

SUBJECT: MATHEMATICS - Higher Pathway - Upper

Rationale To be more fluent in the algebraic, geometrical effectively.	he use of mathema I and statistical cor	atical thinking an	d language. Be intro	duced to more adv		
	algebraic, geometrical and statistical concepts. Know when and how to use a scientific calculator efficiently and effectively.					
Topic/Unit Autumn Term 1 Au	utumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2	
Knowledge • Standard Form • Sectors & • Arcs • Geometric Sequences • Collecting Data	Angles in Polygons Set Notation, Venn & Tree Diagrams Changing the Subject of a Formula	 Evaluating & Using Index Laws Repeated Percentage Change Working with Recurring Decimals Simul- taneous Equations 	 Working with Surds & Rationalising Trigonometry Volume & Surface Area 	 Solving Quadratic Equations Representing & Interpreting Data Solving & Graphing Inequalities Financial Awareness PDC Course 	 Direct & Inverse Proportion Cumulative Frequency & Box Plots Histograms & Frequency Polygons 	
SkillsStandard Form Convert betweenAr PC Convert betweenAr PC Convert betweenstandard form and ordinary numbers (and vice versa) for large and small numbers.us numbers mathematic mathematic written in incorrect standard form.us mathematic mathematic mathematic mathematic mathematic mathematic of indices where appropriate.mathematic <b< th=""><th>ngles in olygonsE bill olygonsse the angle um propertiesI I se the angle um propertiestriangles and uadrilaterals.r r olygon, each terior angles in r regularterior angles in regularr r r olygon, each terior angle in ach exterior angle in a olygon and ach exterior angle in a olygon, each terior angletriangle in a olygon, each terior angle in ach exterior angle in a olygen and terior angleterior angle oblems in a nge of tuations, using terior angles s well as other agrams formation.terior angles agram from ven formation.terior angles agrams omplete or raw a Venn agram from tork out robabilitiestersection, onditional ophability.tersection, omplement, mpty set, curly rackets and</br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></br></th><th>Evaluating & Using Index Laws Find the numerical value of numbers expressed in ndex form, ncluding bositive, negative and fractional ndices. Know that any value raised to the power of 0 s equal to 1. Apply the laws of indices to numerical expressions. Write one number as a bower of another ncluding to broblem solve. Understand that the nverse of raising a number to a bower of its reciprocal. Repeated Percentage Change Solve broblems nvolving compound nterest and depreciation, using multipliers</th><th>Working with Surds & Rationalising Understand the terms rational and irrational and irrational and the definition of a surd. Simplify a surd. Collect 'like terms' surds including the need to simplify first. Manipulate surd expressions involving single and double brackets, including the need to simply and collect like terms. Rationalise denominators involving surds. Solve problems in a range of contexts involving surds. Solve more complex problems using</th><th>Solving Quadratic Equations Factorise quadratics where 'a' is any integer. Solve quadratic equations by factorising, including equations that need rearranging first. Solve quadratic equations using the quadratic formula, including equations that need rearranging first. Solve quadratic equations that need rearranging first. Solve quadratic equations that need rearranging first. Solve quadratic equations using the completing the square, including equations that need factorising or rearranging first. Set up and solve quadratic equations in order to solve problems, giving an answer in context to the problem. <u>Representing & Interpreting Data</u> Design or complete and use two-way tables. Draw and/or interpret composite and</th><th>Direct & Inverse Proportion Identify direct or inverse proportion from a table of values or otherwise by comparing the ratios of values. Write statements of proportionality for values in direct or inverse proportion, including squared, cubed or rooted. Set up and devise formulae using 'k' for direct and inverse proportion. Calculate unknown quantities that vary in direct or inverse proportion to a given quantity, including squared, cubed and rooted values. Recognise and interpret graphs showing direct and inverse proportion. Cumulative Frequency tables and graphs. Find the median,</th></b<>	ngles in olygonsE bill olygonsse the angle um propertiesI 	Evaluating & Using Index Laws Find the numerical value of numbers expressed in ndex form, ncluding bositive, negative and fractional ndices. Know that any value raised to the power of 0 s equal to 1. Apply the laws of indices to numerical expressions. Write one number as a bower of another ncluding to broblem solve. Understand that the nverse of raising a number to a bower of its reciprocal. Repeated Percentage Change Solve broblems nvolving compound nterest and depreciation, using multipliers	Working with Surds & Rationalising Understand the terms rational and irrational and irrational and the definition of a surd. Simplify a surd. Collect 'like terms' surds including the need to simplify first. Manipulate surd expressions involving single and double brackets, including the need to simply and collect like terms. Rationalise denominators involving surds. Solve problems in a range of contexts involving surds. Solve more complex problems using	Solving Quadratic Equations Factorise quadratics where 'a' is any integer. Solve quadratic equations by factorising, including equations that need rearranging first. Solve quadratic equations using the quadratic formula, including equations that need rearranging first. Solve quadratic equations that need rearranging first. Solve quadratic equations that need rearranging first. Solve quadratic equations using the completing the square, including equations that need factorising or rearranging first. Set up and solve quadratic equations in order to solve problems, giving an answer in context to the problem. <u>Representing & Interpreting Data</u> Design or complete and use two-way tables. Draw and/or interpret composite and	Direct & Inverse Proportion Identify direct or inverse proportion from a table of values or otherwise by comparing the ratios of values. Write statements of proportionality for values in direct or inverse proportion, including squared, cubed or rooted. Set up and devise formulae using 'k' for direct and inverse proportion. Calculate unknown quantities that vary in direct or inverse proportion to a given quantity, including squared, cubed and rooted values. Recognise and interpret graphs showing direct and inverse proportion. Cumulative Frequency tables and graphs. Find the median,	

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geometric	notation, both	Work out a	including	Draw and/or	IQR using a
sequences	when using	single	Pythagoras'	interpret pie	cumulative
sequences.	when using	Single	Fyillagolas	interpret pie	cumulative
Find the	Venn diagrams	multiplier for a	theorem, simple	charts, including	frequency
common ratio in	or without.	repeated	bearings, area &	comparing two	araph.
o geometrio	Drow or	proportional	porimotor and	nic charts that	Interpret
a geometric	Diawoi	proportional	penineter and	pie charts that	interpret
sequence and	complete a tree	change.	angle properties.	represent	cumulative
use it to	diagram from	Workina with	Know the exact	different sample	frequency
continue a	given	Recurring	values of sin A	sizes	graphs in order
continue a		Recurring	values of sill 0,	31263.	
sequence.	information.	<u>Decimais</u>	$\cos \theta$ and $\tan \theta$	Solving &	to solve a range
Find missing	Understand the	Decide	for 0°. 30°. 45°	Graphing	of problems in
terms in a	use of the AND	whether a	and 60° and 90°	Inequalities	context
geometric	and OR rule in a	fraction is	for sin θ and cos	Solve two linear	Construct a box
sequence using	tree diagram.	recurring or	θ only.	inequalities, find	plot from raw
the common	Calculate the	terminating by	° °	the solutions	data or from
ratio.	probability of	writing its	Volume &	sets and	calculations of a
	combined	denominator in	Surface Area	compare them	cumulative
Collecting Data	events using a	prime factor	Find the surface	to see which	frequency
Understand	tree diagram for	form		volue(a) estisfica	aroob
Understand	tree diagram for	IOIIII	area of prisms	value(s) satisfies	graph.
primary and	independent and	Convert a	made from	both	Interpret a box
secondary data	dependent	fraction to a	triangles and/or	inequalities	plot including in
and know	avente es well	roourring		Solve linear	the context of a
	events as well	recurring	rectangles,	Solve linear	
advantages and	as unconditional	decimal.	including	inequalities in	problem.Use
disadvantages	and conditional	Convert a	composite	two variables	cumulative
of both	nrohability	recurring	nriemo	hoth	frequency
	probability.	de aler - L tr		alaahasissi	areach 1/
Understand		decimal to a	Find the surface	algebraically	grapns and/or
discrete,	Changing the	fraction.	area of a	and graphically.	box plots to
continuous	Subject of a	Solve	cylindor	Show the	compare two
		probleme			doto
quantitative and	romula	propiems	Find the surface	SOLUTIONS SET OF	uata
qualitative data	Change the	involving the	area of a	several	distributions,
and classify	subject of a	conversion of	nyramid	inequalities in	giving an
aiven dete		requiring		two voriables	interpretation in
given data	simple linear	recurring	Find the surface	two variables	interpretation in
correctly.	one or two-step	decimals.	area of a	through regions	the context of
Understand the	formula or		sphere	on a set of	the situation.
terms sample	equation	Simultaneous	Find the ourfood	graphs	1
ternis sample,		Simultaneous	Find the surface	graphs.	
census and	Change the	Equations	area of a cone.		Histograms &
population.	subject of a	Solve a pair of	Find the volume	Financial	Frequency
Identify sources	formula or	linear .	of prisms made	Awareness PDC	Polygons
of hiss when					Draw
of blas when	equation	simultaneous	of rectilinear	Course	Diaw
sampling and	involving	equations	shapes,	Role play and	histograms with
understand how	fractions or	usina	including	model real-life	equal class
to reduce bice	amall powers of	alimination		according of	intervolo
to reduce blas	smail powers of		cubolas,		
through altering	the subject.	including	triangular prisms	managing a	Draw
sampling	Change the	working with	and composite	household	histograms with
methods	subject of a	fractional and	shapos	hudget given a	
	Subject of a		snapes.	buuget, given a	
Calculate the	formula or	negatives	Find the volume	range or	intervals, using
size of a	equation where	solutions.	of a cvlinder.	different	frequency
stratified	the subject	Identify the	Find the volume	variables	density.
camplo	appears on both	colutions of		regarding gross	Complete a
sample.	appears on both		or a pyramid.	regarding gross	
Use 'Capture-	sides of the	simultaneous	Find the volume	and net wages,	histogram with
Recapture'	original, using	equations	of a sphere.	unexpected bills	unequal class
techniques to	factorising to	drawn	Find the volume	and the seen	intervals from
	aupport	graphically		and hidden	aiven dete
calculate solve	support.	graphically.	of a cone.	and hidden	given data.
problems with		Set up	Solve a range of	costs of	Construct a
sample sizes.		simultaneous	problems	maintaining a	arouped
04p.0 0.2001		oquations to		house and	froquoney table
		equations to	involving volume	nouse and	
		represent a	and/or surface	family.	from a
		situation and	area	Learn about	histogram.
		solve within	alou	credit debt tax	Estimate the
		the context of		VAT and other	mean from a
		the problem.		issues related to	histogram.
		•		ioh salaries	Estimate the
				job Sulanes,	
				income,	median from a
				borrowing,	histogram.
				saving and	Estimate the
				coording	froquency of a
				spending	rrequency of a
				money.	specified interval
				Discuss when	anywhere within
				debt can be a	a histogram
				positive thing	Construct and
				and when it is	plot frequency
				not and how to	nolvaons
				avoid setting	porygons.
				avoid getting	interpret
				into debt.	frequency





					Consider the amount of income tax paid from a range of salaries. Look at the range of methods used in modern day banking.	polygons including when comparing data distributions.
Assess- ments	Assessment 8	Assessment 9 moved to this term		Assessment 10	Assessment 11	EOY Assessment
Homework	Mathswatch: Higher upper revision assignment assessment 8	Mathswatch: Higher upper revision assignment assessment 9 Retrieval grid	Core skills homework booklet	Mathswatch: Higher upper revision assignment assessment 10	Mathswatch: Higher upper revision assessment 11	Mathswatch: Higher upper EOY revision assignment Core skills homework booklet



SUBJECT: MATHEMATICS – Higher Pathway - Lower

Rationale algebraic, geometrical and statistical concepts. Know when and how to use a scientific calculator efficiently and effectively. Summer Ten 2 Summer Ten 2 To be more fluent in the use of mathematical thinking and language. Be introduced to more a advanced numerical effectively. Summer Ten 2 To be more fluent in the use of mathematical thinking and 2 Summer Ten 2 Summer Ten 2 To be softing 2 Summer Ten 2 Summer Ten 2 Summer Ten 2 Summer Ten 2 To be softing 2 Summer Ten 2 Summer Ten 2 Summer Ten 2 To be softing 2 Summer Ten 2 To be softing 2 Summer Ten 2 To be softing 2 Summer Ten 2 <	Year Group:	Year 9					
Topic/Unit Autumn Term 1 Autumn Term 2 Spring Term Spring Term Spring Term Summer Term Summer Term Summer Term Knowliedge Form • Standard - Circles, Sectors & Arcs • Angles in Polygons & Arcs • Favalial Lines • Evaluating & Rationalising • Working with Statos & Rationalising • Solving Change & Sufface Venn & Tree • Solving Parallel Lines • Solving Rationalising • Solving Rationalisin	Rationale	To be more fluent algebraic, geomet effectively.	in the use of mathe rical and statistical o	matical thinking an concepts. Know w	nd language. Be intr hen and how to use	oduced to more adv a scientific calculate	vanced numerical, or efficiently and
Knowledge • Standard Form • Angles in Polygons & Arcs • Angles in Polygons & Arcs • Evaluating & Parallal Lines • Working with Laws • Surds & Rationalising • Surds & Rationalising • Sourds & Rationalising • Surds & Rationalising Skills Standard Form and ordinary numbers (and ordinary numbers (and ordinary reasoning, the standard form. Use the four vices of ratios of values of standard form. Use an efficiently wint is tandard form. Use an efficiently wint standard form. values an angle in sum or the ratios of values of indices where given in standard form. values an angle in sum or the ratios of values of ratios of values of ratios of values in terior angle in standard form. values an angle in sum or the ratios of values in terior angle in a regular polygon, each inciding semi- reastandard form. value	Topic/Unit	Autumn Term 1	Autumn Term 2	Spring Term 1	Spring Term 2	Summer Term 1	Summer Term 2
Skills Standard Form between Angles in properies of and ordinary numbers (and vice versa) for numbers (and parallel lines to numbers. Evaluating & Using Index Proportion Working with Rationalising Understand the and uratice equations by factorsing, and realised value or otherwise by rearranging first. Direct & Inverse Proportion lengt and solve quadratic equations by factorsing, and rearranging first. Direct & Inverse Proportion lengt and solve quadratic Direct & Inverse equations by factorsing, and rearranging first. Direct & Inverse Proportion lengt and solve quadratic Adjust numbers incorrect proportion incorrect angles (allemate, corresponding, corresponding, tincuding standard form. angles corresponding, corresponding, standard form. co-interior) reasoning, anithmetic with opposite angles. Index form, sequations using including use the corresponding, tincuding the proportionality terms' surds Solve quadratic equations using the quadratic Solve quadratic equations using trataton Write statements of trading the standard form. Solve angles. Solve angles. Write standard form. Value size versions. the power of or indices where appropriate. the power of or a regular Apply the lews standard form. angle in a ragular angle	Knowledge	 Standard Form Circles, Sectors & Arcs Geometric Sequences Collecting Data 	 Angles in Polygons & Parallel Lines Set Notation, Venn & Tree Diagrams Changing the Subject of a Formula 	 Evaluating & Using Index Laws Repeated Percentage Change & Reverse Percentages Working with Recurring Decimals Simul- taneous Equations 	 Working with Surds & Rationalising Trigonometry Volume & Surface Area 	 Solving Quadratic Equations Representing & Interpreting Data Solving & Graphing Inequalities Financial Awareness PDC Course 	 Direct & Inverse Proportion Cumulative Frequency & Box Plots Histograms & Frequency Polygons
quadrants. Calculate the length of an arc partial circle.angle properties.Percentage Changeright-angled triangles.pie charts that representCumulative Frequency & Box PlotsQuadrants. Calculate the partial circle. Calculate theSet Notation, Diagrams Complete orPercentage Changeright-angled triangles.pie charts that representCumulative Frequency & Box Plots Construct compoundQuadrants. Length of an arc partial circle. Calculate theSet Notation, Diagrams Complete orPercentage Changeright-angled triangles.pie charts that representCumulative Frequency & Construct cumulative frequency table	Skills	Standard Form Convert between standard form and ordinary numbers (and vice versa) for large and small numbers. Adjust numbers written in incorrect standard form. Use the four rules of arithmetic with numbers written in standard form, using rules of indices where appropriate. Use a calculator efficiently with standard form values. Compare and order numbers given in standard form. Circles, Sectors & Arcs Calculate the area or perimeter of composite shapes made from circles and parts of circles, including semi- circles and quadrants. Calculate the length of an arc in any circle or partial circle. Calculate the	Angles in Polygons & Parallel Lines Use the angle properties of parallel lines to find missing angles (alternate, corresponding, co-interior) giving clear reasoning. Identify and use vertically opposite angles. Use the angle sum properties of triangles and quadrilaterals. Understand and use an efficient method to calculate the sum of the interior angles in a regular polygon, each interior angle in a regular polygon, and each exterior angle in a regular polygon. Solve angle problems in a range of situations, using interior angles as well as other angle properties.	Evaluating & Using Index Laws Find the numerical value of numbers expressed in index form, including positive, negative and fractional indices. Know that any value raised to the power of 0 is equal to 1. Apply the laws of indices to numerical expressions. Write one number as a power of another including to problem solve, in simple cases. Understand that the inverse of raising a number to a power of its reciprocal. Repeated Percentage Change Solve problems involving compound	Working with Surds & Rationalising Understand the terms rational and irrational and irrational and the definition of a surd. Understand and use surd notation. Simplify a surd. Collect 'like terms' surds including the need to simplify first. Manipulate surd expressions involving single and double brackets, including the need to simply and collect like terms. Rationalise denominators involving simple surds. <u>Trigonometry</u> Know and use the trigonometric ratios sine, cosine and tangent and use them to find unknown sides and angles in right-angled triangles. Find angles of elevation and depression. Solve problems	Solving Quadratic Equations Solve quadratic equations by factorising, including equations that need rearranging first. Solve quadratic equations using the quadratic formula, including equations that need rearranging first. Set up and solve quadratic equations in order to solve problems, giving an answer in context to the problem. <u>Representing & Interpreting Data</u> Design or complete and use two-way tables. Draw and/or interpret composite and dual bar charts. Draw and/or interpret pie charts, including comparing two pie charts that represent different sample sizes.	Direct & Inverse Proportion Identify direct or inverse proportion from a table of values or otherwise by comparing the ratios of values. Write statements of proportionality for values in direct or inverse proportion, including squared, cubed or rooted. Set up and devise formulae using 'k' for direct and inverse proportion. Calculate unknown quantities that vary in direct or inverse proportion to a given quantity, including squared, cubed and rooted values. Recognise and interpret graphs showing direct and inverse proportion. Cumulative Frequency & Box Plots Construct cumulative frequency tables

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Geometric	diagram from	depreciation,	ratios, including	Solving &	Find the median,
<u>Sequences</u>	given	using	Pythagoras'	<u>Graphing</u>	quartliles and
Distinguish	information.	multipliers	theorem, simple	Inequalities	IQR using a
between	Work out	efficiently	bearings area &	Solve two linear	cumulative
arithmatic and	probabilition	Work out a	porimeter and	inequalities find	froquonov
	probabilities			the solutions	arrand
geometric	nom venn	single	angle properties.	the solutions	graph.
sequences.	diagrams,	multiplier for a	Know the exact	sets and	Interpret
Find the	including	repeated	values of sin θ ,	compare them	cumulative
common ratio in	conditional	proportional	$\cos \theta$ and $\tan \theta$	to see which	frequency
a geometric	probability	change	for 0° 30° 45°	value(s) satisfies	graphs in order
sequence and	Lise union	Find the	and 60° and 00°	hoth	to solve a range
	interportion	original		inoqualition	of problems in
	intersection,	onginal	for $\sin \theta$ and $\cos \theta$	inequalities.	or problems in
continue a	complement,	amount after a	θ only.	Solve linear	context.
sequence.	empty set, curly	percentage		inequalities in	Construct a box
Find missing	brackets and	increase or	Volume &	two variables	plot from raw
terms in a	universal set	decrease.	Surface Area	both	data or from
geometric	notation both		Find the surface	algebraically	calculations or a
	when using	Working with		and graphically	cumulativo
sequence using	When using		area of prisms	and graphically.	
the common	venn	Recurring	made from	Show the	frequency
ratio.	diagrams and	<u>Decimals</u>	triangles and/or	solutions set of	graph.
Collecting Data	not.	Decide	rectangles,	several	Interpret a box
Understand	Draw or	whether a	including	inequalities in	plot, including in
primary and	complete a tree	fraction is	composite	two variables	the context of a
secondary data	diagram from	recurring or	prieme	through regions	nrohlem
and know	aiven	terminating by	Find the ourface	on a set of	Lise row data
	information	writing ito		aropho	with a hay alat
advantages and	information.	writing its	area of a	graphs.	with a box plot
disadvantages	Understand the	denominator in	cylinder.		or two box plots
of both.	use of the AND	prime factor	Find the surface	<u>Financial</u>	to compare two
Understand	and OR rule in a	form.	area of a	Awareness PDC	data
discrete.	tree diagram.	Convert a	pyramid	Course	distributions.
continuous	Calculate the	fraction to a	Find the surface	Role play and	aivina an
quantitative and	probability of	recurring	oroo of o	model real_life	interpretation in
qualitative and	probability of	deaimal			the context of
			sphere.		the context of
and classify	events using a	Convert a	Find the surface	managing a	the situation.
given data	tree diagram for	recurring	area of a cone.	household	
correctly.	independent and	decimal to a	Find the volume	budget, given a	<u>Histograms &</u>
Understand the	dependent	fraction.	of prisms made	range of	Frequency
terms sample.	events as well	Solve	of rectilinear	different	Polygons
census and	as unconditional	problems	shanes	variables	Draw
nonulation	and conditional	involving the	including	regarding gross	histograms with
Idontify sources	probability	convorsion of	niciuuling	and not wages	
identity sources	probability.		cubolas,	and het wages,	
or bias when	Estimate the	recurring	triangular prisms	unexpected bills	intervais.
sampling and	number of times	decimals.	and composite	and the seen	Draw
understand how	an event will	<u>Simultaneous</u>	shapes.	and hidden	histograms with
to reduce bias	happen from	Equations [Variable]	Find the volume	costs of	unequal class
through altering	given	Solve a pair of	of a cylinder.	maintaining a	intervals, using
sampling	information and	linear	Find the volume	house and	frequency
methods	relative	simultaneous	of a pyramid	family	density
Coloulate the	fraguanay	oquationa	Or a pyrannu.	Loorn obout	Complete e
	Changing the	equations	ring the volume		biotograma with
size of a	Changing the	using	of a sphere.	credit, debt, tax,	nistogram with
stratified	Subject of a	elimination,	Find the volume	VAL and other	unequal class
sample.	<u>Formula</u>	including	of a cone.	issues related to	intervals from
Use 'Capture-	Change the	working with	Solve a range of	job salaries,	given data.
Recapture'	subject of a	fractional and	problems	income,	Construct a
techniques to	simple linear	negatives	involving volume	borrowina.	grouped
calculate solve	one or two-sten	solutions	and/or surface	saving and	frequency table
problems with	formula or	Identify the		spending	from a
	origination	achutiona of	alea.	spending	histogram
sample sizes.	equation.			money.	nistogram.
	Change the	simultaneous		Discuss when	Estimate the
	subject of a	equations		debt can be a	mean from a
	formula or	drawn		positive thing	histogram.
	equation	graphically.		and when it is	Estimate the
	involving	Set up		not, and how to	median from a
	fractions or	simultaneous		avoid getting	histogram
	small nowers of	equations to		into debt	Construct and
	the subject	ranneenta		Consider the	nlot frequency
	Chonge the	ichicselli g			plot nequency
	Change the	situation and			polygons.
	subject of a	solve within		income tax paid	interpret
	formula or	the context of		from a range of	frequency
	equation where	the problem.		salaries.	polygons
	the subject			Look at the	including when
	appears on both			range of	comparing data
	sides of the			methods used in	distributions.





		original, using factorising to support – simple examples.			modern day banking.	
Assess- ments	Assessment 8	Assessment 9 moved to this half term		Assessment 10	Assessment 11	EOY Assessment
Homework	Mathswatch: Higher lower revision assessment 8	Mathswatch: Higher lower revision assessment 9 Retrieval grid	Core skills homework booklet	Mathswatch: Higher lower revision Assessment 10	Mathswatch: Higher lower revision assessment 11	Mathswatch: Higher lower EOY revision assignment Core skills homework booklet



SUBJECT: MATHEMATICS – Foundation Pathway - Upper

Year Group	YEAR 9						
Rationale	To be more fluent algebraic, geometre effectively	in the use of math rical and statistica	ematical thinking and I concepts. Know whe	language. Be intrend and how to use	oduced to more adv a scientific calculate	vanced numerical, or efficiently and	
Topic/Unit	Autumn Term 1	Autumn Term	Spring Term 1	Spring Term	Summer Term	Summer Term	
Knowledge	 Indices & Standard Form Area – Further Quadrilaterals & Circles Geometric, Fibonacci & Quadratic Sequences 	 Collecting Data Parallel Lines & Polygons Real Life Percentages & Multipliers 	 Pie Charts Surface Area Pythagoras' Theorem 	 Venn Diagrams & Set Notations Working with Quadratics Ratio Contexts 	 3D Shapes & Volume Graphs & Charts Financial Awareness PDC Course 	 Two Way Tables & Averages Expressions, Equations & Inequalities revisit Angle Properties revisit 	
Skills	Indices & Standard Form Use index laws to simplify and calculate the numerical value of expression involving multiplication, division of powers and powers of a power. Use index laws to calculate the value of numbers raised to fractional powers and to the power zero. Convert between standard form and ordinary numbers (and vice versa) for large and small numbers. Adjust numbers written in incorrect standard form. Use the four rules of arithmetic with numbers written in standard form, using rules of indices where appropriate. Use a calculator efficiently with standard form values.	Collecting Data Identify types of data: primary, secondary, discrete, continuous, quantitative and qualitative. Understand sample and population. Design and use data collection sheets for discrete data and continuous grouped data. Understand bias and consider how to eliminate it when sampling.Parallel Lines & Polygons, including regular and irregular shapes. Calculate the sum of interior angles in a polygon. Calculate the interior angle of a regular polygon. Solve simple	Pie Charts Construct pie charts, drawing angles to the nearest degree. Interpret pie charts including finding the mode and comparing two pie charts. Compare pie charts representing different totals.Surface Area Sketch nets of prisms and simple non-prisms in order to identify the surfaces of a prism. Find the total surface area of a prism or simple non-prism. Convert between metric measurements of area.Pythagoras' Theorem Understand and use Pythagoras' theorem to find missing lengths in given right angle triangles - for a hypotenuse and other shorter side. Justify whether a triangle using Pythagoras' theorem. Calculate the length of line segments, given their end coordinates.	Venn Diagrams & Set Notation Work out probabilities from Venn diagrams or from given sets. Complete or construct a Venn diagram from given information. Use correct set notation for union, intersection, complement, the empty set, the universal set and brackets { Braderatics Expand and simplify double brackets. Factorise quadratic expressions in the form x ² + bx + c. Generate points and plot graphs of quadratic graphs of quadratic graph. Ratio Contexts Use a variety of measures in ratio and proportion problems <th>3D Shapes & Volume Identify and name common 3D shapes. Know and use the formulae to calculate the volume of a cube, cuboid and triangular prism. Find the volume of a range of different composite prisms made from cubes, cuboids and triangular prisms. Convert between metric measures of volume and capacity. <u>Graphs & Charts</u> Draw and interpret a range of diagrams: pictograms, bar charts, dual bar charts, dual bar charts, bar-line graphs, vertical line charts, line graphs, time series graphs, histograms. Calculate total population from a graph, chart or table. Find the median, mode and range</th> <th>Two Way Tables & Averages Complete given two-way tables. Construct a two-way table from given information in order to solve a problem. Complete given frequency trees. Construct a Complete given frequency trees. Construct a frequency tree from given information in order to solve a problem. Find the median, mean and range from a frequency table. Find the range, modal class interval and class interval containing the median from a group frequency table. Find the estimated mean from a grouped frequency table and appreciate why it is an estimate. Expressions, Equations & Inequalities Si</th>	3D Shapes & Volume Identify and name common 3D shapes. Know and use the formulae to calculate the volume of a cube, cuboid and triangular prism. Find the volume of a range of different composite prisms made from cubes, cuboids and triangular prisms. Convert between metric measures of volume and capacity. <u>Graphs & Charts</u> Draw and interpret a range of diagrams: pictograms, bar charts, dual bar charts, dual bar charts, bar-line graphs, vertical line charts, line graphs, time series graphs, histograms. Calculate total population from a graph, chart or table. Find the median, mode and range	Two Way Tables & Averages Complete given two-way tables. Construct a two-way table from given information in order to solve a problem. Complete given frequency trees. Construct a Complete given frequency trees. Construct a frequency tree from given information in order to solve a problem. Find the median, mean and range from a frequency table. Find the range, modal class interval and class interval containing the median from a group frequency table. Find the estimated mean from a grouped frequency table and appreciate why it is an estimate. Expressions, Equations & Inequalities Si	
	parallelograms.	Solve simple problems involving	coordinates. Manipulate other shapes in order to	problems related to: currency	from a stem and leaf diagram.	involving brackets.	

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	Name and identify parts of a circle. Recall and use the formulae to find the area and circumference of a circle, giving answers as decimals or in terms of pi. Find the radius or diameter given the area of circumference of a circle. Find the perimeter and area of semi- circles and quarter circles. Find the perimeter and area of semi- circles and quarter circles. Find the perimeter and area of composite shapes made from partial circles. <u>Geometric &</u> <u>Quadratic</u> <u>Sequences</u> Continue a quadratic sequence and use the nth term to generate terms. Justify whether a terms is contained in a quadratic sequence. Distinguish between arithmetic, Fibonacci and geometric sequences. Find missing terms in a Fibonacci type sequence and find the common ratio.	interior and exterior angles. Use the angle properties of parallel lines: alternate, co- interior and corresponding. Use angle properties to solve a range of missing angle problems. Identify congruent shapes by eye. <u>Real Life Percentages &</u> <u>Multipliers</u> Use percentages in real-life contexts including percentages greater than 100%: Price after VAT, value of profit and loss, simple interest, tax calculations. Use decimal multipliers to find percentages of quantities after a percentage increase or decrease.	use Pythagoras' theorem. Calculate the length of a line segment on a co- ordinate grid.	conversions, rate of pay, best value.	Compare two distributions using appropriate averages and spread, either from raw data or given diagrams, including within a context. <u>Financial</u> <u>Awareness PDC</u> <u>Course</u> Role play and model real–life scenarios of managing a household budget, given a range of different variables regarding gross and net wages, unexpected bills and the seen and hidden costs of maintaining a house and family. Learn about credit, debt, tax, VAT and other issues related to job salaries, income, borrowing, saving and spending money. Discuss when debt can be a positive thing and when it is not, and how to avoid getting into debt. Consider the amount of income tax paid from a range of salaries. Look at the range of methods used in modern day banking.	Factorise fully into single brackets. Solve a range of linear equations with integer coefficients. Form and solve equations from given information and interpret the results in the context of the problem. Answer 'show that' questions using a range of algebraic techniques. Solve linear inequalities in one variable and represent the solution on a number line. Solve 'double inequalities' such as -3 < 2x + 1 < 7. Solve two inequalities in x and find the value(s) that satisfy both. Use inequality notation to express error intervals for rounding and truncation. <u>Angle Properties</u> Solve a range of geometric problems involving missing angles, giving reasons, using the following properties: angles on a straight line, angles around a point, vertically opposite angles, angles inside a quadrilateral, isosceles triangles, angles inside a
	ratio.				banking.	triangle, angles inside a quadrilateral, isosceles triangles, corresponding, alternate and co-interior angles
Assess- ments	Assessment 8		Assessment 9	Assessment 10	Assessment 11	EOY Assessment
Homework	Mathswatch:	Retrieval orid	Mathswatch:	Mathswatch:	Mathswatch:	Mathswatch
	Foundation upper revision assignment 8		Foundation upper revision assignment 9	Foundation upper revision assignment 10	Foundation upper revision assignment 11	EOY revision assignment



			Core skills
	Core skills		homework
	homework booklet		booklet



Year Group	Year 9					
Rationale	Consolidate and e	xtend mathematic	al thinking and langua	age. Be introduced	to more advanced	numerical,
Topic/Unit	algebraic, geomet	rical and statistical	concepts. Be more o	confident using a s	cientific calculator e	effectively.
ropic/offic	Autumn renn r	2	Spring renn r	2	1	2
Knowledge	 Indices, Order of Operations & Standard Form Area – Circles, Triangles & Quadrilateral 	 Collecting Data Parallel Lines & Angles Real Life Percentages 	 Pie Charts Surface Area Pythagoras' Theorem 	 Venn Diagrams & Set Notations Solving Linear Equations Ratio 	 3D Shapes & Volume Graphs & Charts Financial Awareness PDC Course 	 Two Way Tables Ratio & Proportion revisit Working with Expressions revisit
	 Sequences & Nth Terms 			Contexts		
Skills	INTER TERMS Indices, Order of Operations & Standard Form Use index laws to multiply and divide numbers written in index notation. Use index laws to evaluate numbers written to the power of a simple unit fraction or the power zero. Use brackets and the hier- archy of opera- tions, including powers. Convert between standard form and ordinary numbers (and vice versa) for large and small numbers. Use the four rules of arithmetic with numbers written in standard form, in very simple cases. Use a calculator to enter simple standard form calculations and interpret the display. <u>Area – Circles, Triangles &</u> <u>Quadrilaterals</u> Find the perimeter of	Collecting DataIdentify types of data: primary, secondary, discrete, continuous, quantitative and qualitative (with support). Understand sample and population. Design and use data collection sheets for discrete data and continuous grouped data. Understand bias and consider how to eliminate it when sampling.Parallel Lines & Angles Find missing angles in different triangles and quadrilaterals. Use the properties of right angles, angles on a straight line, angles to find missing angles to find missing	Pie ChartsConstruct piecharts, drawingangles to thenearest degree.Interpret simplepie chartsincluding findingthe mode.Compare piechartsrepresentingdifferent totals,using simpleproportions suchas ½ and ¼Surface AreaRecall and usethe formulae forthe area of arectangle andtriangle.Find the totalsurface area of asimple prism ornon-prism madefrom rectangularand triangularfaces.Convert betweenmetricmeasurements ofarea.Pythagoras'TheoremSubstitute givenvalues intoPythagoras'theorem.Understand anduse Pythagoras'theorem to findmissing lengths ingiven right angletriangles – for a	Venn Diagrams & Set Notation Work out probabilities from Venn diagrams or from given sets. Complete or construct a Venn diagram from simple given information. Use correct set notation for union, intersection, complement, the empty set, the universal set and brackets { }- all in very simple cases. Solving Linear Equations Write simple expressions or equations from given information. Solve linear equations with integer coefficients where the unknown appears on either side, extending to both sides in simple cases. Solve equations	3D Shapes & Volume Identify and name common 3D shapes. Know and use the formulae to calculate the volume of a cube, cuboid and triangular prism. Find the volume of a range of different simple composite right- prisms made from cubes, cuboids and triangular prisms. Graphs & Charts Draw and interpret a range of diagrams: pictograms, bar charts, dual bar charts, dual bar charts, line graphs, vertical line charts, line graphs, time series graphs, histograms with equal class widths and stem and leaf diagrams. Find the greatest and least value from a bar chart or table of data. Calculate total population from	Two Way TablesComplete giventwo-way tables.Construct asmall two-waytable from giveninformation inorder to solve aproblem.Complete givenfrequency trees.Ratio &ProportionRevisitWrite a ratio todescribe asituation or torepresent adivision of parts.Simplify ratiosincluding writingratios.Interchangebetweenfractions andratios.Convertbetweenfractions andratios.Convertbetweencontexts.Manipulaterecipes in arange ofcontexts.Solve proportionproblems usingthe unitarymethod.Work out andjustify which
	triangles, parallelograms and trapezia. Find the perimeter of composite	Identify and mark parallel lines on diagrams. Use the angle properties of	other shorter side.	brackets. Rearrange simple equations where the subject	table. Find the median, mode and range from a stem and leaf diagram.	the best value for money, in simple cases. Use a ratio to compare a scale model to a real
	shapes made	parallel lines:				lite object

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	from rectangles,	alternate, co-		appears only	<u>Financial</u>	
	triangles.	interior and		once.	Awareness PDC	Working with
	narallelograms	corresponding		Ratio Contexts	Course	Expressions
		Use seeds			Dele play and	Devicit
	and trapezia.	Use angle		Use a variety	Role play and	Revisit
	Use the	properties to		of measures in	model real-life	Simplify
	formulae to	solve a range		simple ratio	scenarios of	expressions by
	calculate the	of simple		and proportion	managing a	adding
	area of	missing angle		problems	bousebold	subtracting
				problems	nousenoiu	subtracting,
	rectangles,	problems.		related to:	budget, given a	multiplying and
	triangles,	Real Life		currency	range of	dividing terms
	parallelograms	Percentages		conversions.	different	including those
	and tranezia	Calculate the		rate of nav	variables	with powers
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	Find the area of	percentage of		best value.	regarding gross	Simpiny
	composite	a quantity.			and net wages,	expressions
	shapes made	Calculate the			unexpected bills	involving
	from rectangles	amount in a			and the seen	brackets.
	and triangles	nercentade			and hidden	Factorise fully
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	identify parts of	decrease. Use			maintaining a	brackets.
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	find the area	including			credit, debt, tax,	
	and	percentages			VAT and other	
	circumference of	greater than			issues related to	
	a circle	100% price			iob salaries	
		oftor \/AT			job calance,	
	•				income,	
	Sequences &	value of profit			borrowing,	
	<u>Nth Terms</u>	and loss and			saving and	
	Describe the	simple			spending	
	term-to-term rule	interest			monev	
	in a sequence				Discuss when	
	and use it to find				debt can be a	
	missing terms or				positive thing	
	continue a				and when it is	
	sequence				not and how to	
	Boognico				avoid gotting	
	Recognise				avoid getting	
	sequences in				into debt.	
	patterns of				Consider the	
	diagrams and				amount of	
	continue the				income tax paid	
	diagrama				from a range of	
	diagrams.				from a range of	
	Generate arith-				salaries.	
	metic sequen-				Look at the	
	ces, given term-				range of	
	to-term rules as				methods used in	
	well as				modern day	
	sequence of				banking.	
	square and cube					
	numbers.					
	Find the nth					
	term or a linear					
	sequence.					
	Use the nth term					
	to find a specific					
	term in a					
	sequence and to					
	test if a number					
	appears in a					
	sequence, in					
	simple cases					
Assass-	Assessment 8		Assessment Q	Assassment	Assessment 11	FOV
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ments				10		Assessment
Homework	Mathswatch:	Core skills	Mathswatch:	Mathswatch:	Mathswatch:	Mathswatch:
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	lower Povicion	hooklot	rovision	lower rovision	lower rovision	
		DUONIEL				
	assignment 8		assignment 9	assignment 10	assignment 11	revision
						assignment
					Core skills	
					homework	
					booklet	

