

Number
Algebra
Ratio, Proportion and Rates of Change

Geometry and Measures

Probability and Statistics

Enlargement And Similarity
 Revisit similarity and enlargement.
Ratio and Proportion
 Revisit conversion graphs; Solve direct proportion problems; Inverse proportion; *Inverse proportion graphs*; Speed, distance and time; Density; Compound units; *Converting compound measures*

Year 9
Term 6

Year 9
Term 5

Maths and Money
 Revisit and extend Y7/Y8 work in the context of financial maths; Reverse percentages; Financial maths; *Repeated percentage change*; *Unit pricing problems*
Rotations and Translations
 Recognise rotational symmetry; Rotate points about a given point; Translate shapes and describe translations; *Perform a series of transformations*
Pythagoras
 Understand and use Pythagoras' theorem; Show that a triangle is right-angled; *Use Pythagoras' theorem in 3D shapes*; Prove a triangle is/isn't right angled; *Explore proofs of Pythagoras's theorem. Explore ratios in right angled triangles*

Solving Equations
 Change the subject of a formula; Testing algebraic conjectures; Expand a pair of binomials; *Change the subject of more complex formula*; Form and solve equations and inequalities with unknowns on both sides.
3D Shapes
 Surface area of cuboids and cylinders; Volume of cuboids, cylinders and other prisms; *Explore volume of cones, sphere and compound shapes*; *Surface area of prisms*; Properties of 3D shapes; 2D shapes in 3D shapes

Year 9
Term 4

Year 9
Term 3

Data Handling Cycle
 Revise and extend Y7/8; Collecting data; Multiple bar charts; Line graphs; Misleading graphs; Find the mode; Identify outliers; Compare distributions using statistical measures; *Find the mean from a grouped or ungrouped frequency table*
Straight Line Graphs
 Revise and extend Y7/8 coverage; Rearranging $y = mx + c$; Simplify, use and interpret $y = mx + c$; Parallel lines; *Solve simultaneous equations graphically*; *Explore perpendicular lines*

Number Sense
 Round to given numbers of dp and sf; Revisit and extend Y7/8 work including: Convert between units of time; Order of operations; Calculate with money; Use estimation; *Use error interval notation*; Review and extend Y7 work on metric units; *Covert area and volume measures*
Trapezium and Circles
 Area of trapezium; Area of a circle, circumference of circle; Area of compound shapes
Reflections
 Recognise line symmetry; Reflect shapes in a given line; Revise equations of lines
Indices
 Work with indices; *Explore powers of powers*

Year 9
Term 2

Year 9
Term 1

Fractions and Percentages
 Revise and extend Y7 coverage; Express on number as a fraction of another; Explore Calculator and non-calculator methods; Percentage increase and decrease; Using multipliers Express on quantity as a percentage of another, compare two quantities using percentages; Work with percentages higher than 100%; *Finding the original after percentage change*
Standard Index Form
 Revisit Y7 comparing and ordering; Write numbers of any size in standard form; *Use negative and fractional indices*
Angles in Parallel Lines
 Revise and extend Y7 notation; Revise and extend Y7 coverage; *Explore diagonals of quadrilaterals*; Revise Y7 coverage; Angles in parallel lines; Interior and exterior angles of polygons; *Angles formed by diagonals of quadrilaterals*; Find and prove simple geometric facts

Year 8
Term 6

Year 8
Term 5

Equations and Inequalities
 Revise and extend Y7 coverage; Solve inequalities; Form and solve equations with brackets; Identify and use formulae, expressions and identities and equations; Form and solve equations and inequalities
Sequences
 Revise and extend Y7 coverage to include more complex rules; *Find the rule for the nth term of a linear sequence*

Tables and Probability
 Review and extend Y7 coverage; Construct sample spaces for more than one event; Use sample spaces to find probabilities; Use tables and Venn diagrams to find probabilities; *Use the product rule for finding the total number of outcomes*
Brackets
 Revise and extend Y7 coverage to include more complex expressions
 Expand over a single bracket; Simplify expressions involving brackets; Identify and use formulae, expressions, identities and equations; *Expand a pair of binomials*

Year 8
Term 4

Year 8
Term 3

Working in Cartesian Plane
 Using coordinates; Plotting graphs: $y=k$, $x=k$; $y=kx$; $y=x+a$; $y=mx+c$; *Exploring gradient*; *Exploring non-linear graphs*
Representing Data
 Recognise different types of data; Construct and interpret frequency tables, grouper and ungrouped and two-way tables

Multiplicative Change
 Work with scale factors; *Conversion graphs*; *Direct proportion graphs* Understand and use scale factors; Scale diagrams and maps; Currency conversions; *Conversion graphs*; *Similar shapes*; *Direct proportion graphs*
Constructions
 Standard ruler and compass constructions; *Loci*; Explore congruency
Multiplying and Dividing Fractions
 Multiply and divide fractions; *Multiply and divide mixed numbers*

Year 8
Term 2

Year 8
Term 1

Developing Geometric Reasoning
 Angles at a point; Adjacent angles on a straight line; Vertically opposite angles; Angles in triangles and quadrilaterals; *Angles in parallel lines*; *Simple angle proofs*
Sets and Probability
 Use the language of probability; Calculate simple probabilities; Use the probability scales; Sample spaces; Understand and use set notations, including Venn diagrams; Know the sum of the probabilities is 1; *Complement of a set*
Prime and Proof
 Prime factorisation; HCF and LCM; Explore related algebraic expressions
Ratio and Scale
 Understand and use ratio notation; Divide into a ratio; Work out parts and wholes

Constructing, Measuring and Using Geometric Notation
 Geometric notation; Draw lines, angles and simple shapes; Parallel and perpendicular lines; Name and construct polygons; Properties of triangles and quadrilaterals; Construct and interpret pie charts

Year 7
Term 6

Year 7
Term 5

Number Continuation
Adding and Subtracting Fractions
 Add and subtract fractions including mixed numbers; *Simple algebraic fractions*

Fractions and Percentages of Amounts
 Find fractions of an amount (up to 1); *Solve problems with fractions greater than 1*; Find percentage of amounts using mental and calculator methods (up to 100%); *Explore over 100%*
Directed Numbers
 Order directed number ; Use the four operations with directed number; Revisit notation and substitution in the context of directed number; Revisit collecting like terms in the context of directed numbers; Form and solve two-step equations

Year 7
Term 4

Year 7
Term 3

Addition and Subtraction
 Solve perimeter problems; Solve problems with line charts and bar charts; Use the four operations with positive integers and decimals; Use a calculator
Multiplication and Division
 Areas of rectangles, parallelograms and triangles; *Area of trapezium*; Find the mean; Use factors and multiples ; Use the four operations with positive integers and decimals; Use a calculator; Multiply and divide by positive powers of 10; Order of operations; *Multiply by 0.1 and 0.01*

Place Value and Ordering
 Understand and use place value; Compare and order numbers; Round to powers of 10 and 1sf; *Write 1sf numbers in standard form*; Find the median and the range
Fractions, Decimals & Percentages
 Interchange between fractions, decimals and percentages up to 100%; *Explore over 100%*

Year 7
Term 2

Year 7
Term 1

Sequences
 Recognise linear and non-linear sequences
Algebraic Notation
 Function machines; Algebraic notation; Substitute into expressions; Represent functions graphically; Generate sequences from an algebraic rule.
Equality and Equivalence
 Understand the difference between equality and equivalence; Collecting like terms; Form and solve one-step equations

Start

Revision and practise papers

Recap previous topics learnt and following a revision programme focusing on identified topics from Pre-Public Examinations. Past papers and exam technique explored

Transforming and Constructing

Perform and describe line symmetry and reflection; perform and describe rotation and rotational symmetry; perform and describe translations; perform and describe enlargements including both positive and negative scale factors; identify transformations of shapes; identify invariant points and lines; perform standard constructions using a ruler and protractor or ruler and compasses; solve loci problems; understand and use trigonometric graphs; sketch and identify translations and reflections of the graph of a given function

Listing and Describing

Use the product rule for counting; use sample space diagrams to calculate probability; complete and use venn diagrams; construct and interpret plans and elevations; use data to compare distributions

Show that

Using a variety of different approaches to solve proofs and solve problems involving numbers, algebra, shape, angles, data, vectors and congruent triangles.

Expanding and Factorising

Expand and factorise single brackets; expand binomials; factorise quadratic expressions; factorise complex quadratic expressions; solve equations equal to 0; solve simple and complex quadratic equations by factorisation; complete the square; solve quadratic equations by using the formula

Changing the subject

Change the subject of a simple formula; change the subject of a known formula; change the subject of a complex formula; change the subject where the subject appears more than once; solve equations by iteration

Functions

Substitute into expressions and formula; Use function notation; understand how to use composite and inverse functions; draw graphs of quadratic functions; solve quadratic inequalities; understand and use trigonometric functions

Non-Calculator Methods

Mental and written methods to solve addition, subtraction, multiplication and division problems; Calculating fractions using all 4 arithmetic methods; calculate exact values; understand the difference between rational and irrational numbers; understand, use and calculate with surds; rounding to decimal and significant figures; estimating answers; understand upper and lower bounds; calculate and solve financial problems

Indices and Roots

Understand and recall square and cube numbers; understand powers of ten and standard form; calculate using standard form; understand how to add and subtract using indices; understand how to calculate with negative and fractional indices; understand the power of zero

Ratio and Fractions

Compare quantities using a ratio; share in a ratio; use ratio and fractions to make comparisons; use and solve problems in the form $1:n$ or $n:1$; solve ratio problems involving area and volume; line ratio to scales, graphs and algebra

Percentage and Interest

Convert and compare fractions, decimals and percentages; calculate percentage of an amount, percentage increase and decrease; express one quantity as a percentage of another; calculate simple and compound interest; understand repeated percentage change and reverse percentages; understand iterative process; solve problems involving growth and decay

Probability

Understand how to add, subtract and multiply fractions; calculate probability of single events; calculate relative frequency; understand how probability can be used in experiments; draw and interpret frequency trees; use probability trees and sample space diagrams to calculate probability; draw and interpret Venn diagrams

Representing solutions of equations and inequalities

Form and solve one step, two step, equations with unknowns on both sides and more complex equations; solve one step, two step and more complex inequalities; represent inequalities on a number line; draw straight line graphs; represent inequalities on a graph; solve quadratic equations by factorisation; solve quadratic inequalities.

Simultaneous Equations

Form and solve a pair of linear simultaneous equations through substitution and elimination; solve pair of linear simultaneous equations graphically; solve a linear and quadratic equation simultaneously algebraically and graphically

 Year 11
Term 6

 Year 11
Term 5

 Year 11
Term 4

 Year 11
Term 3

 Year 11
Term 2

 Year 11
Term 1

 Year 10
Term 6

 Year 10
Term 5

 Year 10
Term 4

 Year 10
Term 3

 Year 10
Term 2

 Year 10
Term 1

Revision and practise papers

Recap previous topics learnt and following a revision programme focusing on identified topics from Pre-Public Examinations. Past papers and exam technique explored

Multiplicative reasoning

Understand direct proportion; construct complex direct proportion equations; calculate with pressure and density; understand inverse proportion; construct complex inverse proportion equations; solve ratio problems

Geometric reasoning

Understand, recognise and calculate angles in shapes and parallel lines, interior and exterior angles in polygons; solve problems involving vectors; draw and solve problems involving circle theorems; review Pythagoras' theorem and using trigonometric ratios

Algebraic reasoning

Simplify complex expressions; find the nth term for linear and quadratic sequences; solve linear simultaneous equations; solve simultaneous equations with one quadratic; solve inequalities in two variables; formal algebraic proofs

Manipulating Expressions

Simplify algebraic expressions; add and subtract simple and complex algebraic fractions; multiply and divide simple and complex algebraic fractions; form and solve equations and inequalities with fractions; solve equations with algebraic fractions; represent numbers algebraically; algebraic proof and arguments

Gradients and Lines

Find the equation of a straight line; find the equation of straight line given two points; explore and find the equations of perpendicular lines

Non-linear graphs

Plot and read quadratic graphs, cubic graphs and reciprocal graphs; identify and interpret roots and intercepts of quadratics; understand and use exponential graphs; find the equation of a circle centre; find the equation of the tangent to any curve

Using Graphs

Reflect shapes in given lines; construct and interpret conversion graphs; construct and interpret distance/time graphs; recognise and interpret direct and inverse proportion as graphs; estimate the area under a curve; find approximate solutions to equations using graphs

Collecting, representing and interpreting data

Understand populations and samples; construct stratified sample; understand the difference between primary and secondary data; construct and interpret frequency tables, frequency polygons, two-way tables; construct and interpret line and bar charts; construct and interpret pie charts; construct and interpret histograms; calculate and interpret averages from a list and tables; construct and interpret time-series, stem and leaf and cumulative frequency charts; construct, interpret and compare box plots; draw and interpret scatter diagrams; Draw lines of best fit; understand extrapolation.

Angles and Bearings

Draw and interpret scale diagrams; understand, measure, draw and calculate with bearings; solve bearing problems using trigonometry, Pythagoras' theorem, Sine and Cosine Rule

Circles

Recognise and label parts of a circle; calculate length of an arc; calculate area of a sector; recognise, draw and solve problems involving circle theorems; understand and use the volume of a cylinder, cone and sphere; calculate the surface area of a cylinder, cone and sphere; solve area and volume problems involving similar shapes.

Vectors

Understand and represent vectors; draw and understand addition and subtraction of vectors; draw and understand vectors multiplied by a scalar; explore vector journeys in shapes such as quadrilaterals; understand parallel vectors; use vectors to construct geometric arguments and proofs.

Algebraic Representation

Recognise and draw quadratic, cubic and exponential functions; Recognise and present inequalities on a number line and graphically

Ratio and Proportion

Identify direct and inverse proportion; solve problems involving direct and inverse proportion; recognise, draw and sketch graphs of direct and inverse proportion; solve problems involving proportion.

Probability

Calculate probability of single events; calculate relative frequency; understand how probability can be used in experiments; draw and interpret frequency trees; use probability trees and sample space diagrams to calculate probability; draw and interpret Venn diagrams

Trigonometry

Understand and apply sine, cosine and tangent ratio to a right-angled triangle to calculate missing lengths and angles; calculate trigonometry using 3-D shapes; Calculate angles and lengths in non-right-angled triangles using the Sine and Cosine Rule; Calculate the area of a triangle using $\frac{1}{2}ab\sin C$

Start