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St Peter's Collegiate Academy

At St Peter's we believe that a broad and balanced curriculum with a strong academic core is a right for all pupils. We seek to encourage pupils to explore subjects of interest around their in-school learning and to enhance their curriculum experience through enrichment.

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of Work/Big Question	Unit of Work/Big Question	Unit of Work/Big Question	Unit of Work/Big Question	Unit of Work/Big Question	Unit of Work/Big Question
- Number: Percentages and surds - Algebra: expanding binomials - Shape: Congruence, similarity, perimeter, area and volume	 Algebra: Coordinate axes and straight line graphs and functions Shape: Pythagoras' theorem, trigonometry with right angled triangles Statistics: Probability 	 Number/ Algebra: Direct and inverse proportion Algebra: Substitution into formulae. Solve linear equations. Shape: Properties in polygons 	 Algebra: Solve quadratic equations. Function notation. Quadratic, cubic and reciprocal functions 	 Shape: Transformations. Surface area Statistics: Measures of central tendency and spread, types of data and sampling. Algebra: The circle and tangents 	 Statistics: Cumulative frequency, box plot, histograms and venn diagrams.
Knowledge	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge
 Decimals as multipliers with percentage problems Expand double brackets including square brackets and simplify algebraic expressions. Rational and irrational numbers Identify a surd, simplify surds and conduct all 4 numerical operations with surds. Perimeter and area of 2D shapes Congruency in and similarity Volume and area with Scale factor Substitution into formulae to calculate volumes 	 Use coordinate axes to problem solve and plot graphs of straight lines Manipulation of y=mx + c. Find the gradients of a line and parallel and perpendicular lines. Apply Pythagoras' Theorem and trigonometry to right angled triangles with and without calculators. Listing all possible outcomes for 2 or more events using appropriate diagrams and use diagrams to solve probability problems. Convert between fractions percentages and decimals. Find unknown quantities and use equations in ratio to solve real life problems in ratio. 	 Identify and construct equations and graphs for direct and inverse proportion problems. Solve equations of direct and inverse proportion. Solve linear equations written in any form. Substitution into formulae. Know and utilise all properties of triangles, quadrilaterals and other polygons to solve problems. 	 Solve quadratic equations by factorising, completing the square and using quadratic formula. Rearrange formula, understand function notation, composite functions, inverse functions and solve equations written in function notation. Find approximate solutions to equations from graphs. Interpret and sketch graphs of quadratic functions, simple cubic functions and reciprocal functions. 	 Rotation, reflection, translation and enlargement. Invariance Compare and describe distributions of data sets Know and understand the definitions for different types of data including populations and samples Surface area of spheres, cones and composite solids. The equation of a circle with centre the origin and equation of tangents to a circle. 	 Construction and interpretation of cumulative frequency diagrams including box plots Set theory Venn diagrams Conditional probability Construction and interpretation of histograms.
Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge
Decimals as multipliers with percentage problems - I can use multipliers to find percentages of amounts. - I can use multipliers to carry out percentage change calculations - I can identify a percentage change - I can find the original value of a	Use coordinate axes to problem solve and plot graphs of straight lines - I can solve geometrical problems on coordinate axes. - I can plot graphs of straight lines from their equations Manipulation of y=mx + c. Find the	Identify and construct equations and graphs for direct and inverse proportion problems. - I can identify cases of direct and inverse proportion correctly - I can recognize and interpret graphs that illustrate direct and inverse proportion. Solve equations of direct and inverse	Solve quadratic equations by factorising, completing the square and using quadratic formula. - I can factorise a quadratic equation of the form $x^2 + bx + c = 0$ to find its solutions - I can complete the square for equations of the form $x^2 + bx + c = 0$ To find the solutions in rounded and	Rotation, reflection, translation and enlargement. - I can construct, identify and describe congruent shapes formed by translation. - I can construct, identify and describe congruent shapes formed by reflection. - I can construct, identify and	Construction and interpretation of cumulative frequency diagrams including box plots - I can construct cumulative frequency polygons. - I can estimate the median, quartiles and interquartile range from a cumulative frequency polygon.

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percentage change (reverse	gradients of a line and parallel and	proportion.	exact form.	describe congruent shapes formed	- I can construct a box plot diagram
percentage)	perpendicular lines.	- I can calculate the constant of	- I can apply the quadratic formula	by rotation.	using an appropriate scale.
- I can carry out compound interest	 I can use y=mx+c to identify 	proportion.	to solve equations of the form	- I can construct, identify and	- I can read the median and
and depreciation calculations	parallel and perpendicular lines	- I can construct and interpret	$ax^2 + bx + c = 0$	describe similar shapes formed by	quartiles and calculate the IQR and
- I can find unknown interest rates or	- I can find the equation of the line	equations that describe direct and	- I can rearrange formulae into the	enlargement including negative and	range from a box plot diagram
original values in compound interest	through a point with a given	inverse proportion.	form $ax^2 + bx + c = 0$	fractional scale factors.	- I can compare sets of data using
or depresiation calculations	gradient	- I can solve all equations related to	Designed for an idea and another d	In an in an	cumulative frequency polygons and
or depreciation calculations	- I can find the equation of a line	direct and inverse proportion.	Rearrange formula, understand	Invariance	box plot diagrams.
	L can find the equations of	Solva linear equations written in any	function notation, composite	- I can identify and describe	Sat theory
Expand double brackets including	nerpendicular lines	form	solve equations written in function	reflections and translations	Set theory.
square brackets.		- Lean colve linear equations in one	notation		- I can read and understand set
 I can expand and simplify double 	Apply Pythaaoras' Theorem and	unknown algebraically including	- I can make f(x) the subject of a	Compare and describe distributions	theory notation.
brackets	triaonometry to right analed	negative and fractional solutions	formula.	of data sets	- I can write and apply set theory
-I can expand and simplify square	triangles with and without	- I can solve linear equations with	- I can use f(x) notation to find	- I can interpret, analyse and	notation to my solutions.
brackets	calculators.	the unknown on both sides of the	values of functions with numerical	compare distributions of data sets	
-I can recognise expansions that give	-I can remember SOHCAHTOA	equation with and without brackets.	substitutions.	using measures of central tendency	Venn diagrams
the "difference of two squares"	-I can find missing angles in right	- I can solve linear equations given	 I can use f(x) notation to find 	(median, mean, mode and modal	- I can read information from a venn
	angled triangles	in rational form.	values of functions with algebraic	class).	diagram
Identify a surd simplify surds and	-I can find missing lengths in right		substitutions.	- I can interpret, analyse and	- I can annotate a venn diagram
conduct all A numerical energian	angled triangles	Substitution into formulae.	- I can write composite functions	compare distributions of data sets	using the information given in a
conduct an 4 numerical operations	-I can recall exact values of sinθ,	- I can substitute numerical values	and find their solutions by	using measures of spread (range,	question
with surds.	$\cos\theta$ or $\tan\theta$ for $\theta=0^{\circ},30^{\circ},45^{\circ},60^{\circ}$ or	including negative and fractional	substitution both numerically and	including consideration of outliers,	Lean use years diagrams to solve
-I can simplify surds	90	values into formulae and	algebraically.	quartiles and interquartile range).	- I call use verifi diagrams to solve
 I can expand and simplify brackets 	Listing all possible sutcomes for 2	expressions.	- I can write inverse functions and	Know and understand the	problems with algebra
containing surds	cr more events using appropriate	- I can substitute any numerical	hoth numerically and algebraically	definitions for different types of	- I can use venn diagrams to aid in
 I can add, subtract, multiply and 	diagrams and use diagrams to solve	value into more complex scientific	- I can form and solve equations	data including populations and	solving conditional probability
divide with surds.	probability problems.	formulae.	written in function notation.	samples	questions.
-I can rationalise denominators	-I can find probabilities by listing			- I know, understand and can apply	
	outcomes or use a sample space	know and utilise all properties of	Find approximate solutions to	the terms: primary data, secondary	Construction and interpretation of
Perimeter and area of 2D shapes	diagrams	nolygons to solve problems	equations from graphs. Interpret	data, discrete data and continuous	histograms.
-I can calculate the perimeter of 2D	- I can use venn diagrams and	- I can derive and use the sum of	and sketch graphs of quadratic	data to describe a data set.	- I can construct histograms with
shapes including circles and	recognise all forms of set notation	internal angles in a triangle.	functions, simple cubic functions	- I can apply statistics to describe a	equal class widths
composite shapes	-I can I can use frequency trees in	- I can apply the angle sum of a	and reciprocal functions.	population.	- I can calculate frequency density
- I can calculate the area of circles	context	triangle to derive and use the angle	- I can find approximate solutions to	- I know the difference between a	given the frequencies and class
and composite shapes	-I can use probability trees for	sum in any polygon.	quadratic equations from their	population and a sample of data.	widths in a table
	combined events	- I can derive and utilise the	graph.	- I understand the limitations of	L con drow histograms with
Congruency and Similarity	-l can use probability trees or	properties and characteristics of all	- I can recognise, sketch and	sampling.	
 I can understand the congruence 	two-way tables to solve conditional	triangles and quadrilaterals to solve	Interpret graphs of quadratic	Curferer and of each and a second	unequal class widths
rules for triangles	probability problems	problems.	Lean Identify and interpret roots	surjace area of spheres, cones and	- I can calculate frequency density
 I can apply angle rules and shape 	Convert between fractions	- I can recognise and apply the	intercents and turning points of	- I can calculate the surface area of	and frequencies from a histogram
properties in problems to prove	percentages decimals Find	correct language and mathematical	quadratic functions graphically.	spheros, sonas and somposite solids	diagram
congruence	unknown augntities. Use equations	notation when describing any	- I can recognise, sketch and	spheres, cones and composite solids	- I can interpret histograms to solve
-I can use scale factors to determine	in ratio to solve real life problems .	polygon e.g equal sides, parallel	interpret graphs of quadratic	using the formulae provided in the	problems.
if shapes are similar	-I can convert from ratios to	ines etc.	functions, simple cubic functions	question	
-I can find missing lengths when	fractions and use them		and the reciprocal function.		
given similar snapes	interchangeably			The equation of a circle with centre	
Volume and Carls fronter	-I can find unknown parts or wholes			the origin and equation of tangents	
volume and Scale Jactor	in a sharing ratio problems			- I can recognise and use the	
-i can find the volume of any prism,	-I can convert between equations			- i can recognise and use the	
pyramia, cone or sphere	and ratios			the entries	
- I can mu the volume of a mustum	-I can combine ratios and solve			the origin.	
or volume similarity sugging	problems in context			- I can find the equation of a tangent	
or volume similarity question				to a circle at a given point.	

Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)
In class test on recent content (week beginning 2nd October)	In class test on recent content (week beginning 11th December)	Major Assessment - One full GCSE calculator paper Week beginning 29th January	In class test on recent content (week beginning 11th March)	In class test on recent content (week beginning 22nd April)	Major Assessment (week beginning 24th June)



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Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit of Work/Big Question	Unit of Work/Big Question	Unit of Work/Big Question	Unit of Work/Big Question	Unit of Work/Big Question	Unit of Work/Big Question
- <i>Algebra:</i> manipulation revision, completing the square, proof, numerical methods, simultaneous equations, graphs - <i>Number:</i> Surds revision	 Number/Algebra: inequalities, upper and lower bounds Geometry: Circle theorems, vectors Algebra/Geometry: Rates of change 	 Geometry: trigonometry in any triangles, bearings, Area under a curve, motion graphs, Number: Algebraic fractions Algebra: Sketching graphs 	 Geometry: Transforming functions, Constructions and Loci Statistics: Probability Algebra: Growth and Decay 	N/A	N/A
Knowledge	Knowledge	Knowledge	Knowledge	Knowledge	Knowledge
 Expanding and Factorising Solving quadratic equations Completing the square Algebraic proof Numerical methods of solving equations Solving simultaneous equations Understanding graphs Calculating with surds 	 Representing and solving inequalities Upper and lower bounds Circle theorems Finding rates of change from graphs Vectors TAILORED CONTENT BASED ON QLA AND SPARX, DIFFERING FOR EACH CLASS 	 The sine and cosine rules (including bearings) Area under a curve and graphs of motion Algebraic fractions Sketching graphs of any function TAILORED CONTENT BASED ON QLA AND SPARX, DIFFERING FOR EACH CLASS 	 Transforming graphs of functions Compass constructions Loci problems Probability revision Growth and decay (percentages) revision in context) TAILORED CONTENT BASED ON QLA AND SPARX, DIFFERING FOR EACH CLASS 	- TAILORED REVISION BASED ON QLA AND SPARX, DIFFERING FOR EACH CLASS	
Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge	Skills & Procedural Knowledge
Expanding and factorising - I can expand products of two or more binomials - I can factorise quadratic expressions - I can factorise quadratics where the coefficient of x^2 is greater than 1. Solving quadratic equations - I can solve quadratics by factorising - I can solve quadratics using the quadratic formula Completing the square - I can complete the square of a quadratic - I can deduce the turning point	Representing and solving inequalities - I can solve linear inequalities in one or two variables - I can represent inequalities on a number line, or a graph using the correct conventional notation - I can solve quadratic inequalities Upper and lower bounds - I can use and interpret error intervals - I can find the upper or lower bound of a multi-step problem in context Circle theorems - I can apply any of the circle	The sine and cosine rules (including bearings) - I can apply the sine rule to find an unknown side/angle in a triangle - I can use the cosine rule to find an unknown side in a triangle - I can rearrange and apply the cosine rule to find an unknown angle - I can use $\frac{1}{2}absinC$ to find the area of a triangle - I can apply bearings knowledge to trigonometry problems Area under a curve and graphs of motion. - I can find the area under a linear	Transforming graphs of functions - I can sketch a graph of a translation of a function - I can recognise a translation of a function (relate to completing the square) - I can reflect graphs of functions - I can recognise reflections of functions Compass constructions - I can construct bisectors of lines or angles using a pair of compasses - I can construct perpendicular lines from a given line Loci	REVISION	

Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Key Assessment Task (KAT)	Rey Assessment Task (KAT)
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point of a quadratic by completing the squaretAlgebraic proof1 can manipulate algebraic identities to find unknowns1 can use algebra to construct and prove statements that involve, odd, even, consecutive and square numbersNumerical methods of solving equations1 can use iteration techniques to solve equations numerically - 1 can use the suffix notation and recursive formula-Solving simultaneous equations - 1 can solve two linear equations simultaneously - 1 can solve simultaneous equations where one equation is linear and the other is a quadratic - 1 can interpret the solution of simultaneous equations from context-Understanding graphs - 1 can solve real life graph problems-Calculating with surds - 1 can solve real life graph problems-Can add, subtract, multiply and divide with surds - 1 can apply surds to other areas of maths and leave my answer in surd form-	theorems to identify unknown angles -I can prove circle theorems using algebraic methods Finding rates of change from graphs - I can interpret the gradient of a straight line graph as a rate of change - I can find the instantaneous rate of change by finding the gradient at a point on a curve - I can find the average rate of change by finding the gradient of a chord between two points Vectors -I can use diagrammatic and column representation of vectors -I can carry out addition or subtraction of vectors -I can use vectors to construct geometric arguments - I can use vectors to solve geometric problems involving other areas of mathematics such as ratio or parallel line properties	graph - I can find the area under curves using triangles and trapezia to approximate - I can interpret distance-time/speed-time graphs and how the areas in context Algebraic fractions - I can simplify algebraic fractions by finding common factors in the both the numerator and denominator - I can add or subtract algebraic fractions - I can solve equations (including quadratics) that one or more algebraic fractions Sketching graphs. - I can recognise and sketch graphs of quadratic or cubic functions - I can recognise and sketch the graph of the reciprocal function - I can recognise and use the graph of exponential functions in the form $y = k^x$ where k is positive - I can recognise and draw trigonometric functions for angles of any size (in degrees). - I can find alternative solutions to trigonometric equations using the graphs.	 I can recognise and use a circle around a point to find a certain distance away from a point I can find equidistant lines or points using compass constructions I can solve loci problems involving multiple constructions and scales <i>Probability revision</i> I can solve probability problems of combined independent events using different diagrams I can solve conditional probability problems, with a focus on probability trees diagrams and venn diagrams <i>Growth and decay</i> I can set up and solve growth problems with a focus on compound interest I can work with decay problems with a focus on compound interest I can work with decay problems with a focus on compound interest I can work with decay problems 		