| Subject | Maths | Year Group | 11 |  |  |  |  |  |  |  |  |  |
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|  | Unit 1 | Unit 2 | Unit 3 | Unit 4 | Unit 5 | Unit 6 | Unit 7 | Unit 8 | Unit 9 | Unit 10 | Unit 11 | Unit 12 |
| Scheme title | Equations \& Inequalities | Probability | Multiplicative Reasoning | Similarity \& Congruence | Further Trigonometry | Further Data | Sketching Graphs | Circle <br> Theorems \& Geometry | Further Algebra | $\begin{aligned} & \text { Vectors \& \& } \\ & \text { Prooof } \end{aligned}$ | Further RealLife Graphs | $\begin{gathered} \hline \text { Direct \& } \\ \text { Inverse } \\ \text { Proportion } \\ \hline \end{gathered}$ |
| Purpose of scheme | To be able to set up and solve quadratic equations and simultaneous equations and apply these to solve quadratic inequalities. | To be able to enumerate the likelihood of a single or multiple events occuring. | To be able to work with and make connections with concepts such as percentages, fractions and compound measures. | To identify and solve problems with similar shapes. To be able to correctly identify congruent shapes and reason mathematically. | To be able to work with trigonometrical concepts with non-right angled triangles | To be able to construct and complex statistical diagrams | To be able to sketch linear and non-linear graphs by identifying key information |  | To be able to interpret expressions as functions and notation. | To be able to <br> reaosn <br> mathematically <br> to solve <br> problems <br> involving <br> vectors. | To make connections with earlier work on proportional reasoning and graphs and extend this | To be able to set up and solve equations with directly and inversely proportion variables. |
| Knowledge in sequence | - Quadratic equations - Inequalities (inear and quadratic) - Simultaneous Equations | - Calculating probabilities - Probabiity of two events - Experimental probability - Venn diagrams and set notation - Frequency trees - Probability trees | - Percentages - Growth and decay - Compound measures - Distance, speed and time - Direct and Inverse | - Identify and work with scale factors <br> Similar lengths, areas and volumes <br> Congruence criteria | - Sine rule <br> - Cosine rule <br> - Area of triangle <br> - Trigonometric graphs |  | - Sketching <br> quadratics <br> -Sketching <br> reciprocal, <br> exponential and <br> cubic graphs | - Circle <br> Theorems <br> - Equation of a <br> circle | - Functions - ransslating and sketching functions | - Translations - Vector arithmetic - Geometrical proofs | - Estimating and <br> calculating area <br> under curves <br> - Estimating and <br> intepreting <br> gradient of | - Equations of direct and inversely proportional variables |
| Skills | - expanding products of two or more binomials <br> - factorising quadratic <br> expressions of the form $a \times 2+b x+c$ <br> - solve qua <br> algebraically <br> algebraically by factorising - including those that require rearrangement <br> - including completing the <br> square and by using the quadratic formula <br> - solve two simultaneous <br> equations in two variables (linear/linear) algebraically - find approximate solutions using a graph including linear/quadratic <br> - derive an equation (or two <br> simultaneous equations), solve the equation(s) and <br> solve the equation(s) and <br> interpret the solution <br> - solve linear inequalities in one variable <br> a number line solution set on - solve lin <br> one or two variable(s) and quadratic inequalities in one variable <br> - represent the solution set on a number line, using set notation and on a graph | - record, describe and analyse the frequency of outcomes of probability frequency trees <br> - apply ideas of randomness, fairness and equally likely events to calculate experiments <br> - relate relative expected frequencies to theoretical probability, using appropriate language and the 0 to 1 probability scale <br> - apply the property that the outcomes sum to 1 exhaustive set - apply the property that the mutually exclusive events sum to 1 - understand that empirical unbiased probability distributions, with increasing sample size - enumerate sets and combinations of sets systematically, using tables, grids Venn diagrams including using tree diagrams spaces for single and combined experiments with equally likely outcomes and use these to calculate - calculate the probability of independent and dependent combined and other representations, and know the underlying assumptions - calculate and interpret conditional using expected frequencies with two- | - change freely between related standard units (eg time, length, area, <br> volume/capacity, mass) and compound units (eg speed, rates of pay, prices) in numerical contexts <br> express a multiplicative relationship between two quantities as a ratio fraction <br> - define percentage as 'number of parts per hundred <br> - interpret percentages and percentage changes as a fraction or a decimal, and interpret these multiplicatively <br> - express one quantity as a percentage of another another <br> - compare two quantities using <br> percentages <br> - work with percentages greater than $100 \%$ 100\% <br> - solve problems involving percentage <br> change, including percentage <br> problems, and simple interest including in <br> financial mathematics <br> - use compound units such as speed, <br> rates of pay, unit pricing <br> - use compound units such as density <br> and pressure <br> - grow, solve and interpret the answers <br> in growth and decay problems, including <br> - 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 |  | - know and apply the sine rule, - know and apply the cosine rule, - know and apply Area $=1 / 2 \mathrm{absin} \mathrm{C}$ <br> - recognise, sketch and interpret graphs of trigonometric functions | - construct and interpret diagrams for grouped discrete data and continuous data, ie histograms with equal and unequal class intervals and curulative frequency graphs and know their appropiate use ainterrete analyse and compare data sets from boxplots, including quartiles and interquartile range - | - identify and interpret roots, turning points of quadratic functions graphically - deduce roots algebraically - deduce turning points by square - recognise, interpret graphs of linear functions and quadratic functions simple cubic functions and the reciprocal with $x \neq 0=1 / x$ - including functions $y=k x$ for positive values of $k$ | - apply and prove the standard circle theorems concerning tangents and chords, and use related results - recognise and use the equation of a centre at the origin - find the equation of a tangent to a circle at a given point | - where appropriate, apterpet simple expression as functions with fnnuts and outputs outset the reverpet reverse process as the inverse function' - interpret the succession of two functions as a composite function' -sketh translations and reflections of a given function | - describe translations as 2D vectors apply addition and subtraction of vetors, muttiptication of vectors by a scalar, and diagrammatic and column reppesentations of vectors -use vectors to construct geometric arguments and proofs | curvoc - plot and interpet 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 -calculate or estimate gradients of graphs and areas under graphs (including quadrataic and other non-linear graphs), and interpere results in cases such as distance- time graphs, velocity-time graphs and graphs in financial contexts interpet the gradient at a point on a curve as the | construct and interpret equations that describe direc proportion proportion |
| Key words | expand, product, binomial quadratic , factorise, solve formula, substitute discriminant, simultaneous, variable, linear, approximate | outcome, bias, sample, freqeuncy mutually exclusive , union, intersection relative frequency, experiment, dependent, independent dependent, independent |  | scale factor , ratio , proportion, multiplicative, constant of proportionality congruent, similar , area, volume , dimension dimension | sine , cosine , tangent, ratio , scale, formula, substitute , rearrange, reflection, function | box plot, <br> median, range, <br> quartie, <br> discrete, <br> continuous, <br> qualitative, <br> quantatative, <br> compare, <br> freauencrv | quadratic , cubic, roots turning point , recipriocal function, intercept |  | function , <br> substitute <br> inverse, <br> successive, reflection, <br> translation , axis | $\begin{aligned} & \text { vector, column } \\ & \text { vector, } \\ & \text { magnitude, } \\ & \text { direction, } \\ & \text { scalar, parallel } \\ & , \text { multiple } \end{aligned}$ |  | ratio, proporion square, cube root, direct inverse |
| Assessment Methods | AQA Topic Test |  | AQA Topic Test |  | AQA Topic Test | AQA Topic Test |  | AQA Topic Test |  |  |  |  |
|  | All content to be regularly revisited and assessed in starters and retrieval based homeworks. |  |  |  |  |  |  |  |  |  |  |  |

