https://www.bbc.com/bitesize/guides/z8gdb82/revision/1 (4 sections) https://www.bbc.com/bitesize/clips/zmqg9j6
Changing the subject of a formula	<ul style="list-style-type: none"> ◆ Linear equation ➤ Equation involving a simple square or square root 	https://www.bbc.com/bitesize/guides/zx2n7p3/revision/1 (3 sections)
Applying the Pythagoras' theorem	<ul style="list-style-type: none"> ◆ Using Pythagoras' theorem in complex situations including converse and 3D 	https://www.bbc.com/bitesize/guides/zq8x8mn/revision/1 (6 sections)
Applying algebraic skills to quadratic equations		
Working with quadratic equations	<ul style="list-style-type: none"> ◆ Solving from factorised form ◆ Graphical treatment ◆ Solving using the quadratic formula ◆ Know and use the discriminant ◆ Determine the number or nature of roots 	https://www.bbc.com/bitesize/guides/zwmyxfr/revision/1 (2 sections) https://www.bbc.com/bitesize/guides/zctbh39/revision/1 (3 sections) https://www.bbc.com/bitesize/guides/zcwhjty/revision/1 (3 sections)
Applying geometric skills to lengths, angles and similarity		
Applying the properties of shapes to determine an angle involving at least two steps	<ul style="list-style-type: none"> ◆ Quadrilaterals/triangles/polygons/circles ➤ Relationship in a circle between the centre, chord and perpendicular bisector 	https://www.bbc.com/bitesize/guides/z3y9y4j/revision/1 (8 sections)
Using similarity	<ul style="list-style-type: none"> ◆ Interrelationship of scale — length, area and volume 	https://www.bbc.com/bitesize/guides/zxmfmvg/revision/1 (3 sections)
Topic	Content	Resources
Applying trigonometric skills to graphs and identities		
Trig graphs and equations	<ul style="list-style-type: none"> ◆ Basic trig graphs ◆ Trig equations ◆ Trig Identities 	https://www.bbc.com/bitesize/guides/zwbwgdm/revision/1 (4 sections) https://www.bbc.com/bitesize/guides/zyxv6yc/revision/1 (2 sections)

January Prelim

Topic	Content	Resources
Applying algebraic skills to graphs of quadratic relationships		
Recognise and determine the equation of a quadratic function from its graph	<ul style="list-style-type: none"> Equations of the form $y = kx^2$ and $y = (x + p)^2 + q$; $k, p, q \in \mathbb{Z}$ Also $y = k(x + p)^2 + q, k \in \mathbb{Z}$ 	https://www.bbc.com/bitesize/guides/zxqpqhvr/revision/1 (2 sections)
Sketching a quadratic function	<ul style="list-style-type: none"> Equations of the form $y = (x - m)(x - n)$ Also $y = k(x + p)^2 + q, k \in \mathbb{Z}$ 	https://www.bbc.com/bitesize/guides/zq2fmsg/revision/1 (3 sections)
Identifying features of a quadratic function	<ul style="list-style-type: none"> Identify nature, coordinates of turning point and the equation of the axis of symmetry of a quadratic of the form $y = (x + p)^2 + q$ where $k = 1$ or -1 	https://www.bbc.com/bitesize/guides/zqyv6yc/revision/1 (3 sections)

Topic	Content	Resources
Applying trigonometric skills to graphs and identities		
Working with the graphs of trigonometric functions	<ul style="list-style-type: none"> ◆ Basic graphs ◆ Amplitude ◆ Vertical translation ◆ Multiple angle ➤ Phase angle 	https://www.bbc.com/bitesize/guides/zwbwgdmd/revision/1 (4 sections)
Working with trigonometric relationships in degrees	<ul style="list-style-type: none"> ◆ Sine, cosine and tangent of angles 0°– 360° ◆ Period ◆ Related angles ◆ Solve basic equations ➤ Identities $\cos^2 x + \sin^2 x = 1 \quad \tan x = \frac{\sin x}{\cos x}$	https://www.bbc.com/bitesize/guides/zyxv6yc/revision/1 (2 sections)

Revision	
Pupils preparing for the National 5 exam in S4	Past Paper Practice www.national5maths.co.uk
Pupils preparing for the National 5 exam in S5	Topic specific revision Quadratic Formula, Standard Deviation, Straight Line, Factorising, Completing the Square, Surds & Indices, Fractions & Percentages. www.national5maths.co.uk