



Why Teach Maths

The teaching of Mathematics aims to develop students into confident mathematicians who can show resilience in their mathematical journey to become fluent with their conceptual understanding. The maths scheme of work is sequenced to ensure that students can master the basic conceptual skills before progressing, providing opportunities to make connections between topics.

Using this acquired depth of knowledge, students will be able to increase their awareness of mathematical techniques and their applications and develop key employability skills such as logical reasoning and problem-solving.





Learning for Life and Careers

Employability skills

Resilience, inquisitiveness, problem solving, making connections and identify pattens, explain, justify, reason logically, numeracy skills, communicate confidently.

Linking the curriculum to careers

Year group specific careers lessons delivered throughout the year.

Encounters with employers

Opportunity to speak to employers at careers fairs and work experience in Y10 and Y12.

Examples of qualification pathways

Students studying Maths at a higher level have access to some of the highest paid careers; if studying an A-Level in Maths, (the most popular A-Level in England), students can earn on average 11% more.

A-Level Maths is one of the most widely accepted and respected subject choice by universities and will keep your options open. Maths and Further Mathematics are 'facilitating subjects' which means they are amongst the most asked for by universities.

Degree choices where A-level Mathematics is an essential requirement of nearly all universities: Actuarial Science, Aeronautical Engineering, Chemical Engineering, Civil Engineering, Economics, Electrical/Electronic Engineering, Engineering (General), Mathematics, Mechanical Engineering, Physics, Statistics,

Degree choices where A-level Mathematics is listed as useful by most universities: Accountancy, Architecture, Biochemistry, Biology, Biomedical Sciences (including Medical Science), Business Studies, Chemistry, Computer Science, Dentistry, Dietetics, Geography – Some Geography BSc (science) degrees prefer one from Biology, Chemistry, Mathematics or Physics, Law – facilitating subjects at A-level are useful when applying for Law, Management Studies, Nursing and Midwifery,

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Maths Curriculum Map – Topics by Term – KS3 and 4



	V 7	N 0			,	Year 9						Year	10									Year 11				
	Year /	Year 8		Support	1	Core		Higher		Support		Core		Higher		Additional		Foundation	(Crossover		Higher 1		Higher 2		Additional
	N Investigating Number Systems	N Investigating Number Systems							N	Number Calculation						Algebraic	s	Statistics	S	Statistics	s	Statistics	S	Statistics	A	
		N Pattern Sniffing	N	Calculation 1	N Ca	Calculation 1	N	Calculation 1			N	Calculation	N	Number Calculation	А	Polynomials, functions and	Р	Probability	Ρ	Probability	Ρ	Probability	Р	Probability		Binomial distribution
	N Pattern Sniffing	Solving Calculation														equations	N	Number Calculations	G	Shape	А	Solving	А	Solving		Exponentials
utumr		N Problems	G	Shape			G	Shape	G	Shape	G	Visualising						Revision		Revision		Revision		Revision	A	and logarithms
A	N Solving Calculation Problems	A Generalising			G	Shape .												Mock 1 Revision		Mock 1 Revision		Mock 1 Revision		Mock 1 Revision	-	
	Conoralising	G Exploring Shape	N	Calculation 2			N	Calculation 2	Α	Simplifying	A	Simplifying	G	Shape 1	А	Equations and inequalities		Revision					G	Geometry Shape2	A	Exponentials
	A arithmetic	Reasoning with	•	Simplifying	N C	alculation 2	•	Simplifying			DD	Scaling					RP	Ratio & Proportion		Revision		Revision	RP	Ratio & Proportion		and logarithms
	G Exploring Shape	Measures		Simplifying			Î	Simplifying	N	Fractions, Decimals and Percentages	IXF	Scaling	Α	Simplifying	G	Graphs	G	Geometry - Graphs						Revision		
	G Exploring Shape	Discovering					Α	Simplifying					A	Simplifying		Sequences and		Geometry	RP	Ratio & Proportion	RP	Ratio & Proportion	А	Graphing		
1	N Reasoning with Measures	N Equivalence	N	Fractions, Decimals and	A S	Simplifying			N	Fractions, Decimals and Percentages	RP	Scaling	N	Fractions,	A	recurrence relations	G	Visualising	G	Geometry Measures	G	Geometry			G	Differentiation
				rercentages			A	Fractions, Decimals and Percentages						Percentages			G	Geometry Shape	А	Graphing	А	Graphing		Revision		
oring	N Discovering Equivalence	N Reasoning with Fractions	N	Sequences	N De	Fractions, Decimals and Percentages	А	Patterns and solving	G	Measuring	Α	Pattern Sniffing	Α	Pattern Sniffing	G	Points, lines and circles		Mock 2 Revision		Mock 2 Revision		Mock 2 Revision		Mock 2 Revision		
SF			A		Patterns and A solving	Patterns and solving				A Solving 1	А	Solving 1											G			
	N Reasoning with	N Solving Number Problems	А	solving					А	Solving								Revision		Revision		Revision		Revision	Ū	Integration
	Fractions	Investigating			G I	Measuring	G	Measuring			G	Measuring			G	Linear Inequalities		Practice Exam		Practice Exam		Practice Exam		Practice Exam		integration
	N Solving Number Problems	S Statistics	G	Measuring					RP	Scaling 1			G	weasuring				Papers		Papers		Papers		Papers		
	N Solving Number Problems	G Visualising Shape	G RP	Measuring Scaling	RP	Scaling	RP	Scaling	RP	Scaling 1	G	Measuring	G	Measuring	G	Trigonometry									Δ	
	S Statistics	N Exploring Change		Creative	Α	Graphing	Α	Graphing			Α	Proving	Α	Graphing						Revis Practice Exa	on m Pa	apers				Kinomotics
er	G Exploring Change		A	Graphing		Visualising	G	Visualising	RP	Scaling 2				0.00		End of year exams							_			Kinematics
Ŭ E	Proportional	RP Proportional Reasoning	G	Visualising	G	visualising					Α	Graphing														
Su	RP Reasoning			Ğ	S Pr	robability	S	Probability	A	Graphing			G	Visualising										ams	Exams	
	Describing Position	G Describing Position	s	Probability	Da S	ata	s	Data	G	Shape 2	А	Solving 2			S	Permutations and combinations				GCSE Exam	inati	ions			Ē	
	N Measuring & estimating	N Measuring & estimating	s	Data									RP	Proportion												



Maths Curriculum Map – Substantive Progression KS3 (Number)



	Year 7	Year 8	Ye
NUMBER	 understand and use place value round numbers and measures to an appropriate degree of accuracy order positive and negative integers, decimals and fractions generate terms of a sequence from a term-to-term rule recognise and use sequences of triangular, square and cube numbers, simple arithmetic progressions use positive integer powers and associated real roots, recognise powers of 2, 3, 4, 5 apply the four operations, including formal written methods, to integers, decimals and simple fractions (proper and improper), and mixed numbers use conventional notation for priority of operations, including brackets use the symbols =, ≠, <, >, ≤, ≥ estimate answers; check calculations using approximation and estimation substitute numerical values into formulae and expressions understand and use standard mathematical formulae recognise and use relationships between operations, including inverse operations express one quantity as a fraction of another define percentage as 'number of parts per hundred' interpret percentages and percentage changes as a fraction or a decimal, and interpret these multiplicatively compare two quantities using percentages solve problems involving percentage change, including percentage increase/decrease interpret fractions and percentages as operators use standard units of measure and related concepts (length, area, volume/capacity, mass, time, money, etc.) change freely between related standard units (e.g., time, length, area, volume/capacity, mass) in numerical contexts convert between different units of measure [for example, kilometre to metre, hour to minute] 	 generate terms of a sequence from either a term-to-term or a position-to-term rule deduce expressions to calculate the nth term of linear sequences use the concepts and vocabulary of prime numbers, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation theorem calculate with positive integer indices use conventional notation for priority of operations substitute numerical values into scientific formulae work with percentages greater than 100% solve problems involving percentage change, including original value problems, and simple interest including in financial mathematic work interchangeably with terminating decimals and their corresponding fractions calculate exactly with fractions use compound units such as speed, rates of pay, unit pricing change freely between compound units in numerical contexts 	 order positive and r <,>,≤,≥ apply the four operanumbers – both positive integer calculate with roots use the concepts an common multiple, punique factorisation round numbers and use conventional no as above use inequality notation rounding apply and interpret calculate with and i calculate exactly with work interchangeably with a solution of the solu

ear 9 support / core / higher

negative integers, decimals, and fractions, use the symbols =, ≠,

- rations to integers, decimals, and simple fractions and mixed positive and negative
- r powers and associated real roots, recognise powers of 2, 3, 4, 5 s, and positive whole number indices
- nd vocabulary of prime numbers, highest common factor, lowest prime factorisation, including using product notation and the on theorem
- d measures to an appropriate degree of accuracy notation for priority of operations

ation to specify simple error intervals due to truncation or

- t limits of accuracy
- interpret standard form
- ith multiples of π

with terminating decimals and their corresponding fractions



Maths Curriculum Map – Substantive Progression KS3 (Ratio & Proportion)



	Year 7	Year 8	
RATIO& PROPORTION	 use ratio notation, including reduction to simplest form divide a given quantity into two parts in each part: part or part: whole ratio 	 express the division of a quantity into two parts as a ratio; apply ratio to real contexts and problems (such as those involving conversion, comparison, scaling, mixing, concentrations) express a multiplicative relationship between two quantities as a ratio or a fraction understand and use proportion as equality of ratios relate ratios to fractions and to linear functions compare lengths, areas and volumes using ratio notation use scale factors, scale diagrams and maps identify and work with fractions in ratio problems 	 express one quant greater than 1 define percentage percentage change express one quant percentages; solve increase/decrease work interchangea corresponding frace use ratio notation, divide a given quant ratio to real context ratios use ratio notation, divide a given quant ratio to real context ratios use ratio notation, divide a given quant ratio to real context ratios use ratio notation, divide a given quant use proportion as as above plus express a multiplic relate ratios to frace use scale factors, se compare lengths, as scale factors identify and work to solve problems invalgebraic represent change freely betw solve problems invalgebraic represent apply the co between lent figures use compount change freel

Year 9 support / core / higher

tity as a fraction of another, where the fraction is less than 1 or

e as 'number of parts per hundred'; interpret percentages and es as a fraction or a decimal, and interpret these multiplicatively; tity as a percentage of another; compare two quantities using e problems involving percentage change, including percentage

- ably with simple examples of terminating decimals and their ctions
- , including reduction to simplest form
- ntity into two parts in a given part: part or part: whole ratio; apply exts and problems understand and use proportion as equality of

, including reduction to simplest form intity into two parts in a given part or whole ratio; equality of ratios

- cative relationship between two quantities as a ratio or a fraction actions and to linear functions
- scale diagrams and maps
- areas and volumes using ratio notation; make links to similarity and

with fractions in ratio problems

- volving direct and inverse proportion, including graphical and ntations
- ween related standard units in numerical contexts
- involving percentage change, including original value problems, and ncluding in financial mathematics
- ems involving direct and inverse proportion, including graphical and presentations
- oncepts of congruence and similarity, including the relationships ngths in similar

und units such as density and pressure;

ly between compound units (e.g., density, pressure) in numerical ic contexts







	Year 7	Year 8	•
GEOMETRY	 identify properties of the faces, surfaces, edges and vertices of cubes, cuboids, prisms, cylinders, pyramids, cones, and spheres use conventional terms and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries use the standard conventions for labelling and referring to the sides and angles of triangles apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles derive and apply the properties and definitions of special types of quadrilaterals, including square, rectangle, parallelogram, trapezium, kite and rhombus; and triangles and other plane figures using appropriate language calculate perimeters of 2D shapes calculate the area of parallelograms, triangles and trapezia know and apply formulae to calculate volume of cuboids draw diagrams from written description measure line segments and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons, and polygons with reflection and/or rotation symmetries identify and apply circle definitions and properties, including centre, radius, chord, diameter, circumference work with coordinates in all four quadrants solve geometrical problems with coordinate axes understand and use lines parallel to the axes, y=x and y=-x identify, describe and construct congruent shapes, including on coordinate axes, by considering rotation, reflection and translation describe translations as 2D vectors 	 measure line segments and angles in geometric figures, including interpreting maps and scale drawings and use of bearings use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle) use these to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line understand and use alternate and corresponding angles on parallel lines derive and use the sum of angles in a triangle (e.g., to deduce and use the angle sum in any polygon, and to derive properties of regular polygons) calculate perimeters of circles and composite shapes know and apply formulae to calculate volume of right prisms (including cylinders) plot graphs of equations that correspond to straight-line graphs in the coordinate plane identify and interpret gradients and intercepts of linear functions graphically and algebraically recognise, sketch and interpret graphs of linear functions and quadratic functions find approximate solutions to linear equations using a graph identify, describe, and construct similar shapes, including on coordinate axes, by considering enlargement 	revision of earlier le derive and apply quadrilaterals, in rhombus; and tri know and apply in trapezia; volume apply the proper vertically opposite measure line seg maps and scale of identify, describe axes, by consider describe translat As above plus apply the p line, verticat correspond in a triangle to derive p know and at trapezia; vo know the f perimeters composite identify an radius, diant segment construct at Know the formul right- angled tria Apply angle facts quadrilaterals to including Pythag isosceles triangle Calculate arc lent use the basic cor



Year 9 support / core / higher

- earning, as necessary, plus
- the properties and definitions of special types of
- ncluding square, rectangle, parallelogram, trapezium, kite and iangles and other plane figures using appropriate language formulae to calculate area of triangles, parallelograms,
- e of cuboids
- rties of angles at a point, angles at a point on a straight line, te angles
- gments and angles in geometric figures, including interpreting drawings and use of bearings
- e and construct congruent shapes, including on coordinate ring rotation, reflection and translation and enlargement; tions as 2D vectors
- properties of angles at a point, angles at a point on a straight cally opposite angles; understand and use alternate and ding angles on parallel lines; derive and use the sum of angles le (e.g., to deduce and use the angle sum in any polygon, and properties of regular polygons)
- apply formulae to calculate area of triangles, parallelograms, olume of cuboids and other right prisms (including cylinders) formulae = $2\pi r = \pi d$, area of a circle = πr^2 ; calculate s of 2D shapes including circles, areas of circles and shapes
- d apply circle definitions and properties, including centre, meter, chord, circumference, tangent, arc, sector and
- and interpret plans and elevations of 3D shapes lae for: Pythagoras' theorem and apply it to find lengths in angles in two dimensional figures
- s, triangle congruence, similarity and properties of conjecture and derive results about angles and sides, goras' Theorem and the fact that the base angles of an e are equal, and use known results to obtain simple proofs
- gths, angles and areas of sectors of circles
- ngruence criteria for triangles



Maths Curriculum Map – Substantive Progression KS3 (Algebra)



	Year 7	Year 8	Year 9 su
ALGEBRA	 solve linear equations in one unknown algebraically simplify and manipulate algebraic expressions by collecting like terms and multiplying a single term over a bracket understand and use the concepts and vocabulary of expressions, equations, formulae and terms use and interpret algebraic notation 	 solve linear equations with the unknown on both sides of the equation rearrange formulae to change the subject simplify and manipulate algebraic expressions by taking out common factors and simplifying expressions involving sums, products and powers, including the laws of indices understand and use the concepts and vocabulary of inequalities and factors use and interpret algebraic notation; coefficients written as fractions rather than as decimals plot and interpret graphs and graphs of non-standard functions in real contexts, to find approximate solutions to problems such as simple kinematic problems involving distance, speed and acceleration 	 use and interpret algebraic notation, incliunderstand and use the concepts and your generate terms of a sequences of triangulate deduce expressions to calculate the nth the solve linear equations in one unknown all of the equation work with coordinates in all four quadranteres solve geometrical problems on coordinates plot graphs of equations that correspond as above plus substitute numerical values into formulate translate simple situations or proceduress solve the equation and interpret the solution understand and use standard mathematii identify and interpret gradients and interpret graphs of as above plus recognise, sketch and interpret graphs of as above plus recognise and use Fibonacci type sequem (r^n where n is an integer, and r is a ratio simplify and manipulate algebraic expressions are equivalented and use the concepts at translate simple situations or proceedures are translate simple situations or proceedure and and use the concepts are translate simple situations or proceedure and and use the concepts are translate simple situations or proceedure and and use the concepts are translate simple situations to linear solve two linear simultaneous equation and interpret and and use the concepts are translate simple situations to simulate and the solution to linear solve the equation (or two simultares solve the equation (or two simultares solution) find approximate solutions to simulate solution find the equation of the line througe gradient identify and interpret roots, interceedure and the equation of the line througe gradient identify and interpret roots, interceedure are translate solutions to simulate and th
			 plot and interpret graphs (and thos approximate solutions to problems

upport / core / higher

- uding brackets
- cabulary of expressions, terms and factors
- er a term-to-term or a position-to-term rule
- ar, square and cube numbers, simple arithmetic progressions term of linear sequences
- lgebraically (including those with the unknown on both sides

nts

- e axes
- to straight-line graphs in the coordinate plane
- e and expressions, including scientific formulae s into algebraic expressions or formulae; derive an equation, ition
- cal formulae, rearrange formulae to change the subject reepts of linear functions graphically and algebraically f linear functions
- ces, quadratic sequences and simple geometric progressions onal number > 0)
- expressions by expanding products of two binomials and
- f the form $x^2 + bx + c$, including the difference of two squares quation and an identity; argue mathematically to show
- nt, and use algebra to support and construct arguments nd vocabulary of identities
- edures into algebraic expressions or formulae, derive an interpret the solution
- equality on a number line and using set notation
- r equations using a graph
- tions in two variables algebraically
- neous equations), solve the equation(s) and interpret the
- Itaneous equations using a graph
- ables; represent the solution using set notation and, on a
- parallel lines
- gh two given points, or through one point with a given
- epts, turning points of quadratic functions graphically s algebraically
- phs of simple cubic functions and the reciprocal function y =

se of non-standard functions) in real contexts to find s such as simple kinematic problems



Maths Curriculum Map – Substantive Progression KS3 Statistics)



	Year 7	Year 8	, v
STATISTICS	 interpret and construct tables, charts and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical data and know their appropriate use interpret, analyse and compare median, mean, mode and modal class and spread (range) 	 use and interpret scatter graphs of bivariate data recognise correlation interpret, analyse and compare discrete, continuous and grouped data Consideration of outliers apply statistics to describe a population 	 interpret a including ficategorica data and k interpret, a univariate central ten (range) as above, plus use and interpret know correlation fit; make predicti knowing the dang as above
			• as above



Year 9 support / core / higher

Ind construct more complex tables, charts and diagrams, requency tables, bar charts, pie charts and pictograms for I data, vertical line charts for ungrouped discrete numerical mow their appropriate use

analyse and compare the distributions of data sets from empirical distributions through appropriate measures of ndency (median, mean, mode and modal class) and spread

t scatter graphs of bivariate data; recognise correlation and a does not indicate causation; draw estimated lines of best ions; interpolate and extrapolate apparent trends whilst gers of so doing





Maths Curriculum Map – Substantive Progression KS3 (Probability)

	Year 7	Year 8		Ye
PROBABILITY	 record, describe and analyse the frequency of outcomes of probability experiments using tables and frequency trees apply ideas of randomness, fairness and equally likely events to calculate expected outcomes of multiple future experiments relate relative expected frequencies to theoretical probability, using appropriate language and the 0 - 1 probability scale construct theoretical possibility spaces for single experiments with equally likely outcomes and use these to calculate theoretical probabilities 	 apply the property that the probabilities of an exhaustive set of outcomes sum to one; apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to one enumerate sets and combinations of sets systematically, using tables, grids, Venn diagrams construct theoretical possibility spaces for combined experiments with equally likely outcomes and use these to calculate theoretical probabilities 	•	apply ideas or calculate exp relate relative appropriate is construct the equally likely probabilities enumerate set and grids construct the equally likely probabilities as above plus numerate set grids, Venn di construct the equally likely probabilities as above plus as above plus as above plus apply the pro outcomes sur exhaustive se calculate the events, includ know the und understand th probability di

Year 9 support / core / higher

- of randomness, fairness and equally likely events to xpected outcomes of multiple future experiments ive expected frequencies to theoretical probability, using e language and the 0 - 1 probability scale
- heoretical possibility spaces for single experiments with ely outcomes and use these to calculate theoretical es
- sets and combinations of sets systematically, using tables
- heoretical possibility spaces for single experiments with ely outcomes and use these to calculate theoretical es
- lus
- sets and combinations of sets systematically, using tables, diagrams and tree diagrams
- heoretical possibility spaces for combined experiments with ely outcomes and use these to calculate theoretical
- lus
- roperty that the probabilities of an exhaustive set of sum to one; apply the property that the probabilities of an
- set of mutually exclusive events sum to one
- ne probability of independent and dependent combined luding using tree diagrams and other representations, and
- inderlying assumptions
- I that empirical unbiased samples tend towards theoretical distributions, with increasing sample size



Maths Curriculum Map – Substantive Progression KS4 (Number)



	Year 10 Support / Core / Higher	Year 11 Support / Core / Higher	Additional Maths Y10
Number Statement State	 Year 10 Support / Core / Higher apply the four operations, including formal written methods, to integers, decimals - both positive and negative use conventional notation for priority of operations, including brackets, powers, roots and reciprocals use positive integer powers and associated real roots; recognise powers of 2, 3, 4 and 5 calculate with roots and positive whole number indices use the concepts and vocabulary of prime numbers, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation theorem order integers, decimals and fractions apply the four operations, including formal written methods, to simple fractions (proper and improper), and mixed numbers define percentage as 'number of parts per hundred'; interpret percentages and percentage changes as a fraction or a decimal, and interpret these multiplicatively; express one quantity as a percentage of another; compare two quantities using percentages; solve problems involving percentage change, including percentage use inequality notation to specify simple error intervals due to truncation or rounding apply and interpret limits of accuracy calculate with noots, and with integer indices calculate with and interpret standard form calculate exactly with multiples of π work interchangeably with terminating decimals and their corresponding fractions solve problems involving percentage change, including original value problems, and simple interest including in 	 Year 11 Support / Core / Higher use inequality notation to specify simple error intervals due to truncation or rounding apply and interpret limits of accuracy calculate with and interpret standard form calculate exactly with multiples of π 	Additional Maths Y10
	 calculate with and interpret standard form calculate exactly with multiples of π work interchangeably with terminating decimals and their corresponding fractions solve problems involving percentage change, including original value problems, and simple interest including in 		
	 financial mathematics apply and interpret limits of accuracy, estimate powers and roots of any given positive number calculate with roots, and with fractional indices calculate exactly with surds simplify surd expressions involving squares and rationalise denominators 		

Additional Maths Y11



Maths Curriculum Map – Substantive Progression KS4 (Ratio & Proportion)





East Midlands Academy Trust

Additional Maths Y11



Maths Curriculum Map – Substantive Progression KS4 (Geometry)



Year 10 Support / Core / Higher	Year 11 Support / Core / Higher	Additional Maths Y10	
 identify properties of the faces, surfaces, edges and vertices of	 identify and apply circle definitions and	 calculate the distance between two	• co
cubes, cuboids, prisms, cylinders, pyramids, cones and spheres	properties, including centre, radius,	points Find the mid-point of a line segment	fu

Additional Maths Y11

onfirm the presence of a root by considering the sign of a unction at the ends of an interval

- use conventional terms and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries; use the standard conventions for labelling and referring to the sides and angles of triangles
- derive and apply the properties and definitions of special types of quadrilaterals using appropriate language
- apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles; understand and use alternate and corresponding angles on parallel lines; derive and use the sum of angles in a triangle
- know the formulae for: Pythagoras' theorem and apply it to find lengths in right-angled triangles in two dimensional figures
- identify and apply circle definitions and properties, including centre, radius, diameter, chord, circumference, tangent, arc, sector and segment
- use the standard ruler and compass constructions; know that the perpendicular distance from a point to a line is the shortest distance to the line
- construct and interpret plans and elevations of 3D shapes
- apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides,
- calculate arc lengths, angles and areas of sectors of circles
- use the basic congruence criteria for triangles

Geometry

- apply Pythagoras' theorem to find lengths in three dimensional figures
- know the trigonometric ratios, and apply them to find angles and lengths in right-angled triangles in two dimensional figures
- know the exact values of $\sin\theta$, $\cos\theta$ and $\tan\theta$ for $\theta = 0^{\circ}$, 30° , 45° , 60° and 90°:
- apply and prove the standard circle theorems concerning angles, radii, tangents and chords, and use them to prove related results
- calculate surface area and volume of spheres, pyramids, cones and composite solids
- apply the concepts of congruence and similarity, including the relationships between length, areas and volumes in similar figures
- identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering rotation, reflection and translation and enlargement; describe translations as 2D vectors
- describe the changes and invariance achieved by combinations of rotations, reflections and translations
- apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors
- use vectors to construct geometric arguments and proofs

diameter, chord, circumference, tangent, arc, sector and segment

- use the standard ruler and compass • constructions and use these to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line
- construct and interpret plans and elevations ٠ of 3D shapes
- Identify, describe and construct congruent shapes, including on coordinate axes, by considering rotation, reflection and translation and enlargement; describe translations as 2D vectors
- calculate surface area and volume of spheres, pyramids, cones and composite solids
- apply the concepts of congruence and) similarity
- know the formulae for: Pythagoras' theorem, • and apply it to find lengths in right-angled triangles and, where possible, general triangles and in three dimensional figures;
- know the trigonometric ratios, to find angles and lengths in right-angled triangles and, where possible, general triangles in two dimensional figures
- know the exact values of sin θ , cos θ fand tan θ for $\theta = 0^{\circ}$, 30°, 45°, 60° and 90°;
- know the trigonometric ratios, and apply • them to find angles and lengths in rightangled triangles and, where possible, general triangles in three dimensional figures
- know and apply the sine rule to find ٠ unknown lengths and angles
- know and apply Area = 1/2ab sinC tocalculate the area, sides or angles of any triangle.
- sketch translations and reflections of a given • function
- recognise, sketch and interpret graphs of exponential functions $y = k^x$ for positive values of *k*, and the trigonometric functions (with arguments in degrees) y = sin x, y =cos x and y = tan x for angles of any size

- know and use the equation of a circle
- trigonometric functions for angles of any size
- recall and use the three trigonometrical functions for angles of any magnitude and their graphs
- know the sine and cosine rules and be able to apply them, including the ambiguous case for sine
- know and use the identity $\tan \theta = \frac{\sin \theta}{\cos \theta}$
- know and use the identity $\sin^2\theta + \cos^2\theta = 1$
- solve simple trigonometric equations in given interval
- apply Pythagoras theorem and trigonometry to two- and threedimensional problems
- the rule for integrating xⁿ where n is a positive integer
- use the integral notation
- Find definite integrals
- Find areas between curve and x-axis



Maths Curriculum Map – Substantive Progression KS4 (Algebra)



 recognise a situation when a change of sign may not indicate a root • improve the accuracy of a root using: -interval bisection -decimal search -an iterative function • estimate the gradient of a tangent to a curve at a point using -a central difference -a forward difference -a backward difference • improve the estimate of a gradient • recognise when an attempt to improve an estimate of a gradient might not work • estimate the area under a curve and the x-axis using -the trapezium rule -rectangular strips recognise when an estimate of an area would be an overestimate or an underestimate • differentiation • iterative sequences • the gradient of a curve stationary points • the second derivative improve an estimate of an area

• find the area between a curve, two ordinates and the x-axis find the area between two curves

 integrate where n is a positive integer or 0, and the sum of such functions

• understand integration as the reverse process of

differentiation

know what is meant by a definite and an indefinite integral



Prince William School Maths Curriculum Map – Substantive Progression KS4 (Probability)



	Year 10 Support / Core /	Year 11 Support / Core / Higher	Additional Maths Y10	Additional Maths
	Higher			Y11
Probability		 construct theoretical possibility spaces for single experiments with equally likely outcomes and use these to calculate theoretical probabilities apply the property that the probabilities of an exhaustive set of outcomes sum to one; apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to one enumerate sets and combinations of sets systematically, using tables, grids, Venn diagrams and tree diagrams construct theoretical possibility spaces for combined experiments with equally likely outcomes and use these to calculate theoretical probabilities calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions as above and understand that empirical unbiased samples tend towards theoretical probability distributions, with increasing sample size calculate and interpret conditional probabilities through representation using expected frequencies with two-way tables, tree diagrams and Venn diagrams 	 probability diagrams factorials and the product rule permutations and combinations 	 binomial expansion binomial distribution





	Year 12	
Core Maths	MATHS FOR PERSONAL FINANCE • substituting numerical values into formulae, spreadsheets and financial expressions • using conventional notation for priority of operations, including brackets, powers, roots and reciprocals • applying and interpreting limits of accuracy, specifying simple error intervals due to truncation or rounding • finding approximate solutions to problems in financial contexts • interpreting percentages and percentage changes as a fraction or a decimal and interpreting these multiplicatively • expressing one quantity as a percentage of another • comparing two quantities using percentages • working with percentages over 100% • solving problems involving percentage change • simple and compound interest • Saving and investments using AER • student loans and mortgages using APR • graphical representation (plotting points to create graphs and interpreting results from graphs in financial contexts) • income tax, National Insurance, Value Added Tax (VAT) • the effect of inflation, Retail Price Index (RPI), Consumer Price Index (CPI) • satting up, solving and interpreting the solutions to financial problems, including those that involve compound interest using iterative methods • currency exchange rates including commission • budgeting DATA • Inferring properties of populations or distributions from a s	 CRITICAL PATH ANALYSIS Representing compound Activity on-node represe Using early time and later the critical path(s) Using Gantt charts (cascation of the stimated probability) Applying ideas of random expected outcomes Understanding the probability Calculating the probability Calculating the expected Understanding that man be precited with certaint Understanding that the arisks may have their own Using probabilities to cal Understanding that calcudecision making
	 COMMUNICATING MATHEMATICAL APPROACHESND SOLUTIONS Summarising and report writing Comparing results from a model with real data Critical analysis of data quoted in media, political campaigns, marketing etc ESTIMATION representing a situation mathematically, making assumptions and simplifications selecting and using appropriate mathematical techniques for problems and situations interpreting results in the context of a given problem evaluating methods and solutions including how they may have been affected by assumptions made making fast, rough estimates of quantities which are either difficult or impossible to measure directly 	

Year 13

- projects by activity networks
- ntation will be used
- time algorithms to identify critical activities and find
- ade diagrams) to present project activities
- ertain outcomes can be modelled as random events ties
- nness, fairness and equally likely events to calculate
- ying Venn diagrams and simple tree diagrams ty of combined events
- value of quantities such as financial loss or gain
- y decisions have to be made when outcomes cannot y
- actions that can be taken to reduce or prevent specific costs
- culate expected values of costs and benefits decisions llating an expected value is an important part of such



Maths Curriculum Map – Substantive Progression KS5 (A Level) – Pure (1)



		A Level Maths		A Level Further Maths		
		Year 12	Year 13	Year 12	Year 13	
	Proof	 Understand and use the structure of mathematical proof Use methods of proof, including proof by deduction, proof by exhaustion & disproof by counterexample 	 Use the method of proof by contradiction 	 Construct proofs using mathematical induction; contexts include sums of series, divisibility, and powers of matrices. 	•	
Pure	Algebra and Functions	 Understand and use the laws of indices for all rational exponents Use and manipulate surds, including rationalising the denominator Work with quadratic functions and their graphs Solve simultaneous equations in two variables by elimination and by substitution Solve linear and quadratic inequalities in a single variable and interpret these graphically Express solutions through correct use of 'and' and 'or', or through set notation Manipulate polynomials algebraically, including expanding brackets and collecting like terms, factorisation, and simple algebraic division; use of the factor theorem Sketch curves defined by simple equations including polynomials Interpret algebraic solution of equations graphically; use intersection points of graphs to solve equations Understand the effect of simple transformations on the graph of y = f(x) including sketching associated graphs 	 Simplify rational expressions Understand and use the modulus of a function; including their graphs Understand and use composite functions, inverse functions and their graphs Understand the effect of combinations of transformations Decompose rational functions into partial fractions 	 Understand and use the relationship between roots and coefficients of polynomial equations up to quartic equations. Form a polynomial equation whose roots are a linear transformation of the roots of a given polynomial equation Understand and use formulae for the sums of integers, squares and cubes and use these to sum other series. Understand and use the method of differences for summation of series including use of partial fractions. Recognise and use the Maclaurin series for ex , ln (1 + x), sin x, cos x, and (1 + x) n, and be aware of the range of values of x for which they are valid (proof not required). Inequalities involving polynomial equations Solving inequalities algebraically. Graphs of y = f(x) , y = 1/f(x) for given y = f(x) Graphs of rational functions of form (ax^2+bx+c)/(dlx^2+ex+f) including cases when some of these coefficients are zero; asymptotes parallel to coordinate axes Using quadratic theory (not calculus) to find the possible values of the function and coordinates of the stationary points of the graph for rational functions of form (ax^2+bx+c)/(dlx^2+ex+f) Sketching graphs of curves with equations *^2/a^2 + y^42/b^2 = 1, x^2/a^2 - y^2/b^2 = 1, xy=c^2 including intercepts with axes and equations of asymptotes of hyperbolas. Single transformations of curves involving translations, stretches parallel to coordinate axes and equations of asymptotes and file to coordinate axes and reflections in the coordinate axes and the lines y = ± x 	 Find the Maclaurin series of a function including the general term Evaluation of limits using Maclaurin series or l'Hôpital's rule Modulus of functions and associated inequalities 	
Coordinate Geometry	Coordinate Geometry	 Understand and use the equation of a straight line, including in modelling contexts Understand and use the coordinate geometry of the circle including using the equation of a circle in the form (x-a)2+(y-b)2 = r2 Completing the square to find the centre and radius of a circle Use of the following properties: the angle in a semicircle is a right angle, the perpendicular from the centre to a chord bisects the chord & the radius of a circle at a given point on its circumference is perpendicular to the tangent to the circle at that point 	 Understand and use parametric equations of curves, including in modelling in a variety of contexts Convert between Cartesian equations and parametric equations 			
	Sequence and Series		 Understand and use the binomial expansion of (a+bx)n for any rational n Understand and use recurrence relations Understand and use sigma notation for sums of series Understand and work with arithmetic sequences and series Understand and work with geometric sequences and series 			



Prince William School Maths Curriculum Map – Substantive Progression KS5 (A Level) – Pure (2)



			A Level Maths	A Level Furthe		
		Year 12	Year 13	Year 12		
	Differentiation	 Understand and use the derivative of f(x) as the gradient of the tangent to the graph of y=f(x) at a general point (x, y) Understand the gradient of the tangent as a limit Sketching the gradient function for a given curve Understand differentiation from first principles for small positive integer powers of x Apply differentiation to find gradients, tangents and normal, maxima and minima and stationary points, points of inflection Identify where functions are increasing or decreasing 	 Understand and use the second derivative in determining the convex/concave sections of curves and points of inflection Differentiate polynomial functions using the chain rule, including problems involving connected rates of change and inverse functions Differentiate polynomial functions using the product and quotient rules Understand and use the second derivative in determining the convex/concave sections of curves and points of inflection Differentiate polynomial functions using the chain rule, including problems involving connected rates of change and inverse functions Differentiate polynomial functions using the chain rule, including problems involving connected rates of change and inverse functions Differentiate polynomial functions using the product and quotient rules Differentiate polynomial functions using the product and quotient rules Differentiate the exponential function, the trigonometric functions, related sums, differences and constant multiples Understand and use the derivative of ln x Differentiate using the chain rule, product rule and quotient rule Differentiate simple functions and relations defined implicitly Differentiate simple functions and relations defined parametrically 			
Pure	Integration	 Integrate xn (excluding n = -1), and related sums, differences, and constant multiples Evaluate definite integrals Use a definite integral to find the area under a curve 	 Integrate the exponential function, 1/x, the trigonometric functions and related sums, differences and constant multiples Use a definite integral to find the area between two curves Understand and use integration as the limit of a sum Carry out simple cases of integration by substitution Carry out simple cases of integration by parts Integrate using partial fractions Construct simple differential equations in pure mathematics and in context Evaluate the analytical solution of simple first order differential equations with separable variables, including finding particular solutions Interpret the solution of a differential equation in the context of solving a problem Use differential equations in kinematics problems 			
	Calculus			 Evaluate improper integrals where either the integrand is undefined at a value in the range of integration or the range of integration extends to infinity Derive formulae for and calculate volumes of revolution. Understand and evaluate the mean value of a function. 	 Integrate using partial fractions Differentiate inverse trigonometric fur Integrate functions of the form (a²-x⁷ substitutions to integrate associated fu Arc length and area of surface of revol Derivation and use of reduction formu The limits lim(x^k @^(-x),and x^k lnx,w 	
	Differential Equations			 Find and use an integrating factor to solve differential equations of form dy/dx+P(x)y=Q(x) and recognise when it is appropriate to do so. 	 Find both general and particular soluti Use differential equations in modelling Solve differential equations of form y" equation. Solve differential equations of form y" homogeneous case and adding a partic polynomial, exponential or trigonomet Understand and use the relationship b positive, zero and negative and the for Solve the equation for simple harmoni Model damped oscillations using 2nd of light, critical, and heavy damping and the pair of coupled 1st order simultaneous models. Use of Hooke's law with T = kx to form constant. Use models for damped motion where 	

r Maths

Year 13

nctions

(12) (a^2+x^2)^(-1) and be able to choose trigonometric functions

lution for curves expressed in Cartesian or parametric coordinates ulae for integration.

where k>0 applied to improper integrals

tions of differential equations.

g in kinematics and in other contexts.

" + ay' + by = 0 where a and b are constants, by using the auxiliary

" + ay' + by = 0 where a and b are constants, by solving the icular integral to the complementary function (in cases where f(x) is a stric function)

between the cases when the discriminant of the auxiliary equation is orm of solution of the differential equation.

nic and relate the solution to the motion.

order differential equations and interpret their solutions. Understand be able to determine when each will occur.

tions with one independent variable and two dependent variables as a is equations and be able to solve them, for example predator-prey

nulate a differential equation for simple harmonic motion, where k is a

e damping force is proportional to the velocity



Maths Curriculum Map – Substantive Progression KS5 (A Level) – Pure (3)



		AL	evel Maths	A Level Further Maths		
		Year 12	Year 13	Year 12	Year 13	
	Vectors	 Calculate the magnitude and direction of a 2D vector and convert between component form and magnitude/direction form Add 2D vectors diagrammatically and perform the algebraic operations of vector addition and multiplication by scalars and understand their geometrical interpretations Understand and use position vectors; calculate the distance between two points represented by position vectors Understand and use the binomial expansion of (a+bx)n for positive integer n and the notations n! and nCr 	 Calculate the magnitude and direction of a 3D vector and convert between component form and magnitude/direction form Add 3D vectors diagrammatically and perform the algebraic operations of vector addition and multiplication by scalars and understand their geometrical interpretation 	 Understand and use the vector and Cartesian forms of an equation of a straight line in 3D. Understand and use the vector and Cartesian forms of the equation of a plane. Calculate the scalar product and use it to calculate the angle between two lines, Check whether vectors are perpendicular by using the scalar product. Find the intersection of two lines. Find the intersection of a line and a plane. Calculate the perpendicular distance between two lines, from a point to a line and from a point to a plane. 	 Calculate and understand the properties of the vector product. Understand and use the equation of a straight line in the form (r – a) × b = 0 Use vector products to find the area of a triangle 	
	Numerical Methods	•	 Locate roots of f(x)=0 by considering changes of sign of f(x) in an interval of x Understand the limitations of change of sign methods Solve equations approximately using simple iterative methods and understand their limitations; be able to draw associated cobweb and staircase diagrams Solve equations using the Newton-Raphson method and understand its limitations Understand and use the trapezium rule to estimate the area under a curve Use numerical methods to solve problems in context 		 Mid-ordinate rule and Simpson's rule for integration. Euler's step by step method for solving first order differential equations Improved Euler method for solving first order differential equations. 	
Pure	Trigonometry	 Understand and use the definitions of sine, cosine and tangent for all arguments Use the sine rule, cosine rule and the area of a triangle formula Understand and use the sine, cosine and tangent functions; their graphs, symmetries and periodicity Understand and use the identities tanθ = sinθ/cosθ and (sinθ) 2 + (cosθ)2 = 1 Solve trigonometric equations in a given interval 	 Understand and use radian measure, including use for arc length and area of a sector Understand and use the standard small angle approximations Solve simple trigonometric equations using radians Understand and use the definitions of the reciprocal trigonometric functions, including their graphs Understand and use the definitions of the inverse trigonometric functions, including their graphs Understand and use the identities [sec] ^2 x≡1+ [tan] ^2 x and [cosec] ^2 x≡1+ [cot] ^2 x 3 Understand and use the compound angle formulae and double angle formulae, including their geometric proofs Understand and use expressions given in harmonic form Construct proofs involving trigonometric functions and identities Use trigonometric functions to solve problems in context 			
	Exponentials and Logarithms	 Know and use the function ax and its graph, where a is positive Know and use the function ex and its graph Know that the gradient of ekx is equal to kekx and hence understand why the exponential model is suitable in many applications Know and use the definition of 【log】 _a x as the inverse of ax , where a is positive and x≥0. Know and use the function lnx and its graph Know and use lnx as the inverse function of ex Understand and use the laws of logarithms: Solve equations of the form ax=b Use logarithmic graphs to estimate parameters in relationships of the form y=axn and y = kbx, given data for x and y Understand and use exponential growth and decay; use in modelling and consider limitations and refinements of models 				





		A Level Maths		A Level Further Maths		
		Year 12	Year 13	Year 12	Year 13	
	Polar Coordina			 Understand and use polar coordinates and be able to convert between polar and Cartesian coordinates. Sketch curves with r given as a function of θ, including use of trigonometric functions. 	• Find the area enclosed by a polar curve.	
Pure	Hyperbolic Functions			 Understand the definitions of hyperbolic functions sinh x, cosh x and tanh x, including their domains and ranges, and be able to sketch their graphs. Differentiate and integrate hyperbolic functions Understand and be able to use the definitions of the inverse hyperbolic functions and their domains and ranges. Derive and use the logarithmic forms of the inverse hyperbolic functions. Understand and use tanhx= sinhx/coshx Derive and use [coshx] ^2- [coshx] ^2=1 use identities to solve equations or derive other results 	 Understand the definitions of hyperbolic functions sech x, cosech x and coth x, including their domains and ranges. Integrate functions of the form (x^2+a^2)^(1/2),(x-a^2)^(-1/2)and be able to choose substitutions to integrate associated functions. Construct proofs involving hyperbolic functions and identities. Construct proofs involving hyperbolic functions and identities. 	
	Complex Numbers			 Solve any quadratic equation with real coefficients; solve cubic or quartic equations with real coefficients Understand and use the complex conjugate; know that non-real roots of polynomial equations with real coefficients occur in conjugate pairs. Use and interpret Argand diagrams. Convert between the Cartesian form and the modulus-argument form of a complex number Multiply and divide complex numbers in modulus-argument form Construct and interpret simple loci in the Argand diagram 	 Understand de Moivre's theorem and use it to find multiple angle formulae and sums of series. Know and use the definition eiθ = cosθ + isinθ and the form z = reiθ Find the n distinct nth roots of reiθ for r ≠ 0 and know that they form the vertices of a regular n-gon in the Argand diagram. Use complex roots of unity to solve geometric problems. 	
	Matrices			 Add, subtract and multiply conformable matrices; multiply a matrix by a scalar. Understand and use zero and identity matrices. Use matrices to represent linear transformations in 2D; successive transformations; single transformations in 3D Find invariant points and lines for a linear transformation. Calculate determinants of 2×2 matrices and 3×3 matrices and interpret as scale factors, including the effect on orientation. Understand and use singular and non-singular matrices; properties of inverse matrices. Calculate and use the inverse of non-singular 2×2 matrices and 3×3 matrices 	 Solve three linear simultaneous equations in three variables by use of the inverse matrix. Interpret geometrically the solution and failure of solution of three simultaneous linear equations Factorisation of determinants using row and column operations Find eigenvalues and eigenvectors of 2×2 and 3×3 matrices. Find and use the characteristic equation. Understand the geometrical significance of eigenvalues and eigenvectors Diagonalisation of matrices 	



Maths Curriculum Map – Substantive Progression KS5 (A Level) – Mechanics



		A Lev	A Level Further	
		Year 12	Year 13	Year 12
	Kinematics	 Understand and use fundamental quantities and units in the S.I. system and language of kinematics Understand, use and interpret graphs in kinematics for motion in a straight line Understand, use and derive the formulae for constant acceleration for motion in a straight line Use calculus in kinematics for motion in a straight line 	 Extend use of the formulae for constant acceleration for motion in a straight line to 2D vectors Extend use calculus in kinematics for motion in a straight line to 2D vectors Model motion under gravity in a vertical plane using vectors Use and understand assumptions made when modelling projectiles 	
	Forces and Newtons Laws	 Understand the concept of a force; understand and use Newton's first law Understand and use Newton's second law for motion in a straight line (restricted to forces in two perpendicular directions or simple cases of forces given as 2-D vectors) Understand and use weight and motion in a straight line under gravity Understand and use Newton's third law, applying to problems involving smooth pulleys and connected particles 	 Extend use of Newton's second law for motion in a straight line to situations where forces need to be resolved (2D only) Extend use of Newton's third law to situations where forces need to be resolved (2D only) and equilibrium of a particle under coplanar forces Understand and use addition of forces and resultant forces Understand and use the model for friction 	
hanics	Centres of Mass and Moments		• Understand and use moments in simple static contexts	
Mec	Dimensi onal			 Finding dimensions of quantities; checking for dimensional consistency. Prediction of formulae; finding powers in potential formulae.
	Momentum and			 Conservation of momentum for linear motion and cases where velocities are given as one or two dimensional vectors Coefficient of Restitution and Newton's Experimental Law. Use in direct collisions and impacts with a fixed smooth surface Impulse and its relation to momentum (in one or two dimensions) Impulse for variable forces. One dimension only. Use of I = ∫ F dt
	Work Energy and Power			 Work done by a force acting in the direction of motion or directly opposing the motion. Use of WD = Fdcosθ Gravitational potential energy. Use in conservation of energy problems. Kinetic energy. Use in conservation of energy problems. Hooke's Law including using modulus of elasticity. Work done by a variable force. Use of WD = ∫ Fdx . Use in conservation of energy problems. Elastic Potential Energy using modulus of elasticity
	Circular Motion			 Motion of a particle moving in a circle with constant speed Understand the definition of angular speed Relationships between speed, angular speed, radius and acceleration.

Maths

Year 13

- Centre of mass for a system of particles.
- Centre of mass for a composite body
- Centre of mass of a lamina by integration
- Centres of mass of bodies formed by rotating a region about the x-axis
- Conditions for sliding and toppling. Problems including suspension and on an inclined plane.
- Determine the forces acting on a rigid body in equilibrium. Use of moments and couples.
- •

• problems that require resolving

- resolving forces in contexts such as cars moving on banked tracks, particles moving on the inside of an upturned cone or hemisphere.
- Use position, velocity and acceleration as vectors in the context of circular motion
- Circular motion in a vertical plane. Includes conditions to complete vertical circles. Use of conservation of energy in this context



Maths Curriculum Map – Substantive Progression KS5 (A Level) – Statistics



		A Level N	Maths	A Level Further Maths	
		Year 12	Year 13	Year 12	Year 13
	Statistical Sampling	 Understand and use the terms 'population' and 'sample' Understand, use and critique sampling techniques, including simple random sampling and opportunity sampling 			
	Data Presentation and Interpretation	 DATA PRESENTATION & INTERPRETATION Interpret diagrams for single-variable data Interpret diagrams for bivariate data Understand informal interpretation of correlation and that correlation does not imply causation Interpret measures of central tendency and variation Be able to calculate standard deviation 			
Statistics	Probability	 Understand and use mutually exclusive and independent events when calculating probabilities 	 Understand and use conditional probability, including the use of tree diagrams, Venn diagrams, two-way tables and the conditional probability formula Modelling with probability, including critiquing assumptions Find probabilities using the Normal distribution Select an appropriate probability distribution for a context 		
	Statistical Distributions	 Understand and use simple, discrete probability distributions (calculation of mean and variance of discrete random variables is excluded), including the binomial distribution, as a model; calculate probabilities using the binomial distribution 			
	Statistical Hypothesis Testing	 SSTATISTICAL HYPOTHESIS TTESTING Understand and apply the language of statistical hypothesis testing, developed through a binomial model Conduct a statistical hypothesis test for the proportion in the binomial distribution and interpret the results in context 	 Extend the language of statistical hypothesis testing to correlation coefficients as measures of how close data points lie to a straight line and be able to interpret a given correlation coefficient using a given p-value or critical value Conduct a statistical hypothesis test for the mean of a Normal distribution with known, given or assumed variance and interpret the results in context 		



Maths Curriculum Map – Substantive Progression KS5 (A Level) – Discrete



		A Level Maths		A Level Further Maths			
		Year 12	Year 13	Year 12			
	Graphs			 Understand and use the language of graphs, including vertex, edge, trail, cycle, connected, degree, subgraph, subdivision, multiple edge and loop. Identify or prove properties of a graph including that a graph is Eulerian, semi-Eulerian or Hamiltonian. Understand and use Euler's formula for connected planar graphs. Understand and use complete graphs and bipartite graphs, including adjacency matrices and the complement of a graph Understand and use simple graphs, simple-connected graphs and trees 	 Use Kuratowski's Recognise and fi isomorphism betom 		
Discrete	Networks			 Understand and use the language of networks including: node, arc and weight Solve network optimisation problems using spanning trees Solve route inspection problems Find and interpret upper bounds and lower bounds for the Travelling Salesperson problem Evaluate, modify and refine models that use networks. 			
	Network Flows			 Interpret flow problems represented by a network of directed arcs Find the value of a cut and understand its meaning Use and interpret the maximum flow-minimum cut theorem 	Augment flows an • Solve problems i • Refine network f capacity		
	Linear Programming			Formulate and solve constrained optimisation problems	 Use the Simplex an objective fun- Interpret a Simp 		
	Critical Path Analysis			 Construct, represent and interpret a precedence (activity) network using activity-on-node. Determine earliest and latest start and finish times for an activity network Identify critical activities, critical paths and the float of non-critical activities. Refine models and understand the implications of possible changes in the context of critical path analysis 	 Construct and in histograms Carry out resour problems where 		
	Game Theory for Zero Sum Games			 Understand, interpret and construct pay-off matrices Find play-safe strategies and the value of the game Prove the existence or non-existence of a stable solution Identify and make use of dominated strategies Find optimal mixed strategies for a game including use of graphical methods 	 Convert higher of solve using the S 		
	Binary Operations and Group Theory			 Understand and use binary operations including use of modular arithmetic and matrix multiplication. Understand, use and prove the commutativity of a binary operation Understand, use and prove the associativity of a binary operation Understand and prove the existence of an identity element for a given set under a given binary operation. Find the inverse of an element belonging to a given set under a given binary operation 			

Year 13

's Theorem to determine the planarity of graphs Find Petween graphs

nd determine the maximum flow in a network including arcs with upper and lower capacities flow problems including using nodes of restricted

algorithm for optimising (maximising and minimising) nction including the use of slack variables. plex tableau

nterpret Gantt (cascade) charts and resource

rce levelling (using heuristic procedures) and evaluate e resources are restricted

order games to linear programming problems and Simplex algorithm





	KS3	KS4	
Build mathematical fluency	Develop fluency in use of mathematical language. Develop use of mathematical tools ie protractor, compass and calculator.	Revisit core disciplinary and procedural knowledge	Understand mat promotes confic provides a stron
Reason mathematically		Think mathematically and apply procedural and disciplinary knowledge to problem-solving, reasoning and communication	Make deductior reasoning
Problem solve in a variety of contexts	Develop problem solving processes		Use mathematic and reasoned de of contexts
Making connections		Explore concepts and how they make connections both within and across topics	

KS5

ithematical processes in a way that dence, promotes enjoyment and ng foundation for further study

ns and inferences using mathematical

cal skills and techniques to make logical ecisions in solving problems in a variety



Prince William School Maths Curriculum Map – Year 7 Vocabulary



	Autumn						
	INVESTIGATING	EXPLORING CALCULATION	EXPLORING SHAPE	EXPLORING SHAPE	DISCOVERING	SOLVING PROBLEMS WITH	INVESTIGATING STATISTICS
	NUMBER SYSTEMS	< less than	(acute-angled)	diagonal	EQUIVALENCE	NUMBER	average: mean, median, mo
	ascending; descending	= equal to	(obtuse-angled)	irregular	compare	bar model	bar chart
	billion	≠ not equal to	2 dimensional	mirror line	convert equivalent multiplier	construct	categorical data
	decimal	> greater than	3 dimensional	regular	operator quantity percentage	equals =	categories
	decimal place(s)	add, plus, sum, total	angle	rotational symmetry	increase percentage decrease	equation	chart
	decimal point	approximate	angles around a point	symmetry	fraction	equivalent	classes/class intervals
	greater than, >	brackets	angles on a straight line		greater than, less than	expression	Compare
	integer	calculate	cone		integer	function machine	continuous
	less than, <	decimal	convention	REASONING WITH MEASURES	numerator denominator	greater than >	data set
	million	divide, quotient	cross-section	composite	decimal	greater than or equal ≥	discrete
	nearest integer	estimate	cube	cuboid/cube	order	inverse (operation)	frequency
	negative	Evaluate	cuboid	derive	out of	less than <	pictogram
	order	expression	cylinder	dimension	part(s)	less than or equal \leq	pie chart
	partition	formula	edge	dissect	per	letter (variable)	spread: range
	place value	integer	equilateral	distance	per cent	operation	table
	positive	multiply, product	face	formula	percentage	solution	vertical line
	round	negative	ISOSCEIES	km, m, cm,	whole	solve	
	significant figure(s)	operation	ISOSCEIES	km2, m2, cm2, mm2	DEACONUNC WITH EDACTIONS	term	
	DATTERN SNIEEING	positivo	labol	mm	experiment	unknown	(arc)
	arithmatic prograssion	square root sube root root	lino	narallologram	(of an) amount	unknown	(arc)
	common factor	square cube nower	mark	nerimeter	certain		(segment)
la	common multiple	subject (of a formula)	notation: AB	perpendicular height	chance		accurate
n	cube (number)	substitute	notation: ABCD	rectangle	denominator		acute
de	factor	subtract, take away, difference	notation: BAC	shape	difference		angle measurer
C C	first term	term	parallel	surface	equivalent		centre
Õ	highest common factor	Evaluate	parallelogram	total	even		chord
>	integer		perpendicular	trapezium	event		circle
IS	linear	GENERALISING ARITHMETIC	plane	triangle	expected		circumference
th	lowest common multiple	addition	point	volume	experiment		construct
Э.	multiple	collect like terms	polygon	width	experimental		degrees
\mathbf{N}	power	distributive law	polygon		fraction		diagram
2	prime	division	prism		fraction		diameter
	root	equation	property		fraction		draw
al	sequence	expand	pyramid		frequency		equilateral
e	square (number)	expression	quadrilateral		frequency tree		isosceles
$\mathbf{\lambda}$	term	formula	rectangle		impossible		line
	term to term rule	identity	regular polygon		improper		measure
	triangular (number)	inverse (operation)	rhombus		likely		nearest angle
		multiplication	rhombus		mixed number		obtuse
		operation	right angles		numerator		parallel line
		raising to a power	right-angled		outcome		perpendicular line
		simplify	scalene		part		polygon
		subtraction	snape		probability		protractor
		term	square		product		roflox
			surface		proper fraction		regular
			tetrahedron		quotient		right angle triangle
			tranezium		random		scalene
			triangle		repeated		sketch
			triangle		scale		symmetry
			vertex/vertices		simplest form		-,,
			vertically opposite		simplify		
					sum		
					theoretical		
					unit fraction		
					unlikely		
					whole		

Summer EXPLORING CHANGE

node

coordinate (x, y)x coordinate vcoordinate quadrant negative axis x-axis y-axis origin horizontal vertical plot first quadrant 2nd quadrant 3rd quadrant 4th quadrant construct coordinate grid vertices line midpoint equation

PROPORTIONAL REASONING

simplify cancel common factors compare fraction fraction (of amount) lowest terms multiplier part part per whole proportion proportion ratio scaling up (or down) share unit whole

DESCRIBING POSITION

angle of rotation centre column vector combination congruent describe direction of rotation equation of line horizontal image line midpoint object quadrant reflection rotation segment transformation translation vertex vertical

MEASURING AND ESTIMATING

convert equivalence estimate prefixes: milli, centi, kilo scaling standard units together with metres, grams, litres inches, feet, pounds ounces, stone, miles, pints units



Maths Curriculum Map – Year 8 Vocabulary



	Autumn						
	INVESTIGATING	GENERALISING	REASONING WITH MEASURES	DISCOVERING	REASONING WITH FRACTIONS	SOLVING PROBLEMS WITH	VISUALISING SHAPE
	NUMBER SYSTEMS	ARITHMETIC	perimeter	EQUIVALENCE	fraction	NUMBER	scale
	round	product	rectangle	fraction	numerator	solve	scale drawing
	decimal place	guotient	parallelogram trapezium	numerator denominator	denominator	variable	accurate ratio proportion
	significant figure	co-efficient	triangle composite	simplify	part	side	similar
	appropriate degree of accuracy	power	shape	in its simplest form	whole	solution	bearing
		index(indices)	compound shape	decimal	equivalent	linear	north (line)
	PATTERN SNIFFING	law.	dissect	terminating	fraction	equal	clockwise
	term to term rule	simplify	circumference	recurring	unit fraction	flow	construct
	position to term rule	bracket	circle	tenths hundredths	proper fraction	hoth sides	sketch
	nth term	distributive law	radius/radii	thousandths equivalent	mixed number	same as	bisect
	prime(number)	expand	diameter	division	improper	equation	perpendicular
	highest common factor	factor	circumference	percentage %	fraction	unknown	locus/loci
	lowest common multiple	factorise	arc	multiplier	simplest form	inverse	intersect
	prime factor (decomposition)	common factor	area	mentally with a calculator	simplify	symbol	equidistant
	factorisation	notation	annulus	single calculation	sum	not equal	nlan
	unique factorisation theorem	inequality	constituent	increase	difference	liot equal	elevation
σ	index notation	equation	cuboid	decrease	product	INVESTIGATING STATISTICS	viewpoint
Ę		Formula	nrism	original amount	quotient	scatter graph	Isometric
5	EXPLORING CALCULATION	1 officia	cylinder	inverse	(of an) amount	connection	isomethe
σ	calculate	EXPLORING SHAPE	cross-section	nercentage change	probability	correlation	EXPLORING CHANGE
ک	integer	narallel lines	surface area	interest	chance	positive correlation	coordinate
2	nositive	transversal line	net	simple interest	imnossible	negative correlation	v coordinate: v coordinate
	negative	alternate angles	curved surface	ner annum	even	no correlation	
ร	decimal	corresponding angles	Volume	invest(ment)	certain	frequency diagram	(^, y)
5	add plus sum total	co-interior angles	Volume	invest(inent)	likely	frequency polygon	origin
σ	multiply product	equal			unlikely	mode modal	granh
≥	divide quotient dividend divisor	prove			experiment	class	table of values
\sim	square cube nower	polygon			probability scale	grouped data	substitute
\sim	operation	regular/irregular			outcome	frequency table	linear
σ	order of operations	sum			event	estimate	straight line equation
บ	brackets	interior angle			exhaustive	mean median range spread	relationship horizontal ver
≻	formula	exterior angle			independent	average	gradient
	subject (of a formula)	angle sum			exclusive	central tendency	slone
	equation	vertices			mutually	variation	steenness
	identity	Vertices			exclusive	sample	v-intercent
	term				frequency	Population	intersection
	expression				frequency tree		solve
	substitute				expected		equation
	evaluate				theoretical		function
	evaluate				experimental		quadratic
					random		
					reneated		
					evneriment		
	1	1	1	1	1	1	1

Summer

PROPORTIONAL REASONING

ratio proportion fraction whole part quantity variable multiplier Per unit rate scale factor similar enlargement length, area and volume perimeter relative simplify in simplest terms/form

DESCRIBING POSITION

transformation similar congruent enlargement centre of enlargement ray scale factor integer ratio proportion describe object image

MEASURING AND ESTIMATING

compound measures formula(e) unit rates of change per speed best value real life graph distance/displacement speed/velocity acceleration stationary

rtical



Maths Curriculum Map – Year 9 Support Vocabulary



		Autumn		Spring			
	NUMBER-CALCULATION	GEOMETRY - SHAPE	NUMBER - CALCULATION 2	RATIO & PROPORTION -	NUMBER AND ALGEBRA -	GEOMETRY – MEASURING	RATIO & PROPORTION -
	place value	shape	square	FRACTIONS, DECIMALS,	SEQUENCES	perimeter	SCALING
	partition	dimensional	cube	PERCENTAGES	sequence	distance	proportion
	million	dimensional	square root	fraction	term	length	fraction
	billion	polyhedron	cube root	numerator	term-to-term rule	width	compare
	positive	cube	root	denominator	linear	dimension	ratio part
	negative	cuboid	power	part	first term	total	whole
	integer	prism	prime (number)	whole	triangular (number)	km, m, cm, mm	unit
	decimal	cross-section	highest common factor	equivalent	square (number)	composite shape	share
	decimal point	pyramid	lowest common multiple	unit fraction	cube (number)	compound shape	simplify
	decimal place(s)	tetrahedron	prime factor (decomposition)	proper fraction	arithmetic	dissect	common factors
	round to the nearest	cylinder	product of primes	improper fraction	progression	area	cancel
	greater than, >	cone	unique factorisation theorem	simplest form	term-to-term rule	squares	lowest terms
	less than, <	sphere	index notation	simplify	position-to-term rule	formula	part per whole
	order	point		sum	nth term	derive	multiplier
	ascending; descending	line	ALGEBRA – SIMPLIFYING	difference	pattern number	rectangle	scaling up (or down)
\geq	appropriate degree of accuracy	vertex/vertices	operation	product		parallelogram	proportion
ar	calculate	edge	inverse (operation)	quotient	ALGEBRA – SOLVING	trapezium	fraction (of amount)
i r	add, plus, sum, total	plane	addition	percentage	expression	triangle	
ы	subtract, take away,	tace	subtraction	per cent	term	perpendicular height	ALGEBRA - GRAPHING
al	difference multiply, product,	surface	multiplication	out of	equation	km2, m2, cm2, mm2	coordinate
C	divide, quotient, dividend, divisor	parallel	division	per	unknown	volume	x coordinate;
/c	operation	perpendicular	sum	compare	substitute	cuboid/cube	y coordinate
	order of operations	right angles	difference	greater than	solve	prism	(x, y)
JS	brackets	polygon	product	less than	solution	surface area	quadrant
t		regular polygon	quotient	decimal	side	net	x-axis; y-axis
ש		label	power	convert	equal		origin
\geq		mark	index (indices)	equivalent	both sides		norizontal
Ļ		angle	raising to a power	terminating	Inverse operation		vertical
L		triangle	term		bracket		plot
00		equilateral	expression		Check		vertices
d		isosceles	Simplify		Construct		intercention
\square		scalene	Like Terms				aroob
\sim			Like Territs				graph
6		quadrilateral	Brackel Co. officient				
<u> </u>		square	Co-enicient				Substitute
g		rectangle	Expand				iinear
Ύ€		parallelogram	Factor				straight line graph equation
		tranazium	Factorise				function
		trapezium					function
		kite	Common Factor				
		polygon	Notation				
		regular					
		linegular					
		ulagonal					
		symmetry mirror line					
		rotational symmetry					
		angles around a point					
		angles on a straight line					
		vertically opposite					
		equal					
		sum					
						1	

Summer

PROBABILITY Probability

Chance Impossible Even Certain Likely Unlikely Outcome Event Experiment Probability Scale Frequency Frequency Tree Sample Space List of Outcomes Expected Theoretical Experimental Random Repeated

STATISTICS

data data set discrete continuous grouped class class interval categories ungrouped tally chart frequency table chart bar chart pie chart pictogram categorical data vertical line chart frequency diagram frequency polygon stem-and-leaf diagram key average: mean, median, mode modal class



Maths Curriculum Map – Year 9 Core Vocabulary



		Autumn					
	NUMBER-CALCULATION	GEOMETRY - SHAPE	irregular	RATIO & PROPORTION -	NUMBER AND ALGEBRA -	GEOMETRY – MEASURING	RATIO & PROPORTION -
	place value	2 dimensional	diagonal	FRACTIONS, DECIMALS,	SEQUENCES	perimeter	SCALING
	partition	3 dimensional	symmetry	PERCENTAGES	sequence	distance	ratio
	million	cube	mirror line	fraction numerator	term	length	proportion
	billion	cuboid	rotational symmetry	denominator part	term-to-term rule	width	fraction
	positive	prism	angles around a point	whole	linear	dimension	whole
	negative	pyramid	angles on a straight line	equivalent	first term	total	part
	integer	tetrahedron	vertically opposite	unit fraction	triangular (number)	km, m, cm, mm	quantity
	decimal	cylinder	parallel lines	proper fraction	square (number)	composite shape	variable
	decimal point	cone	transversal (line)	mixed number	cube (number)	compound shape	multiplier
	decimal place(s)	sphere	alternate angles	improper fraction	arithmetic progression	dissect	per unit
	round	point	corresponding angles	simplest form	term-to-term rule	circle	rate
	significant figure(s)	line	co-interior angles	simplify	position-to-term rule	centre	scale factor
	greater than, >	vertex/vertices	equal	sum	nth term	circumference	similar
	less than, <	edge	prove	difference product quotient	pattern number	radius/radii	corresponding
	order	plane	polygon	(of an) amount percentage per		diameter	enlargement
	ascending	face	regular / irregular	cent	ALGEBRA – SOLVING	pi,π	length, area and volume
	descending	surface	sum	out of per whole	formula	sector	perimeter
	appropriate degree	cross-section	interior angle		subject (of a formula)	area	
<u> </u>	calculate	parallel	exterior angle		equation	squares	
ar	add, plus, sum, total	perpendicular	angle sum		identity	formula	
-r	subtract, take away,	right angles	vertices		term	derive	
pı	difference multiply, product	polygon			expression	rectangle	
a	divide, quotient, dividend, divisor	regular polygon	NUMBER - CALCULATION 2		substitute	parallelogram	
00	operation	label	operation		evaluate	trapezium	
10	order of operations	mark	inverse (operation)		variable	triangle	
	brackets	notation: BAC	addition		solve	perpendicular height	
h	square	notation: AB	subtraction		variable	km2, m2, cm2, mm2	
βt	cube	notation: ABCD	multiplication		side	annulus	
16	square root	convention	division		solution	volume	
2	cube root	angle	sum		linear	cuboid/cube	
e	root	rhombus	difference		equal	prism	
JC	power	triangle	product		unknown	cross-section	
Ŭ	index/indices	Isosceles	quotient		Inverse	right prism	
6	simplify	property	power index (indiana)			triangular prism	
	prime (number)		Index (indices)			surface area	
al	lowest common multiple	isosoolos	Idw			suitace area	
e'	nrime factor decomposition	scalono	raising to a power			curved surface cylinder	
	product of primes	right-angled				km3 m3 cm3 mm3	
	unique factorisation theorem	(acute-angled)	term				
	index notation	(obtuse-angled)	expression				
		quadrilateral	simplify				
		square	collect				
		rectangle	like terms				
		parallelogram	bracket				
		rhombus	co-efficient				
		trapezium	distributive law				
		kite	expand				
		polygon	factor				
		regular	factorise				
		-	factorise fully				
			common factor				
			notation				
			inequality				
			number line				
			equation				
			identity				

Summer Algebra - graphing

relative coordinate x coordinate; y coordinate (x, y) quadrant x-axis; y-axis origin horizontal vertical plot vertices midpoint intersection graph table of values substitute linear straight line equation relationship horizontal vertical gradient/slope/steepness y-intercept intersection solve equation function

GEOMETRY - VISULASING

transformation rotation reflection translation describe vertex centre angle of rotation direction equation of line horizontal vertical column vector combination congruent object image similar enlargement centre of enlargement ray scale factor proportion describe vertical column vector combination congruent object image similar enlargement centre of enlargement ray scale factor proportion describe



Prince William School Maths Curriculum Map – Year 9 Higher Vocabulary



		Autumn					
	NUMBER-CALCULATION	GEOMETRY - SHAPE	ALGEBRA - SIMPLIFYING	RATIO & PROPORTION -	NUMBER AND ALGEBRA -	ALGEBRA – SOLVING	RATIO & PROPORTION -
	measurement	centre radius diameter	expression	FRACTIONS, DECIMALS,	SEQUENCES	expression	SCALING
	rounded	circumference chord	term	PERCENTAGES	term	formula	congruent/congruence
	truncated	arc, segment sector	expand bracket	percentage %	first term	variable	similar/similarity
	error	tangent	product	multiplier	linear sequence	unknown subject rearrange	transformation
	inequality	construct	simplify	mentally with a calculator	arithmetic progression	inequality <, >, ≤, ≥ number	reflection
	'to the nearest' accuracy	sketch	multiply over	single calculation	quadratic sequence	line solution set integer set	rotation
	power	bisect	binomial	increase	Fibonacci sequence	set notation	translation
	square (root)	perpendicular	distributive law	decrease	Fibonacci-type	x, y, z	enlargement
	cube (root)	locus/loci	quadratic	original amount	recurrence relation		scale factor
	index, indices	intersect	coefficient	inverse	notation	GEOMETRY – MEASURING	ratio (of sides)
-	base	equidistant	factor	percentage	position (n)	Pythagoras' theorem	corresponding
\leq	exponent	plan	factorise	change	nth term	right-angled triangle	preserve
<u>_</u>	laws of indices	elevation	factorise fully	interest	notation: t(n)	hypotenuse	
D	simplify	viewpoint	common factor	simple interest	first differences	shorter side (leg) notation of	
<u> </u>	reciprocal	isometric	square	per annum	second differences	right-angled notation of equal	
ö	evaluate		difference of two	Invest(ment)	delta1, delta 2	length sides	
0	standard form		squares	proportion	geometric progression	prove	
>	in terms of		identity	inverse propertion	ratio	square root	
S	calculate exactly			multiplior	convergent	properties	
÷	formula		prove/show	scale factor	divergent	equal	
<u> </u>	substitute		argument	linear function	uwergent	angles	
Σ	evaluate		formula	graph			
<u> </u>	equation		substitute	product			
Ð	identity		evaluate	fixed product			
	expression			congruent/congruence			
. <u></u>	expand			similar/similarity			
I	factorise			transformation			
σ	simplify			reflection, rotation,			
<u> </u>	decimal terminating			translation, enlargement scale			
	recurring)			factor			
∽	equivalent			ratio (of sides)			
	corresponding			corresponding			
	(rational)			preserve			
	denominator			unit			
	numerator			standard unit			
				compound unit			
				per			
				density			
				mass			
				pressure			
				acceleration			
					1	1	1

Summer	
ALGEBRA - GRAPHING	STATISITCS - DATA
straight line equation	boundary
function f(x)	solution set
y=mx+c	set notation 2, 3, 6, 7
gradient	
y-intercept	
intersection	
parallel	
coefficient	
constant	
root	
solution	
intercept	
turning point	
vertex	
quadratic	
quadratic function	
graphically	
algebraically	
factorise	
cubic function	
inverse	
function	
reciprocal	
sketch	
plot	
graph plot	
linear equation	
solve	
solution	
intersect/intersection	
simultaneous equations	
variables	
elimination	
substitution	
set of points satisfied by	
system	
rogion	
ragion satisfied by intersection	



Maths Curriculum Map – Number Vocabulary KS3



		Y	rear /			Yea	ar 8		Year 9 - S	UPPORT	Year 9 - CORE	Year 9 - HIGHER
INVES	STIGATING	EXPLORING CALCULATION	EQUIVALENCE	SOLVING PROBLEMS WITH	INVESTIGATING	REASONING WITH	REASONING WITH	SOLVING PROBLEMS WITH	NUMBER-CALCULATION	RATIO & PROPORTION -	NUMBER-CALCULATION	NUMBER-CALCULATION
NUM	IBER SYSTEMS	< less than	compare	NUMBER	NUMBER SYSTEMS	MEASURES	FRACTIONS	NUMBER	place value	FRACTIONS, DECIMALS,	place value	measurement
ascen	nding; descending	= equal to	convert equivalent multiplier	bar model	round	perimeter	fraction	solve	partition	PERCENTAGES	partition	rounded
billion	n	≠ not equal to	operator quantity percentage	construct	decimal place	rectangle	numerator	variable	million	fraction	million	truncated
decim	nal	> greater than	increase percentage decrease	equals =	significant figure	parallelogram trapezium	denominator	side	billion	numerator	billion	error
decim	nal place(s)	add, plus, sum, total	fraction	equation	appropriate degree of	triangle composite	part	solution	positive	denominator	positive	inequality
decim	nal point	approximate	greater than, less than	equivalent	accuracy	shape	whole	linear	negative	part	negative	'to the nearest' accuracy
greate	er than, >	brackets	integer	expression		compound shape	equivalent	equal	integer	whole	integer	power
intege	er	calculate	numerator denominator	function machine	PATTERN SNIFFING	dissect	fraction	flow	decimal	equivalent	decimal	square (root)
less th	:han, <	decimal	decimal	greater than >	term to term rule	circumference	unit fraction	both sides	decimal point	unit fraction	decimal point	cube (root)
millio	on	divide, quotient	order	greater than or equal ≥	position to term rule	circle	proper fraction	same as	decimal place(s)	proper fraction	decimal place(s)	index, indices
neare	est integer	estimate	out of	inverse (operation)	nth term	radius/radii	mixed number	equation	round to the nearest	improper fraction	round	base
negati	tive	Evaluate	part(s)	less than <	prime(number)	diameter	improper	unknown	greater than, >	simplest form	significant figure(s)	exponent
order	r	expression	per	less than or equal ≤	highest common factor	circumference	fraction	inverse	less than, <	simplify	greater than, >	laws of indices
partiti	tion	formula	per cent	letter (variable)	lowest common	arc	simplest form	symbol	order	sum	less than, <	simplify
place	e value	integer	percentage	operation	multiple	area	simplify	not equal	ascending; descending	difference	order	reciprocal
positiv	ive	multiply, product	whole	solution	prime factor	annulus	sum		appropriate degree of	product	ascending	evaluate
round	d	negative		solve	(decomposition)	constituent	difference	EXPLORING CHANGE	accuracy	quotient	descending	standard form
signifi	ficant figure(s)	operation	REASONING WITH	term	factorisation	cuboid	product	coordinate	calculate	percentage	appropriate degree	ordinary form
		order of operations	FRACTIONS	test	unique factorisation	prism	quotient	x coordinate; y coordinate	add, plus, sum, total	per cent	calculate	in terms of
	ERN SNIFFING	positive	experiment	unknown	theorem	cylinder	(of an) amount	(x, y)	subtract, take away,	out of	add, plus, sum, total	calculate exactly
arithm	metic progression	square root, cube root,	(of an) amount		index notation	cross-section		x-axis; y-axis	difference multiply, product,	per	subtract, take away,	formula
Comm	non factor	root	certain	EXPLORING CHANGE		surface area		origin	divide, quotient, dividend,	compare	difference multiply, product	substitute
⊃ comm	non multiple	square, cube, power	chance	coordinate	EXPLORING	net		graph	divisor	greater than	divide, quotient, dividend,	evaluate
Cube ((number)	subject (of a formula)	denominator	(x, y)	CALCULATION	curved surface		table of values	operation	less than	divisor	equation
l factor	r	substitute	difference	<i>x</i> coordinate	calculate	Volume		substitute	order of operations	decimal	operation	identity
> first te	term	subtract, take away,	equivalent	ycoordinate	integer			linear	brackets	convert	order of operations	expression
highes	est common factor	difference	even	quadrant	positive	DISCOVERING		straight line equation		equivalent	brackets	expand
intege	er	term	event	negative	negative	EQUIVALENCE		relationship horizontal	NUMBER - CALCULATION 2	terminating	square	factorise
➡ linear	r	Evaluate	expected	axis	decimal	fraction		vertical	square		cube	simplify
Q lowes	st common multiple		experiment	x-axis	add, plus, sum, total	numerator denominator		gradient	cube		square root	decimal terminating
multip	iple	REASONING WITH	experimental	y-axis	multiply, product	simplify		slope	square root		cube root	recurring)
power	er	MEASURES	fraction	origin	divide, quotient,	in its simplest form		steepness	cube root		root	equivalent
prime	e	composite	fraction	horizontal	dividend, divisor	decimal		y-intercept	root		power	corresponding
root		cuboid/cube	fraction	vertical	square, cube, power	terminating		intersection	power		index/indices	(rational)
S seque	ence	derive	frequency		operation	recurring		solve	prime (number)			denominator
squar	re (number)	dimension	frequency tree	first quadrant	order of operations	tentns, nundreatns,		equation	nignest common factor		prime (number)	numerator
term	to torm rule	distance	impossible	2nu quadrant	formula	division		nunction	nowest common multiple		lowest common factor	
- term t	to term rule	formula	Improper	3rd quadrant	rormula			quadratic	prime factor		lowest common multiple	
unang	Brigi (Inninner)	km m cm	mixed number	construct	subject (or a formula)	multiplior					prime factor decomposition	
		km2 m2 cm2 mm2	numerator	coordinate grid	identity	mentally with a calculator		ESTIMATING	unique factorisation		unique factorisation	
		length	outcome	vertices	term	single calculation		compound measures	theorem		theorem	
		mm	part	line	expression	increase		formula(e)	index notation		index notation	
		parallelogram	whole	midpoint	substitute	decrease		unit				
		perimeter		equation	evaluate	original amount		rates of change				
		perpendicular height		equation	cruidate	inverse		per				
		rectangle		MEASURING AND		percentage change		speed				
		shape		ESTIMATING		interest		best value				
		surface		convert		simple interest		real life graph				
		total		equivalence		per annum		distance/displacement				
		trapezium		estimate		invest(ment)		speed/velocity				
		triangle		prefixes: milli, centi, kilo				acceleration				
		volume		scaling				stationary				
		width		standard units								
				together with metres, grams.								
				litres inches, feet, pounds								
				ounces, stone, miles, pints								
				units								



Maths Curriculum Map – Ratio and Proportion Vocabulary KS3



	Year 7	Year 8	Year 9 - SUPPORT	Year 9 - CORE
	PROPORTIONAL REASONING	PROPORTIONAL REASONING	RATIO & PROPORTION –SCALING	RATIO & PROPORTION –SCALING
	simplify	ratio	proportion	ratio
	cancel	proportion	fraction	proportion
	common factors	fraction	compare	fraction
<u>.0</u>	compare	whole	ratio part	whole
と	fraction	part	whole	part
ō	fraction (of amount)	quantity	unit	quantity
Q	lowest terms	variable	share	variable
Q	multiplier	multiplier	simplify	multiplier
2	part	Per unit rate	common factors	per unit
-	part per whole	scale factor	cancel	rate
ĕ	proportion	similar	lowest terms	scale factor
al	proportion	enlargement	part per whole	similar
0	ratio	length, area and volume	multiplier	corresponding
Ę:	scaling up (or down)	perimeter	scaling up (or down)	enlargement
, D	share	relative	proportion	length, area and volume
22	unit	simplify	fraction (of amount)	perimeter
	whole	in simplest terms/form		
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Ц С				
<u>a</u>				
\geq				

Year 9 - HIGHER RATIO & PROPORTION -SCALING congruent/congruence similar/similarity transformation reflection rotation translation enlargement scale factor ratio (of sides) corresponding preserve preserve



Maths Curriculum Map – Geometry Vocabulary KS3



		Year 7		Yea	ir 8	Year 9 - S	UPPORT		Yea
	EXPLORING SHAPE	EXPLORING SHAPE	DESCRIBING POSITION	EXPLORING SHAPE	DESCRIBING POSITION	GEOMETRY & SHAPE	GEOMETRY -	GEOMETRY - SHAPE	vertio
	(acute-angled)	diagonal	angle of rotation	parallel lines	transformation	shape	MEASURING	2 dimensional	parall
	(obtuse-angled)	irregular	centre	transversal line	similar	dimensional	perimeter	3 dimensional	transv
	2 dimensional	mirror line	column vector	alternate angles	congruent	dimensional	distance	cube	altern
	3 dimensional	regular	combination	corresponding angles	enlargement	polyhedron	length	cuboid	corres
	angle	rotational symmetry	congruent	co-interior angles	centre of enlargement	cube	width	prism	co-int
	angles around a point	symmetry	describe	equal	rav	cuboid	dimension	pyramid	equal
	angles on a straight line	-,,	direction of rotation	prove	scale factor	prism	total	tetrahedron	prove
	cone	VISUALISING SHAPE	equation of line	polygon	integer	cross-section	km. m. cm. mm	cvlinder	polvg
	convention	(arc)	horizontal	regular/irregular	ratio	pyramid	composite shape	cone	regula
	cross-section	(sector)	image	sum	proportion	tetrahedron	compound shape	sphere	sum
	cube	(segment)	line	interior angle	describe	cylinder	dissect	point	interio
	cuboid	accurate	midpoint	exterior angle	object	cone	area	line	exteri
	cylinder	acute	object	angle sum	image	sphere	squares	vertex/vertices	angle
	edge	angle measurer	quadrant	vertices		point	formula	edge	vertic
	equilateral	centre	reflection			line	derive	plane	
	face	chord	rotation			vertex/vertices	rectangle	face	GEON
	isosceles	circle	segment	VISUALISING SHAPE		edge	parallelogram	surface	MEAS
	isosceles	circumference	transformation	scale		plane	trapezium	cross-section	perim
~	kite	construct	translation	scale drawing		face	triangle	parallel	distan
\leq	label	degrees	vertex	accurate ratio proportion		surface	nernendicular height	perpendicular	length
t.	line	diagram	vertical	similar		narallel	km2 m2 cm2 mm2	right angles	width
Ĕ	mark	diameter		hearing		perpendicular	volume	nolvgon	dimer
E E	notation: AB	draw		north (line)		right angles	cuboid/cube	regular polygon	total
0	notation: ABCD	equilateral		clockwise		nolvgon	nrism	lahel	km m
ŭ	notation: BAC	isosceles		construct		regular nolvgon	surface area	mark	comp
Ÿ	narallel	line		sketch		lahel	net	notation: BAC	comp
I	parallelogram	measure		hisect		mark		notation: AB	disser
~	perpendicular	nearest angle		nernendicular		angle		notation: ABCD	circle
a	plane	obtuse		locus/loci		triangle	DESCRIBING POSITION	convention	centre
5	point	narallel line		intersect		equilateral	transformation	angle	circun
ā	polygon	perpendicular line		equidistant		isosceles	similar	rhombus	radius
g	polygon	polygon		nlan		scalene	congruent	triangle	diame
2	prism	protractor		elevation		right-angled	enlargement	isosceles	ρί.π
Ч	property	radius		viewpoint		quadrilateral	centre of enlargement	property	sector
	pyramid	reflex		Isometric		square	rav	triangle	area
50	guadrilateral	regular				rectangle	scale factor	equilateral	squar
Ę	rectangle	right angle triangle				parallelogram	integer	isosceles	formu
20	regular polygon	scalene				rhombus	ratio	scalene	derive
2	rhombus	sketch				trapezium	proportion	right-angled	rectar
	rhombus	symmetry				kite	describe	(acute-angled)	parall
	right angles	-,,				polygon	object	(obtuse-angled)	trapez
	right-angled					regular	image	guadrilateral	triang
	scalene					irregular		square	perpe
	shape					diagonal		rectangle	km2.
	sphere					symmetry		parallelogram	annul
	square					mirror line		rhombus	volum
	surface					rotational symmetry		trapezium	cuboi
	tetrahedron					angles around a point		kite	prism
	trapezium					angles on a straight line		polygon	cross-
	triangle					vertically opposite		regular	right r
	triangle					equal		irregular	triang
	vertex/vertices					sum		diagonal	surfac
	vertically opposite							symmetry	surfac
								mirror line	net
								rotational symmetry	CUITVE
								angles around a point	km3
								angles on a straight line	
	-								

r 9 - CORE

cally opposite llel lines sversal (line) nate angles esponding angles terior angles gon lar / irregular

ior angle rior angle sum ces

METRY -SURING

neter nce h ension

m, cm, mm posite shape pound shape ct e mference s/radii eter

res ula /e ingle llelogram zium gle endicular height m2, cm2, mm2 ılus me id/cube s-section prism gular prism ce ice area ed surface cylinder m3, cm3, mm3

GEOMETRY -VISULASING

transformation rotation reflection translation describe vertex centre angle of rotation direction equation of line horizontal vertical column vector combination congruent object image similar enlargement centre of enlargement ray scale factor proportion describe vertical column vector combination congruent object image similar enlargement centre of enlargement ray scale factor proportion describe

Year 9 - HIGHER

GEOMETRY - SHAPE centre radius diameter circumference chord arc, segment sector tangent construct sketch bisect perpendicular locus/loci intersect equidistant plan elevation viewpoint isometric

GEOMETRY – MEASURING

Pythagoras' theorem right-angled triangle hypotenuse shorter side (leg) notation of right-angled notation of equal length sides prove square square root properties equal angles



Maths Curriculum Map – Algebra Vocabulary KS3



	Year 7	Year 8	Y	/ear 9 - SUPPORT			Year 9 - CORE		
	GENERALISING	GENERALISING	ALGEBRA – SIMPLIFYING	NUMBER AND	ALGEBRA - GRAPHING	ALGEBRA -	NUMBER AND	ALGEBRA - GRAPHING	ALGE
	ARITHMETIC	ARITHMETIC	operation	ALGEBRA - SEQUENCES	coordinate	SIMPLIFYING	ALGEBRA -	relative	expre
	addition	product	inverse (operation)	sequence	x coordinate;	term	SEQUENCES	coordinate	term
	collect like terms	quotient	addition	term	y coordinate	expression	sequence	x coordinate; y coordinate	expar
	distributive law	co-efficient	subtraction	term-to-term rule	(x, y)	simplify	term	(x, y)	produ
	division	power	multiplication	linear	quadrant	collect	term-to-term rule	quadrant x-axis; y-axis	simpl
	equation	index(indices)	division	first term	x-axis; y-axis	like terms	linear	origin	multi
	expand	law	sum	triangular (number)	origin	bracket	first term	horizontal	binor
	expression	simplify	difference	square (number)	horizontal	co-efficient	triangular (number)	vertical	distri
	formula	bracket	product	cube (number)	vertical	distributive law	square (number)	plot	quad
	identity	distributive law	quotient	arithmetic progression	plot	expand	cube (number)	vertices	coeff
	inverse (operation)	expand	power	term-to-term rule	vertices	factor	arithmetic	midpoint	facto
	multiplication	factor	index (indices)	position-to-term rule	midpoint	factorise	progression	intersection	facto
	operation	factorise	raising to a power	nth term	intersection	factorise fully	term-to-term rule	graph	facto
	raising to a power	common factor	term	pattern number	graph	common factor	position-to-term rule	table of values	comn
æ	simplify	notation	expression		table of values	notation	nth term	substitute	squar
2	subtraction	inequality	Simplify	ALGEBRA – SOLVING	substitute	inequality	pattern number	linear	differ
<u> </u>	term	equation	Collect	formula	linear	number line		straight line	squar
Ψ.		Formula	Like Terms	subject (of a formula)	straight line graph	equation	ALGEBRA – SOLVING	equation	equiv
			Bracket	equation	equation	identity	formula	relationship	ident
ব			Co-efficient	identity	relationship		subject (of a formula)	horizontal	equat
			Expand	term	function		equation	vertical	prove
>			Factor	expression			identity	gradient/slope/steepness	argun
a			Factorise	substitute			term	y-intercept	form
÷,			Factorise fully	evaluate			expression	intersection	subst
5			Common Factor	variable			substitute	solve	evalu
al			Notation	solve			evaluate	equation	
S				variable			variable	function	NUN
3				side			solve		ALGE
				Solution			variable		term
Ě				agual			solution		linoa
H				unknown			linear		arithr
5				inverse					anun
2				IIIVEISE			unknown		Fibon
							inverse		Fibon
							inverse		recur
									notat
									nositi
									nth te
									notat
									first d
									secon
									delta
									geom
									ratio
									multi
									conve
									diver

EBRA - SIMPLIFYING RATIO &

ession nd bracket luct olify iply over mial ibutive law Iratic ficient orise orise fully mon factor re rence of two res valent tity tion e/show ment nula titute uate

IMBER AND GEBRA - SEQUENCES

term sequence metic progression Iratic sequence nacci sequence nacci-type rrence relation tion tion (n) erm tion: t(n) differences nd differences a1, delta 2 netric progression iplier ergent rgent

Year 9 - HIGHER

RATIO & PROPORTION -FRACTIONS, DECIMALS, PERCENTAGES

percentage % multiplier mentally with a calculator single calculation increase decrease original amount inverse percentage change interest simple interest per annum invest(ment) proportion direct proportion inverse proportion multiplier scale factor linear function graph product fixed product congruent/congruence similar/similarity transformation reflection, rotation, translation, enlargement scale factor ratio (of sides) corresponding preserve unit standard unit compound unit per density mass pressure speed acceleration

ALGEBRA -

GRAPHING straight line equation function f(x) y=mx+c gradient y-intercept intersection parallel coefficient constant root solution intercept turning point vertex quadratic quadratic function graphically algebraically factorise cubic function inverse function reciprocal sketch plot graph plot linear equation solve solution intersect/intersection simultaneous equations variables elimination substitution set of points satisfied by solve graphically inequality system region region satisfied by intersection





	Year 7	Year 8	Year 9 - SUPPORT	Year 9 - CORE
	INVESTIGATING STATISTICS	INVESTIGATING STATISTICS	PROBABILITY	
	average: mean, median, mode	scatter graph	Probability	
	bar chart	connection	Chance	
	categorical data	correlation	Impossible	
	categories	positive correlation	Even	
	chart	negative correlation	Certain	
	classes/class intervals	no correlation	Likely	
	Compare	frequency diagram	Unlikely Outcome	
	continuous	frequency polygon	Event	
	data set	mode, modal	Experiment	
	discrete	class	Probability Scale	
	frequency	grouped data	Frequency	
	pictogram	frequency table	Frequency Tree	
S	pie chart	estimate	Sample Space	
Ü	spread: range	mean, median, range spread	List of Outcomes	
Ţ.	table	average	Expected	
	vertical line	central tendency	Theoretical	
at		variation	Experimental	
Ĵ,		sample	Bandom	
0,		Population	Repeated	
1				
2				
a			STATISTICS	
			data	
Ā			data set	
g			discrete	
O			continuous	
$\stackrel{\scriptstyle \lor}{\scriptstyle}$			grouped	
10			class	
Ě			class interval	
Ĵt			categories	
10			ungrouped	
2			tally chart	
			frequency table	
			chart	
			bar chart	
			pie chart	
			pictogram	
			categorical data	
			vertical line chart	
			frequency diagram	
			frequency polygon	
			stem-and-leaf diagram	
			key	
			average: mean, median, mode	
			modal class	



Maths Curriculum Map – Probability Vocabulary KS3



	Year 7	Year 8	Year 9 - SUPPORT	Year 9 - CORE
Maths Vocabulary – Probability	REASONING WITH FRACTIONS probability product proper fraction quotient random repeated scale simplest form simplify sum theoretical unit fraction unlikely whole	REASONING WITH FRACTIONS probability chance impossible even certain likely unlikely experiment probability scale outcome event exhaustive independent exclusive mutually exclusive frequency tree expected theoretical experimental random repeated experiment		



Maths Curriculum Map – Year 10 Support Vocabulary KS4



	Autumn	Spr	ing	Summer		
oulary	Autumn	Spr	ing		Summer	
10 Support Maths Vocab						
Year						





		Aut	umn		Spr	ing	Summer	
	CALCULATION	GEOMETRY (Continued)	ALGEBRA	RATIO AND PROPORTION				
	calculate	Rectangle	Operation	(Continued)				
	add, plus, sum, total	Parallelogram	Inverse (operation)	substitute				
	subtract, take away, difference	Rhombus	Addition, Subtraction,	evaluate				
	multiply, product	Trapezium	Multiplication, Division	variable				
	divide, quotient, dividend, divisor	Kite	Sum	solve				
	operation	Regular	Difference	variable				
	order of operations	Irregular	Product	side				
	brackets	Diagonal	Quotient	solution				
	square	Symmetry	Power	linear				
	cube	Mirror Line	Index (Indices) Law	equal				
	square root	Rotational Symmetry	Raising to a power	both sides				
	cube root	Angles around a point	Term	unknown				
	power index/indices	Angles on a straight line	Expression	inverse				
	simplify	Vertically opposite	Simplify	inequality				
	prime (number)	parallel lines	Collect	<, >, ≤,≥				
	highest common factor;	transversal (line)	Like Terms	number line				
	lowest common multiple	alternate angles	Bracket	solution set				
	prime factor (decomposition)	corresponding angles	Co-efficient	integer				
\geq	product of primes/prime	co-interior angles	Distributive Law	ratio				
g	factorisation	equal	Expand	proportion				
5	unique factorisation theorem	prove	Factor	fraction				
a		polygon	Factorise	whole				
ത്	GEOMETRY	regular / irregular sum	Factorise fully	part				
	Shape	interior angle	Common Factor	quantity				
$\stackrel{\scriptstyle{}}{\scriptstyle{}}$	2 dimensional	exterior angle	Notation	variable				
5	3 dimensional	angle sum	Inequality	multiplier				
Ċ	Cube	vertices	Number Line	per				
at		perimeter	Equation (identity)	unit				
Ë	Prism	distance		rate				
\leq	Totrahodron	width	PATIO AND PROPORTION	similar				
ຄ	Cylinder	dimension	fraction	corresponding				
ō	Cone	total	numerator	enlargement				
J	Sphere	km m cm mm	denominator	length				
\supset	Point	composite shape	part	area and volume				
-	Line Vertex/Vertices	compound shape	whole	perimeter				
	Edge	dissect	equivalent	relative				
	Plane	circle	unit fraction	simplify				
\succ	Face	centre	proper fraction	in simplest terms/form lowest				
	Surface	circumference	mixed number	terms				
	Cross-section	radius/radii	improper fraction	part per whole				
	Parallel	diameter	simplest form	scaling up (or down)				
	Perpendicular	pi,π	simplify	standard units				
	Right angles	sector	sum	convert				
	Polygon		difference	equivalent				
	Regular polygon		product	notation of right-angled				
	Label		quotient	notation of equal length				
				sides				
	Triangle		percentage	piove square(d)				
	Fauilateral I		out of	square root				
	isosceles		ner					
	Scalene		whole					
	Right-angled (Acute-angled)		part(s)					
	(Obtuse-angled)		formula					
	Quadrilateral		subject (of a formula) term					
	Square		expression					



Maths Curriculum Map – Year 10 Higher Vocabulary KS4



		Aut	umn		Spr	ing		Summer	
	CALCULATION	GEOMETRY		ALGEBRA					
	bound	triangle	centre of enlargement	Simplify	'				
	upper bound	trigon	ray	Algebraic Fraction					
	lower bound	Pythagoras' Theorem	scale factor	Numerator					
	measurement	right-angled triangle	inversion	Denominator					
	error interval	hypotenuse root	proportion	Factorise					
	compounded accuracy	(Pythagorean) triple	vector	Indices					
	power	trigonometry	magnitude	Brackets					
	root	opposite	direction	Expression					
	estimate	adiacent	notation	Quadratic					
	nearest	sine.cosine.tangent ratio	displacement	Factorise					
	squares/cubes	similar (triangles)	velocity	Surds					
	base number	exact value	acceleration	Linear					
	index/indices	denominator	coordinate	Binomial					
	unit fraction	numerator	plane	Product					
	non-unit fraction	arcsin or sin^-1	parallel line	Expand					
>	surd s	arccos or cos^-1	line segment	Cancel					
	simplify	arctan or tan^-1	proof	Divide					
<u> </u>	equivalent	surface area		Representation					
	rational irrational	net cube		Fluency					
2	rationalise (the denominator)	cuboid		Probing question					
ٽ	complement	prism							
C		cross-section							
>		curved surface area		RATIO AND PROPORTION					
\mathbf{v}		cylinder		numerator					
5		pyramid		denominator					
σ		cone		recurring decimal					
>		frustum		equivalent					
_		sector		terminating decimal					
υ		siant neight		rational number					
		sphere		irrational number					
		Bythagoras' Theorem		multiplior					
		volume		nercentage					
<u> </u>		similar		change					
		scale factor		compound interest					
σ		area scale factor		compounded					
υ		volume scale factor		original					
		proportion		growth decay					
		transformation		exponential					
		rotation		initial value					
		reflection		appreciate					
		translation		depreciate.					
		describe		directly proportional \propto					
		vertex		constant of proportionality					
		centre		multiplier					
		angle of rotation		inversely proportional					
		airection of rotation		reciprocal					
		column vector							
		complination							
		image							
		similar							
		enlargement							
		emargement	1	1	1	I	1		



Maths Curriculum Map – Year 11 Vocabulary (Autumn)



	Support						
	DATA: STATISTICS	PROBABILITY	NUMBER CALCULATIONS	DATA: STATISTICS	PROBABILITY	GEOMETRY: SHAPE	DATA: STATISTICS
	data	Probability	measurement	box plot	Probability		box plot
	data set	Chance	rounded	box and whisker diagram	Chance	triangle	box and whisker diagram
	discrete	Impossible	truncated	median	Impossible	trigon	median
	continuous	Even	error	maximum	Even	Pythagoras' Theorem	maximum
	grouped	Certain	inequality	minimum	Certain	right-angled triangle	minimum
	class	Likely	'to the nearest'	range	Likely	hypotenuse	range
	class interval	Unlikely	accuracy	upper quartile	Unlikely	root	upper quartile
	categories	Experiment	standard form	lower quartile	Experiment	surd	lower quartile
	ungrouped	Sample size	ordinary form	interquartile range	Sample size	Pythagorean triple	interquartile range
	tally chart	Tendency	power	outlier	Tendency	trigonometry	outlier
	frequency table	Probability Scale	Index	central tendency	Probability Scale	opposite	central tendency
	chart	Outcome	Base	spread	Outcome	adjacent	spread
	bar chart	Event	pi π	dispersion	Event	sine	dispersion
	pie chart	Exhaustive	in terms of	consistency	Exhaustive	cosine	consistency
~	pictogram	Independent	calculate exactly	compare	Independent	tangent	compare
a	categorical data	Dependent	formula	infer	Dependent	ratio	infer
n	vertical line chart	Exclusive	Substitute	variation	Exclusive	similar (triangles)	variation
ths Vocab	frequency diagram	Mutually Exclusive	evaluate	skew	Mutually Exclusive	exact value	skew
	frequency polygon	List	equation	positive/negative skew	List	denominator	positive/negative skew
	key	Systematically	identity	cumulative frequency	Systematically	Numerator	cumulative frequency
	central tendency	Frequency	expression	curve	Frequency	arcsin or sin^-1	curve
	average	Frequency Tree	expand	grouped data	Frequency Tree	arccos or cos^-1	grouped data
	mean	Tree Diagram	factorise	continuous data	Tree Diagram	arctan or tan^-1	continuous data
ຼງ	median	Branch	Simplify	estimate	Branch		estimate
\geq	mode	Expected		limitation	Expected		limitation
	modal class	Theoretical		histogram	Theoretical		histogram
nm	estimated mean	Experimental	GEOMETRY: SHAPE	frequency	Experimental		frequency
	variation	Random		class interval	Random		class interval
nt	spread	Repeated	Pythagoras' Theorem	equal and unequal	Repeated		equal and unequal
Ā	range	Experiment	right-angled triangle	distortion	Experiment		distortion
\leftarrow	compare	Biased	hypotenuse	construct	Biased		construct
H	sample	Unbiased	shorter side	frequency density	Unbiased		frequency density
JE	population	And	notation of right-angled	ratio (of frequency to class	And		ratio (of frequency to class
Ğ	scatter graph	Or	notation of equal length	width)	Or		width)
\succ	connection	Both	sides	area of bar	Both		area of bar
	correlation	Neither	prove	sample	Neither		sample
	positive correlation		square(d)	representative			representative
	negative correlation		square root	bias			bias
	no correlation			population			population
	causation			random			random
	line of best fit			stratified			stratified
	predict			double sampling			double sampling
	estimate						
	trend						
	Interpolate						
	Extrapolate						
			1		1		1

півнеі				
PROBABILITY	ALGEBRA: SOLVING			
Probability	quadratic equation			
Outcome	completed square form			
Event	coefficient			
Exhaustive	general quadratic			
Independent	vertex			
Dependent	turning point			
Exclusive	guadratic formula			
Mutually Exclusive	root			
Conditional	discriminant			
Two-way table	rearranging			
Venn Diagram	setting equal to 0			
Intersection ∩	numerical method			
Union U	approximate			
Not e.g. A'	Iteration			
List Systematically	x_0, x_1, x_2			
Frequency	x_n, x_{n+1}			
Frequency Tree	iterative formula			
Tree Diagram	diverge			
Expected	change of sign			
Theoretical	interval			
Experimental	interval bisection			
Random	(a, b) for an open interval			
Repeated	[a, b] for a closed interval			
Experiment				
Biased				
Unbiased	GEOMETRY: SHAPE			
	trigonometry			
	Pythagoras' Theorem			
	sine			
	cosine			
	tangent			
	ratio			
	arcsin			
	arcos			
	arctan			
	angle of elevation			
	sine rule			
	cosine rule			
	subject (of formula)			
	non-right-angled			
	proof			
	derive			
	perpendicular			
	area			
	PROBABILITY Probability Outcome Event Exhaustive Independent Dependent Exclusive Mutually Exclusive Conditional Two-way table Venn Diagram Intersection ∩ Union U Not e.g. A' List Systematically Frequency Frequency Tree Tree Diagram Expected Theoretical Experimental Random Repeated Experiment Biased Unbiased			



Maths Curriculum Map – Year 11 Vocabulary (Spring)



	Support			Core			Higher		
Year 11 Spring Maths Vocabulary									