

Topic	Content	Resources
Applying numerical skills to simplify surds/ expressions using the laws of indices		
Working with surds	<ul style="list-style-type: none"> ◆ Simplification ◆ Rationalising denominators 	https://www.bbc.com/bitesize/guides/z9jtw6f/revision/1 (3 sections)
Simplifying expressions using the laws of indices	<ul style="list-style-type: none"> ◆ Multiplication and division using positive and negative indices including fractions ◆ Calculations using scientific notation ◆ $(a^m)^n = a^{mn}$ 	https://www.bbc.com/bitesize/guides/zqtv6yc/revision/1 (6 sections) Video: https://www.bbc.com/bitesize/clips/z84nvcw
Applying algebraic skills to manipulate expressions		
Working with algebraic expressions involving expansion of brackets	<ul style="list-style-type: none"> ◆ $a(bx + c) + d(ex + f)$ ◆ $ax(bx + c)$ ◆ $(ax + b)(cx + d)$ ◆ $(ax + b)(cx^2 + dx + e)$ where a, b, c, d, e, f are integers	https://www.bbc.com/bitesize/guides/z2yg87h/revision/1 (2 sections)
Factorising an algebraic expression	<ul style="list-style-type: none"> ◆ Common factor ◆ Difference of squares $p^2x^2 - a^2$ ◆ Common factor with difference of squares ◆ Trinomials with unitary x^2 coefficient ◆ Trinomials with non-unitary x^2 coefficient ◆ Quadratic formula 	https://www.bbc.com/bitesize/guides/zmvr2p/revision/1 (4 sections) Video: https://www.bbc.com/bitesize/guides/zctbh39/revision/1 (3 sections)
Completing the square in a quadratic expression with unitary x^2 coefficient	<ul style="list-style-type: none"> ◆ Convert $y = x^2 + bx + c$ to $y = (x + p)^2 + q$ 	https://www.bbc.com/bitesize/guides/zxcjrwx/revision/1 (2 sections)
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/zwv9y4j/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)

Topic	Content	Resources
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/z24qci6/revision/1 (3 sections)
Calculating the length of arc or the area of a sector of a circle		https://www.bbc.com/bitesize/guides/zwcqci6/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)
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

Topic	Content	Resources
Applying trigonometric skills to triangles which do not have a right angle		
Calculating the area of a triangle using trigonometry	◆ 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	◆ 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	◆ 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	◆ 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	◆ 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	◆ Adding or subtracting two- or three-dimensional vectors using components ◆ Magnitude of a two or three dimensional vector	https://www.bbc.com/bitesize/guides/zwncsr/revision/1 (3 sections) https://www.bbc.com/bitesize/guides/zqykv9q/revision/1 (2 sections)
Applying statistical skills to analysing data		
Comparing data sets using statistics	Compare data sets using calculated/determined: ◆ 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

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) Video: https://www.bbc.com/bitesize/clips/z7w3cdm
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) Video: 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 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/zxmfmsg/revision/1 (3 sections)

January Prelim

Topic	Content	Resources
Applying geometric skills to lengths, angles and similarity		
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 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/zxqpqhv/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/zwbwgd/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