	Mathematics - Long Term Pla		n solvers writing thinkness autisus la	nd mothematically research												
	to create the heat generation of students in <u>otent</u> Teaching for mastery begins with the prem Dur intent is that pupils become fluent in the Every student in year 7, 8 and 9 follow the se	generation of durative law as most to become center predent advert, critical televina, curban televina, curban televina center of the televina center of televina center of the televina center of the televina center of televina ce		ole just con't do moths." NCETM 2017 and provides opportunities to help pupils to become vi curriculum	ualisers, describes and experimenters.											
	Week 1 Week 2	Holf Term Week 3 Week	1 4 Week 5 Week 6	Week 7 Week 1	Ho Week 2 Week 3 Week	f Term 2 4 Week 5 Week 6	Week 7 Week 8 Week 1		Half Term 3 Week 3 Week 4	Week 5 Week	k 6 Week 1	Half Term 4 Week 2 Week 3	Week 4 Week 5	Week 1 Week 2	Half Term S Week 3 Week 4	Week 5
w and	 Sequences Initia unit of work is spent exploring sequences in detail, using both diagrams and lists of numbers. Technology is used to produce graphs as subcents con appreciate the use of her service "linear" and "non-linear linking to the potters. 	 Understanding on The focus of this unit of work is developing o with more complex expressions being dealt w models and letter notation, with time investor 	Id Using Algebraic Notation a deep understanding of the basic algebraic form ith later. Functions machines are used alongside it in single function machines and the links to inve- perations	3. Equality and Equivalence and any service stackens are introduced to form and solving one-step linear equations, building on the study of inverse operations. The equations met will any service operations and will be a service operation operation operations and will be a service operation operation operation operations and will be a service operation operatio	4. Place Value and Ordering Integers and Decima Students will explore integers and decimals. Using understanding number lines is a key strategy explor depth, and will be used for later work on scales for aver	a S. Fraction, Decimal and Percentage and Building on the recent work on decima of in of this unit is students gaining a deep o When the links between fractions, decimals a	Equivalence a Equivalence anderstanding of index the key focus anderstanding of index textures. The focus of this and it is to build on the form house developed in KS2 Students will lack a problems will be and on y vorious	Addition and Subtraction (methods of addition and subtraction studen this in the context of interpreting and solving sts of perimeter, maney, interpreting frequency	 Solving Problems with Multiplie a This unit is dedicated to the study division, allowing for the revisiting a progressing to solve two-step equal progressing to solve two-step equal 	cation and Division of multiplication and alving equations and bons with and without iner with examined	8. Fraction and Percentages of Amoun it focuses on the key concept of working uantities and the links between the tree. and expanded on in year 8.	ts 9. Four Op	erations with Direct Number had limited experience in AS2, so this un and deepen their understanding of this ons and contexts will be used to enable to the second source to be download to enable		18 II. Constructing, Medsuring and Usin	Ing 12. Developing Geom skills This unit covers geometric gly properties of types of triang and the names of other poly
Purp	the words "linear" and "non-linear linking to the patterns they have spotted.			prioritia method over adultor spotting. This will continue to devolop through the place value unit tet also considers equivalence and equality, illustrate through collecting like terms	Introduced to separate them from the the other mean avoid confusion. Topics from last half term such as seq and equations, will be interleaved into this unit	res to charts will be introduced. In addit representations of fractions will be also on equivalence; this will be revisited ans the year.	sted with a focus died with a focus bied with a focus	plicity revisited during this unit	including, converting between units area and the mean. Substitution on revised and extended. Students s operations, which will be reinforced i content when studying din	d simplification will be will explore order of alongside much of this long the much of this long side side side side side side side side		negative integers ratio provides oppertunities such as substitution and introduc	her than relying on "rules" This unit also far revising and extending alebraic area of solution of equations; in particular bei ced to two-step equations.	concrete representation will help support th as unit will progress through adding with the denominator, when a fraction is greater than different denominators.	is The arms hatch marks to indicate equality and the bree letter to indicate equality and the will be studied here to gain further pro- at dramating and the studies and the studies of the studies and the studies of the studies of the studies of dramating and the studies of the studies of the studies of the studies of the studies of the studies of the studies of the studies of the studies of the studies of the studies of the studies of th	e of Pupils will take this further e use harts solving equations, and a including decimals while dev
Outcomes	Pupils will be able to: - recognise the difference between linear and non-linear sequences - continue a sequence and explain the term- to-term rule	Pupila - substitute volues into sim - generade sequenc - represent one and to	will be oble to: ple one and two-atep expressions set given an dipetraic rule wo step functions graphically	Aupits will be able to: - solve one-step linear equations - simplify algebraic expressions by collecting like ter	Pupils will be able to: - round numbers - calculate the median and range of a set of numb	Papits will be oble to: - convert fluently between fractions - percentages - use and draw pie char-	decimals and - use mental and formal methods to solu- te - interpret information using frequ	I be able to: e problems using addition and subtraction ency trees, bar charts and line charts	- Pupils will be able - identify factors and - use formal methods to multiply an integers, including - use order of oper- - calculate the mean of a se	n for multiplex d divide decimals and area stions t of numbers	Pupils will be able to: - find a fraction of an amount - calculate percentages of an amoun	ρ - αr t - add, subtract, m - sia	lapila will be oble to: der directed numbers ublah ond divide directed numbers lve teo step equations	Pupils will be able to: - convert between mixed numbers and imp fractions - add and subtract fractions and mixed nu	Pupila will be oble to: - droie and measure line segments or angles using letter labeling convention mbers - construct triangles	nd Auplis will b ions - use angle facts to fi
rpose	1. Ratio and Scale This unit focuses on the meaning of ratio and	2. Multiplicative Change Students now work with the link between rati	3. Multiplying and Dividing Fraction io and Here we seek to deepen understandi			6. Probability ly to Building on from the Year, 7 unit, this is	2 Brackets, Equations and I Sullding their understanding of equivalence from Year 2 student		8. Sequences	9. Indices	10. Standard		ctions and Percentages he relationships between fractions and	12. Number Sense Students revisit bosic skills in o wide vorie	13. Angles in Parallet Lir ty ofThis unit builds on KS2 and Year 7 uno	
w and Pur	This unit focuses on the meaning of ratio and the various models that can be used to represent ratio. Based on this understanding it moves on to sharing into a ratio given the whole or one of the parts. We then look at simplifying ratios, using previous answers to	scaling including direct proportion, including graphs and using context such as conversi currencies. Conversion graphs will be look at be revisited in the more formal graphical work the term Links are also made with maps and and missing lengths in similar shapes	io and Here we seek to deepen understandli from KSZ by looking at multiple representations to see what underplan and will algorithms. Multipliciation and division toth integers and fractions are cover scales with an emphasis on understanding of	This unit build on knowledge from KS2, students appervair rules for straight lines, atorting with lines moving on to the more general form. They can en- yropoland and intercepts, but the focus at this stope produce lines rather those interpretation of m and between suguences, lists of coordinates and the between suguences, lists of coordinates and the	will look formusity of parallel to the awe and plore the notation of is using the equations to critike and dhard to and is using the equations to crime a juve equations to construe key control and the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of t	ly to Building on from the Yeor 7 unit, this anit reminds abudents of the ideas of probability, in porticular looking at sample spaces and the use of tables to represent these	Building their understanding of equivalence from Year 2 student factorizing by taking out common factors. Students will revisit a note to include frame with trackark. Bor models will be used to su solve formal inequalities for the first time, learning the meaning equations. Emphasis is placed on both forming and solving out methods of finding and	cl extend their knowledge of solving equation opert understanding. Students will also learn is a of a solution set and comparing with solving uations rather than just looking at procedural utions	This soil reinforces sudents' learning many and the sum of the subset of learning and the subset of the subset of learning and the subset of the subset of motor familiar wide a range of motorians. Sudents may explore finding a rule for the rath sems for a images to understand the meaning of the rule	Before exploring the ideas behind adly subtraction laws of indices (which will be r next unit), the grounderk is laid by making are comfortable with expressions involv	Iddian and revisited in the g sure students long powers bong powers	nt are introduced to e use of context is identa make sense of tation and its uses.	he relationships between fractions and a decimal equivalents, and using these to rease and decrease. Students also explose as a fraction and percentage of another Uld be devalued to support the choice o acid or on characid maths is devalued texts of e.g. Profit, loss and interest	Suchers a mixis basis addls in a wick even the context. Extense to in a long facture with the fore unit data backs at a conversion of metric units is of multiplying and divising by 10, 100 and 1000 in We data lock at schwarzy problem using time calenders as this is acreatimes neglected see in student Anowiedge	ty of and relationships, extending students is and relationships, extending students is to revisit quadrilaterals. Students will also start rulers and pairs of na agas	o explore angles in parallel lines missing angle problems. Links of properties of polygons and to explore constructions with compasses.
Overvie	simplifying ratios, using previous answers to desper understanding rather than "cancelling" as a procedure. We also explore the links between ratio and fraction and understand pi as the ratio of the circumference of a circle to its diameter	and missing lengths in similar shapes	reciprocal. Link between fractions on decimals are also revisited	between sequences, lists of coordinates and line	is is another key point				finding a rule for the nth ferm for a linear seugnce, using objects and images to understand the meaning of the rule	,		throught the con	texts of e.g. Profit, loss and interest	colenders as this is sometimes reglected leav in student knowledge	ng gape	P
Outcomes	Pupits will be able to: - aolwe problems using ratio in the form mn - share an amount into a given ratio	Pupils will be able to: - solve problems involving direct proportion in conversion graphs, currency conversions and - draw and interpret scale informar and int maps using scale factors	cluding Pupils will be able to: - multiply and divide fractions and mil erpret - multiply and divide algebraic fractic	d - use coordinates in all four quadrants and draw i - find equations of graphs in the fan	Auplix will be able for - draw and interpret scatter grap identify visiblaturating between a - represent and interpret grapp - represent and interpret grapp	as and - construct and interpret a variety of the of data representations and calculate ond - use the product nucles to calculate the number of possible outcomes	Aupits will be able - expand a single bracket and factorize on ex - form and solve equations and inequalities i	or pression into a single bracket scluding those with brackets	Pupits will be able to: - generate a sequence given a rule in words - generate a sequence given an algebraic rule	Pupits will be oble to: - aimplify expressions using lates of	Pupits will 1 - compare and order 1 findices - add, subtract, multipl in stands	be able for: numbers in standard rm y and divide numbers ard form - calculate per - c	upila will be able to: ale fractions of an amount crantage increase and decrease slate percentage change	Pupils will be able for - round numbers - convert metric measures	Auplis will be c - identify and calculate alternate, corre- - calculate the sum of the interior an	sble to: sponcling and co-interior angles sd exterior angles of polygons
Ir pose	1. Straight Line Graphs This unit builds Year 8 content where students	2 Forming and Solving Equations Students revisit and extend their knowledg		4. Three-dimensional Shape DW This is the first time students have studied 3-D shape		tions and congruency uns studied during years 7 and 8 to formally te standord constructions using a straight asses. Congruency is also explored.	6. Numbers Students will develop their knowledge of the number system to in		Percentages in the last unit, students relate these to	& Maths and Maths Students practise their number of skills in		R Deduction	10. Rotation and Translation Building on their study of line	11. Pythogoras' Theorem Students revise squares and square roots t	12. Enlargement and Similarity sefareStudents develop their knowledge o	13. Trigono of Trigonometry is introduce
verview and Pr	This unit builds Ver 8 content where students plotted simple straight line graphs. They now study yence can be general form of the equations of a straight line, interpreting an and C in abstract and real-like contents, and reducting to this form in simple coase. This will be explored farther in the rest unit shem students rearrange formulae	Students revisit and extend their knowledg forming and solving linear equations and inec including those related to different parts remanging formulae, seeing how this links or equations and reinforcing their understandin differentiations and reinforcing their understandin and reinforcing and reinforcing their understandin practice non-calculator skills if opproprix	solving which provides a wealth of opportunit	20/II This is the first time students have studied 30 shops may need reminding about the associated vecobu supported by the use of practical equipment such atometric paper. As we'll as unclose are and vecobunes to plana and elevations.	and y, stade of a locus and i and cubes, guaded and students will also explore	se atonidado constructiona caling o arragon asses: Congruency is also explored.	Students will develop their knowledge of the number system to is rational and neal numbers. The valit provides jeinty of apportant tudents to revisit and practice their number skills both with and a calculator as necessary standard form and HCFACM are a revisited.	inform information are interesting attending on without here are encouraged, with the us	s in the load unit, students relate these to in learning in Year 8. Students will look at calculator and non-calculator methods of decimal multipliers again key.	Students practise their number of skills in unit. The language of financial mathema and 8 is further devolgated. Simple ideau and the percentages studied in the last or including compour	stati, anteary introducted in sear / kni of tax and wages are introduced, app nit are applied in various contexts and interest.	In this units students revise and extend their solution of the interveningly complex problems. The nit also built on the ideas of festing Conjectures coking at defaction in a generative than there than lightback and numerical contexts. Students also use the constructions convected in Nex 8, and loo more deeply at how and why these work.	Building on their study of line symmetry and reflection in Nor & student reglection reflection move on to study transitional are described in vector form. The compare the different effects of the transformations studied as for noticing that the adjusts and image are congruent.	Students revise squares and square roots 6 moving on to investigate the relationship betwind latter of a right anglet through. The converse right anglet anglet through the study of the that if the sides of the triangle satisfy the students explore using the theorem in a town ordest, including on coordinate away. Then apportunity to revisit the denoming in the ne- tion students explore using the theorem in to than students explore simplication to finganese.	transachtachtachta to Include einigraphen asane orthe lisering the mothematical mounting og word amilia: You can Link back to oth abaute specification and an excessary. Al studie should experience finding unknow stati abaute specification and an anothematication abaute specification and an anothematication formal similar transpecification and formal similar transpecification and transpecification and an anothematication and an anothematication and an anothematication formal similar transpecification and an anothematication formal similar transpecification and an anothematication formal similar transpecification and an anothematication formatication and an anothematication and an anothematication formatication and an	lents fex in
60110 MINO	Puplis will be able to: - recognise lines parallel to the axes, yes and - plot straight line graphs using a table of volves - find an equation of a line from a graph	Aprils will be able to: - zolve equations and inequalities with bra and/or unknown on both sides - rearrange one and two step formulas	expand a pair of binomials. Auguls will be able to: - identify factors, multiples and prim - expand a set of double brackets	Appla will be able to: - identify properties of 30 and - necepties and sketch relat and draw plans and e - calculate the voltame of case, cubicity, think - calculate the surface area of cubies, cubicity, think - calculate the surface area of cubies, cubicity, think	gens Invations of 3D shapes for polition and cylinder judiar primt and cylinder - identif	a will be able to: ors, locas of two lines and an angle blaector ' construct friangles / congruent figures	Pupits will be able to: - find the highest common factor and lowest common multiple of - use the four operations with fractions - calculate with standard form and ordinary	o pair - convert between fraction - calculate percentage inc - calculate the original amount a	II be oble to: na decimale and percentages are and decrease of an amount ber a percentage increase or decrease	- colcular will be a - colcular simple and co - solve problems involving W - solve proportion problems inclua	able to: ompound interest - ide AC, wages and taxes oling recipes and best buys	Pupila will be oble to: entify and calculate alternate, corresponding ar co-interior angles - solve angle problems involving algebra	nd - Jupits will be able to: - identify rotational and line symme - rotate and translate shapes	Pupits will be able to: etry - calculate missing lengths using Pythagoras' in right angled triangles	Agoits will be able to: - enlarge a shape by a positive integer fractional scale factor - investigation frow fail of missing sides angles in a poir of similar shapes	er or - calculate missing length trigonor - choose the appropriate angled triangle
nd Purpose	la: Calculations, checking and rounding literacity of operations	Ic and d Factors, multiples, primes, standars and surds	d form 2a. Algebra: the basics, setting up, rearranging and solving equations			4a. Fractions and percentages	4b. Ratio and proportion Sa. P	Nygona, angles and parallet lines	Sb. Pythagoras' Theorem and Trigonometry	ća. Graphs the basics and real-life	e graphs db. Lines	ar graphs and coordinate geometry	6c. Quadratic, cubic and other grap	phs 7a. Perimeter, area and circles 7b. 3D forms are	f volume, cylinders, cones and spheres 7c. Accuracy a bounds	
Outcomes	Pupili - complete calculations includ - use the proc - find HCF and LCI	will be able to: ing using decimals and standard form duct rule for counting M of two or more numbers	Aupits will be - manipulate agebraic expressions i values into formulas - solve equations us - calculate the nth term for	ible to: clucking substitute numerical of expressions g equivalance variety of sequences	Apola will be able to: Pupola will be able to: ree and compare the distribution of data ent data is a variety of diagrams	Pupils will be oble - use the four operations will - use percentages to find q - use ratio and proportion to find	tr h fractions contities nd quantities	Pupils will be able to: - find missing angles in sho - solve problems involving right angl	es of triangles		Papils - find the equation o - plot and find solu - draw and int	will be oble to: f a straight line from a graph tions of a variety of graphs terpret real life graphs		Pupili - calculate the areas of 2 - use nets to calculate - calculate th	will be able for: D shapes including parts of circles the surface area of SD shapes e volume of SD shapes	- describe and tran - describe the changes or
Purpose	la. Integers and Place 1b. Decimala Value	1c. Indices, powers and roots 1d. Factors, m and prin	ultiples 2a. Algebra: the basics	2b. Expressions and Substitution into Formulae	, So. Tables, Charts 3b. Pie Charts 3c. Scatter	raphs 4a Fractions, decimals and percentages	4b. Percentages Sa. Equations and inequalities	Sb. Sequences	6a. Properties of shapes, parallel lines and angle facts	do. Interior and exterior angles of	polygon 7. Statistics, samplin	g and the averages 8. Per	imeter; area and volume	9a. Real-life graphs	9b. Straight-line graphs	12. Transform
(HCOIN -	Pupla - complete calculatic - identify primes, factors and multiples an - use index laws to simplify and co	will be able to: onsi including using decimals of write a number as a product of its prime fact alculate the value of numerical expression	- mar - expand a b - subtitute valu	Pupits will be able to: subte algebraic expressions acket and factorize an expression a into give expressions and formulae	Papits will be able to: - display and interpret data in a variety of different g - interpret, analyse and compare the distribution of	Appls will be able for ophs able - convert between fractions, decimals - use percentages to find que	Pupila w fractions - find solutions using o and percentages - create ages anblies - calculate the nth term	T be able to: quations and inequalities noes using rules for a variety of sequences	- identify at - use angle rules to calculate missing	Pupils will be able to: apea using knowledge properties values, including using parallel line facts and outside polygons	Papils sell 1 - identify ty - analysis and interpre from tables	be able to: per of cloto et cloto sets, including and charts - calculate - use nets to calculate - calculate	upils will be able to: set the areas of 20 shapes the surface area of cuboids and prisms late the volume of prisms	Puplis - find the equation : - plat and find solu - draw and in	will be able to: if a straight line from a graph tions of straight line graphs berpret real life graphs	Aupts will be i - transform 2D shapes using translations, or en - describe the transformatio
Purpose	9b. Inequalities	10. Probability	11. Multiplicative reasoning	12. Similarity and congruence in 2D and 3D functions	13b. Further Trigonometry 14a. Collecti	g data 14b. Cumulative frequency, bax plots and histograms	15. Quadratics, expanding brackets, sketching graphs	16a. Circle Theorems	16b. Circle geometry solving equations	subject of formulae (more complex), algebra arising from algebraic fractions, rationalisin	alc fractions, ng surds, proof 18. Vectors and g	geometric proof 19. Direct and inve	rae proportion			
tcomes	Appla will be oble to: - write down whole number values that satisfy on inequalities in x, find the saturn and compare them to see which value of x satisfies both solve linear inequalities in how variables algebraically	Auplits will be able to: - calculate the probability of independent dependent combined events - use a two-way table, tree diagrams and be diagrams to calculate conditional probability	Applit will be oble to: and - understand and use compound measures calculate an unknown quantity from quantities that vary in divect or inver proportion	Pupola will be oble to - find mixing langths, uson - solid solid - solid problems model - necegniae, aketch -	Apala will be able to: and interpret graphs of the trigonometric functions also cubes and know the anea formula, and use also cubes and know the also cubes to control problems in 3D.	Applix will be able to: and interpret cumulative frequency tables, frequency prophylicitgarams and from the graph and interpret bac plats to find median, range and interput file range and draw in interpret histograms from class intervals	August will be able for - rescard the product of more than two Direct respressions solve simultaneous equations graphically active linear inequalities in two variables graphically - find	Pupits will be able to: of a circle and identify and draw parts of a ci tangent, chord, segment ascens for missing angles on olograms using of baceless triangles (holdus properties) in circles the equation of a carstruct the graph of a circle recognite and construct the graph of a circle	cle, including sector; cle theorems and coint - use fun	Papels will be oble to: nationalise the denominator involving surds - manipulate algebraic fractions to of a formula, including cases where the sub both sides of the formula ctions including inverse and composite func-	Pupta will - represent vectors, co and acoustier multiples - calculate the sum ofference of two vector u - find the length c - Pythogorou	be oble for Pupila will be mbinotions of vectors in the plane pictorially of the vectors, the using column vectors, of a vector using in Power Pupilan and the product in the production of the product in the production of the production of a vector using if theorem is the production of the production of a vector using in the production of the production of the production of a vector using if theorem is the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the production of the	e able to: Interpret graphs of functions is usadratic or other it into trapezia to di linear or non-			
pose O	Inequalities in two variables algebraically Ta. Ratio Tb. Proportion	12. Right-angled triangles: Pythogan		you have to find mixing length first sung similar triangles 13. Probability 14. Multiplicative reasoning	processi in 30	with unequal width		-recognise and construct the graph of a circle			Pythogora	of a vector using i Theorem quadratic or non 20. Graphs and equations	ate the gradient of a -linear graph			
s pur	Auplis will be able to: - aolee a ratio problems in context - annear relationships betreen tea quantities - aolee proportion problems, including best burys, currencies and receips problems	- calculate the length of the hypefs will be able - calculate the length of the hypotenue on angled triangle - use and recall the trigonometric ratios sine radi lengths in triar	to: of of a sharter side in a right- - list all autcome		α Papita will be oble for			Pupils will be able to: circumference of a circle and the area enclos by a circle wa and volume of cylinders, phreme, pyramid cores and composite solids				upita will be able to: ecognise, sketch and rpart graphs of cubic dreciprocel functions				
COLEGE	as a ratio or a fraction - solve proportion problems, including best buys, currencies and recipe problems	- use and recall the trigonometric ratios sine, and lengths in triar	cosine and tan to find angles ngles - work out prot frequenc - work out prot requenc - work out prot requenc - use tree diagn	sit will be oble to: for angle out combined events for angle out combined events billine from Wine Querry tables, trees, and fex way tables the for calculate the probabilities the calculate the probabilities	- use constructions to solve loci pro	- identify and interp and turni	ret the line of symmitry, roots, intercepts ing points of quadratic graphs	ea and volume of cylinders, spheres, pyramids cones and composite solids	- add, subtract, multiply and divide form	numbers in standard - solve problems - be able to repres - calculate using co two vectors, the	shapes sent information graphically given column vectors olumn vectors and draw the sum of olifference of two vectors and a eq	dentify and interpret te gradient from an equation ax + by + c solve simultaneous ustions algebraically				
Urpose	1. Algebraic Expressions	2. Equations and Ineq	udities	3. Algebraic Methods	4. Differentia	an	5. Integration	6. Data Collection	7. Measures of Location		ar multiple of a vector	R Correlation and Regression	10. Proba	ability 11. Sto	tistical Distributions	12. Probability 2
	Pupits will be able to: - Expand the product of two or three expressions	Aupla will be able - Solve simultaneous equations: two linear or - Solve linear and guadratic - Interpret inequalities ge	to: one linear and one quadratic - Inequalities - Use	Aupla will be oble to: - Divide a polynomial by a linear expression he factor shown to factoria a cubic expression shematical proofs using algebra, exhaustion and counter example	-Find the derivative and use it to solve problems in -Find the second order derivative, P(i) -Find the second order derivative, P(i) -Fi	le to: volving gradients, tangents and normals vdividy2 of a simple function	Papits will be oble to: - Integrate polynomiats and find flyi, given flyi and a point on the - Evaluate a definite integral - Find areas bounded by curves and straight lines	Pupils will be able to: - Understand key words, and comme on the advantages and klaadvantag of each - Understand the advantages and disadvantages of different types a	Auplis will be able - Calculate measures of central tends median, mode, serventile	rto: Au ency such as the mean, - Identi e and decles - Draw and inte	apila will be oble to: by outliers in data sets report box plots and cumulative equency diagrams and interpret histograms	Pupits will be able to: Your and interpret scatter diagrams for bivariats data and interpret scretelation	Pupits will be Calculate probabilitie Draw and integret liken dia Understand mutually exclusive determine whether two ev	e oble to: les for single events aroms and tree discoms arobability dist	vita vell be able to: d' and use simple discrete butions includina the discrete	upits will be able to: nnal probability problems using tables and Wenn diagrams lity formulae to solve problems dialonal probability using tree diagrams
	Pupils will be able to: - Expand the product of two or three expressions - Factorise lines expressions - Simplify and use the rules of surds, including rationalising denominators	- Interpret inequalities gr	- Construct m	thematical proofs using algebra, exhaustion and counter example	- Find stationary points of functions	nd determine their nature	- Find areas bounded by curves and straight lines	of each - Understand the advantages and disadvantages of different types o advantages of different types of - Understand the large data set an hose to collect data from it	Pupitr will be able + Calculate measure of central tends - Calculate measure of central tends - Calculate measure of the percentile range, interpercentile range, vor- deviation - Understand and use	ar range, interguantile fre ance and standard - Draw a e coding	réguency diagrams and interpret histograms - L	Pupila will be able to: Now and interpret acater diagrams for bivariate adds and interpret controllation interpret controllation interpret controllation equation fo bivariate data inderstand when you can use or regression line t make predictions	- Understand mutually exclusive a determine whether two even in	and independent events, and ents are independent - Understand - Chaderstand - Chaderst	Is will be able to: d and use simple discrete belians including the discrete he binomial distribution a a memory on appropriateness natividual and cumulative for the binomial distribution	<i>by formulae to solve problems</i> <i>tional probability using tree</i> <i>diagrams</i>
Purpose	1 Quadratic Functions	2. Graphs and Transformations	3. Straight Line Graphs	4. Circles			metric Equations and Identities	8. Vectors	9. Exponentials and			11. Constant Acceleration	12. Forces and Motion	13. Variable Acceleration		
Outcomes	Pupils will be able to: - Solve quadratic equations using fractorisation the quadratic formula and completing the source - Sketch the graph and find the turning point of a quadratic function - Find and interpret the discriminant of a quadratic expression.	Appla will be oble for - Simtch cubic, quadratic and reciprocal gra the interaction points of graphs to acle ec - Translate graphs and transform graphs - Translate graphs and transform graphs and antibar functions.	Agala will be able to: - Find the equation of a line given () t gradient and one points on the line on two points on the line. - Find the point of intersection for a pair - Know and use the rules for parallel a perpendicular gradients.	Applit will be debit for - Find the equation of the productur bitsector to me segment. - Anner how to find the equation of a circle. of - Use circle properties to active problems on coordin d	a Auple will be oble to broadents. Benomin to expand - Let the com- broadents Find individual coefficients in a - Find the a- broanid expansion Mails International expansion	Is will be able to: Inter and sine rule to find ing aide or angle. In a of a triangle using an popliede formula. In any to the sine, cashe and the sin	Papile will be oble to: - Like column vector inforometric rotion for 30, 45, and 60, inforometric rotions for 30, 45, and 60, inforometric rotions, and and 20, inforometric rotions, and and an angle rotion information receiver rotion information rotion information rotion information rotion information rotion information rotion information rotion rotio	Apple will be oble to: and comy out orithmetic generations on vector he magnitude and direction of a vector. enstand and use position vectors.	Pupils will be abl Pupils of the form y = ac, y = of these graphs - Recall and apply the laws of logari sable equations of the f - Use logarithms to estimate the valu- linear models	rto: Aux of transformations a constraints of the control thms and use these to and use these to and use these to and constants in non- . Anse the different actions of the control derived quantit mechan actions of the control mechan actions of the control derived quantit mechan actions of the control mechan actions of the control actions of the control actions of the control actions of the control mechan actions of the control actions of the cont	er oble to: be able to apply on assumptions quantities and these used in inics mode between or quantities	Auplia will be able to: prot objalocement-time graphs and velocity-tin propairs to acceleration formulae and use them to solve problem problems to solve problems involving writical motion under gravity	Pupila will be able to: - Draw force clograms and calculat resultant forces - Apply Newton's second law to vec - Apply Newton's second academic - Solve problems involving connects particles	te - Use offerentialon to solve kinematica pro Like colculus to solve problems involving m offer minima - Use integration to solve kinematics prob	olema oximo lema	
Purpose	1. Algebraic Metho	ofa 2.Fu	anctions and Graphs	3. Differentiation		4. Integration	5. Binomial expansion	6. Statistical Hypothesis	Testing	2. The Normal Distribution	8. Regression o	nd Correlation				
utcomes and Purpo	Appits will be able - Use proof by contradiction to pro - Muttiply, divide, add or subtract two or - Convert an expression into po	to: New true statements more algebraic fractions sortial fractions - Know have to proph	and use the modulus function or more functions to make a organate function find the inverse of a function (addy and algebraically	Pupils will be obte to: Differentiate trigonmetric functions, exponentials and la schions using the chain, product, qualient rules and impl involving connected rate of change and construct simpl	ogarithms Icity including parametic le differential equations - Use integrate functions by make - Use integration to find the area	Aupts will be oble to: I functions including trigonometric and expan he chain rule to integrate functions of the form a substitution, using integration by parts and fations under a curve and use it to approximate the an	entici functiona (neve) estimo de la segunda de la segun	and the - Understand the language and co tating - Find critical values of a binomial table - Carry out a one-failed feet or to proportion of the binomial results results	or cept of hypothesis elatribution using -called test for the event interest the	Pupita will be able to: alculate values on a standard normal curve eans and/or standard deviations for a norm te a binamial distribution using a normal dis	August with - Understand with binorial - Understand and co- inderstand and co- - Carry out o hypot - Carry out o hypot	be oble to: evential models in de dato skulde the product stion coefficient herais test for zero				
urpose C	1. Sequences and Series	2. Radions	3. Trigonometry	4. Trigonometry and Madelling	5. Parametric Equations 6. N	merical Methods Z Vecto		essione Proper for the bit better reads		rojecties	11. Application of Forces	12. Further ki	nematica			
mes Or	Puplis will be oble to: - Find the nth term of an arithmetic sequence and the sum of a given series - Find the nth term of a given series and the sum of a given series - Use sign notation to describe series	Applits will be oble to: - Convert between degrees and radiants and this to triponometric graphs and their transformations - Find an arc length and areas of sectors/seg - solve trigonometric equations in radia	Appla will be oble to: - Understand the definitions of second cosecant and cotangent and their internationarity to costing site and their internationary of a second cost and their international second cost and cotangent - Prove and use sec2x x I + fand x an cose2 x + I + cod x an	Aupla will be able to: - Prove and use the addition formulae and the doub - Write expression of the formulae - Write expression of the other of the other - Write expression of the other of the other - Prove trigonometric identifies using a variety of identifies	Augita wit be oble to: Augita wit be oble to: Cartesian form by substitution Cartesian form by substitution Cartesian form using anomenity: Cartesian form using anomenity capacitation Cartesian parametric aquations to first i folde coordinate geometry problems involvion parametric aquations	It will be oble for roots of (Q) = 0 by ring changes of sign exclusion to find on partien (Q) = 0 too-Raphine procedure growingtions procedure growingtions of the form (Q)	Appla to: Appla will be oble to: Cartesion	Puplic will be able - Resolve forces into com - Use the triangle face to find a forces - Understand friction and the cos	to: Aupla v ponents - Model motion uns exultant force projecte fficient of friction - Solve problem	It be oble to: the prostip for an object + horizontally a involving particles a ta an angle uals for time of flipht, feat height, and the path of a projectile	Auplis will be able to: tatics problems involving weight, tension and and solve problems involving limitin ms involving mation on rought or smoot	Appla wit be and pullinys g equilibrium h inclined planes b inclined planes - Differentiate and inter - Differentiate and inter respect to	s able to: isplacement, velocity n using the vector fraction we functions of time			
d Outco	- Use signa notation to describe series	solve trigonometric equations in radia	Identifies and solve equations include ascant, cosecant and cotangent - Prove and use sec2 x + 1 + cot2 x	 Prove trigonometric identities using a variety of identities 	Solve coordinate geometry problems involving parametric equations Solve coordinate geometry problems involving parametric equations	suation (IX) = 0 iton-Raphson proceedure sprakmations to the iquations of the form (IX) = 0	- Salve problem involving non-unitarm radi radie on the point of biting	and	- Derive the form range and gree equation of the	ulae for time of flight, text height, and the path of a projectile		- Lar cut cut in HTP /HTP involving variable - Differentiate and inte respect to	r acceleration grate vectors with a lime			
Overview and Purpose	1. Algebra 1	, i l			krapha 6. Ratio and Proportion	7. Shope 2	8. Data	2 Algebra 2	10. Pythagoras and Trigonometry		12. Number 2	13. Transformations		15. Algebra 3 16. Vector		
Outcomes	Pupils will be able to: - manipulate algebraic expressions including expanding and factorising - subsitute into expressions and formulae - solve linear equations and inequalities	Pupili will be able to: - convert between fractions, decimals and percentages - calculate increase and decrease of a percentage - calculate in original value offer a percontage increase or decrease	partial be able to: angles using all facts including gives in parallel lines indiges by parallel indiges by	Dia will be able to: Dia will be able to: Dia will be able to: Placitins - plat lineor and - plat lineor and - plat lineor and - interpret - interpret - interpret - interpret - interpret - interpret - interpret - interpret - interpret - interpret	If be able to: Augustratic equations quadratic equations eat life graphs uation of a line - use direct proportion to solve p - use density and pressure form zolve problems	Pupits will be able to: - colculate the perimeter and are of - 2-b hapes - calculate the volume and surface - area of prime - draw plans and elevations of 3-b ahapes - in resurse.	Pupits will be able to: - find the mode, mean, mean, man, and the man and the mode, mean, mean and the man and the man and the maximum and interpret scatter graphs - c	Pupils will be oble to: es of indices to manipulate expressions i linear sequences, and find terms from a give rule hange the subject of a formula	Pupits will be able to: - find sides using Pythogoros - find sides and ongles using trigonometry	Pupils will be able to: Au - find the probability of aingle events - able events - able events - convert to - of probabilities of - able probabilities of	upits will be able to: ms with percentages including - compound interest to and from standard form ber as a product of prime factors	Pupils will be able to: perform reflections, rotations, franslations and positive enlargements - Identify and describe transformations	Auplits will be Aup able for - solve simu - construct friangles - construct bisectors	pits will be able to: Atomeous linear equations solutions off graphs - add and sub vectors - multiply vectors - multiply vectors - multiply vectors	ble to: - find mixing sides in similar shopes - understand congrueny	
- T		or decrease		I		a report of an investment			1	multiple events						

Week 6 imetric Reasoning is language, names and ngles and quadrilaterals, hypons. Angle rules will be orm chains of reasoning er and investigate using a will use the prior solits in laddition/subtraction, wildping their geometrical angle	Week 1 FDP equival probability, when natabian, and ay need to use prev equations,	Week 2 3. Sets and probability ence will be involved in the study of exclusions and another study of extended is using another study of and adding/subtracting fractions	Hoff Terr Week 3 Week 4 14. Devidping number assas Students all evides and astrongene with a focus on sample Students all evides and astrongene with a Students all evides and astrongene and students and a students and substitutions all all oble the applored. This including devides and astrongene and substitutions and a students and astrongene astrongene and astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene astrongene	Week 7 thers & proof roduce the concept of prime numbers, venn tic no takete more complex HCP and LCM numbers will be used as the basis of forming unterexamples will date be addressed					
be able to: find missing angles	- interpret and a	Papila will be able to: reader Venn diagrams, including finding probabilities probabilities	Applared by addition into approximation and other of appreciations Applared by addition of the - estimate answers as a method for - setimate assers as a method for - setimate assers as a method for - setimate of the answer of a method and the answers - find the MCD and Life as at of numbers						
H. Area of Trapezia All students will extend learning of area with learn for a trapezit and the key appect of the unit is of properties and names, and of compound a	and Circles 15. Line Symmetry and Reflection		16. The Data Handling Much of the statistics content in Key 3th that studied of primary school; and in soft in stitu in hand serve used in it of the thick of the state state of the alteritations. We date states that the one operation of the date of the state was an evening the date of the state of the states of the state of the school of the states of the state of the states of the states of the school of the school of the school of the school of the school of the school of the school	Cycle II Measure of Lincolnel and a far a control work of the section of the medium and the medium and the medium and the section of the section of the section of the medium and the medium and the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the medium and the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the sectio					
Pupils will be a - calculate the area and ci - calculate the area and ci circle	ble to: f a trapezium rcumterence of a	Pupila will be able to: - reflect a shape in a mirror line - reflect a shape given an equation	Pupils will be able - draw and interpret pictograms, bar ch and pie charts						
	14. Ratio and Proportion		15. Rotes	16. Probo					
nometry ced as a special case of led triangles. Emphasis is teps on Initing the trig ver than just functions.	Building students solve all types direct proportio inverse proportio best buys' compo- with able	A Katal and Proportion is appointence in previous years, here they of raids problems and make links with on nor prophe. Suddents family study on for the first time. Students abias revised ong and pricing from action in the year make methods such as acting.	Lo 4018 Students develop their increasing of inverse relationships to explore appect distance and their in detail. They also load at graphs and the lock between the density/maxiv/claume. Students go on to explore other compound units including exploring flow problems uch including exploring flow problems uch including exploring flow problems uch including exploring flow problems uch and a student and the state of the ranks of different anges of different rates.	In this unit students bu in Yeor 2 and Yeor 4 probabilities of single a A key focus in the introd independent event multiplication rule for t look at oversky of dia probability such as som Venn diagnoms and	Id on their learning to calculate the nd combined events. Loction of the idea of and the use of hese. Students also grams that support ple space diagrams, teo-way tobles.	B. Algebraic Representation Students antanci their knowledge of prophi- different types of proph. Calculatic graphs are explored, shere students are consequel to both, Termeney and and the second prophility of the second reciproci and exponential prophility. Students extended by locating of insplacibilities graphility, and these are also represented as under site.			
be oble to: gths and angles using smetry e method to solve right- gle problems	- zolve probler in: - zolve ratio pro	Pupils will be oble to: na with direct and inverse proportion, cluding conversion graphs blems given the whole or part and best buys	Pupits will be able to: - calculate speed, dilatance and time, including from graphs - solve problems with density, mass and volume	PupEs will be able to: - calculate the probability of a single event - calculate the probability of a single event - calculate probabilities of independent events		Aupits will be oble to: - draw and interpret quadratic and reciprocal graphs - represent inequalities and graphically			
ormations	85. Co	natructions, loci and bearings	9a. Solving quadratic and simultaneous equations		Past Pape	r Revision			
Pupits e ansform 2D shapes using n and invariance achieved b - use construction	ell be able to: otations, reflections y combinations of is to solve loci prob	s, translations, or enlargements rotations, reflections and translations slems	Apple will be able to: - set up and solve quadratic equations - use elimination or substitution to solve simultaneous equations						
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