## Maths Curriculum

## Curriculum Intent

At Iceni Academy we aim to celebrate, promote and enjoy mathematics. We want all our children to value and appreciate their mathematical learning, whether they are competitive or intrinsic thinkers, striving to complete their next step, trying for a personal best, or simply enjoying learning a new method or mathematical concept.

## Curriculum Implementation

| Year | When | Lead | Topic | Summary | Skills and Knowledge | Assessment for Learning | Big <br> Questions | Keywords |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 7 | A1 | KSA | Sequences | Find the next term, missing terms of linear, nonlinear and diagram sequences. | -Term to term rule, next/missing terms <br> -Sequences represented diagrammatically <br> -Common sequences <br> -Represent sequences graphically <br> -Linear and non - linear sequences | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -What is a linear sequence? <br> -What is the difference between a linear and a non-linear sequence? | -Linear <br> -Term to term rule <br> -Arithmetic <br> -Square <br> number <br> -Triangular <br> numbers <br> -Fibonacci |
| 7 | A1 | KSA | Addition and Subtraction | Add and subtract integers, decimals and negative numbers | -Integers - read, write, understand place value and number lines <br> -Decimals - place value, partition and number lines <br> -Compare and order integers and decimals - include inequality signs <br> -Formal methods for addition - integers <br> -Formal methods for addition - decimals <br> -Formal methods for subtraction - integers <br> -Formal methods for subtraction - decimals <br> -Relationships and inverse - mental arithmetic <br> -Perimeter of 2D shapes <br> -Financial maths <br> -Reading tables <br> -Understand negative numbers in context and representations <br> -Ordering negative numbers <br> -Adding and subtracting negative numbers | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -What are the common misconceptio ns when using the column method to add and subtract integers or decimals? <br> -How do you calculate the perimeter? | -Integer <br> -Perimeter <br> -Units <br> -Inverse |


| 7 | A2 | KSA | Multiplicatio n and Division | Multiply and divide integers, decimals and negative numbers | -Powers of 10 <br> -Multiply integers <br> -Divide integers <br> -Multiply by 0.1 and 0.01 <br> -Multiply decimals <br> -Divide decimals <br> -Divide by a decimal <br> -Multiply and divide negative numbers <br> -Multiply and divide negative numbers <br> -Area of rectangles and parallelograms <br> -Area of triangles <br> -Mean | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -How do we multiply decimals? <br> -How do we divide decimals? <br> -What is the formula for calculating the area of a rectangle, parallelogra $m$ and triangle? | -Integer <br> -Area <br> -Units <br> -Mean |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 7 | A2 | KSA | Factors and Multiples | Find the HCF and LCM | -Factors including prime numbers <br> -Multiples <br> -HCF <br> -LCM <br> -Square numbers/cube numbers/ square roots <br> -Powers | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -What is the difference between a factor and a multiple? | -Factor <br> -Multiple <br> -Prime <br> numbers <br> -HCF <br> -LCM <br> -Square <br> numbers <br> -Square roots |
| 7 | A2 | KSA | Order of Operations | Apply the correct order of operations to calculate answers | -Order of operations <br> -Order of operations problems | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -What is the order of operations? | -Brackets <br> -Indices <br> -Multiplication <br> -Division <br> -Addition <br> -Subtraction |
| 7 | SP1 | KSA | Geometry | Accurately measure, draw and construct | -Parallel and perpendicular lines <br> -Identifying and drawing polygons up to a decagon <br> -Measuring lines <br> -Measuring angles <br> -Construct triangles (ASA and SAS only) <br> -Construct quadrilaterals | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -What does it mean to construct? | -Construct <br> -Measure <br> -Accurately <br> -Parallel <br> -Perpendicular |


| 7 | SP1 | KSA | Fractions | Compare fraction and decimals <br> Add and subtract fractions | -Represent fractions - number lines, diagrams, tenth, hundredths... <br> -Express one quantity as a fraction of another <br> -Equivalent fractions <br> -Converting fractions - improper and mixed number <br> -Compare and order fractions <br> -Convert decimals to fractions <br> -Convert fractions to decimals <br> -Understanding parts per hundred - diagramically <br> -Convert between percentages and fractions including above 1 <br> -Convert between percentages and decimals <br> -Add and subtract (same denominator and denominator is multiple) <br> -Add and subtract (different denominators) | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -How do we convert between fractions and decimals? <br> -How do we add and subtract fractions? | -Simplify <br> -Mixed <br> number <br> -Improper <br> - Denominator <br> -Numerator |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 7 | SP2 | KSA | Algebraic Expressions | Simplifying expressions (adding and subtracting) and generating sequences | -Function machines - knowing the input and using the inverse for output <br> -Algebraic notation $-3 y=3 x y$ or $y+y+y, a b=a x b$ <br> -Form a function machine given a one or two step expression <br> -Represent one or two step functions graphically <br> -Collecting like terms <br> -Add and subtract simple algebraic fractions <br> -Substitution including fractions and negatives <br> -Generate sequences given an algebraic rule | - Questioning <br> - Retrievals <br> - Assessment 4 <br> - Annual assessment <br> - Homework | -What are like terms? | -Simplify <br> -Like terms <br> -Input <br> -Output <br> -Inverse <br> -Substitute |
| 7 | SP2 | KSA | Primes and Indices | Use prime decompositi on to find the HCF and LCM | -Prime factorisation <br> -Prime factorisation to find squares/ cubes. <br> -Use factors to simplify calculations <br> -LCM and HCF (introducing Venn diagrams) | - Questioning <br> - Retrievals <br> - Assessment 4 <br> - Annual assessment <br> - Homework | -How can we use prime decompositi on to find the HCF and LCM? | -Prime numbers -HCF <br> -LCM <br> -Venn diagram |
| 7 | SU1 | KSA | Fractions and Percentages of Amounts | Calculate fractions and percentages of amounts with and without a calculator | -Fractions of amounts <br> -Reverse fractions - find the whole amount given a fraction of the amount <br> -Express one quantity as a percentage of another <br> -Compare two quantities using percentages e.g compare and order FDP <br> -Percentages and fractions greater than 1 | - Questioning <br> - Retrievals <br> - Assessment 5 <br> - Annual assessment <br> - Homework | -How do we calculate percentages of amounts using a calculator? | -Percent <br> -Compare <br> -Quantity |


|  |  |  |  |  | -Percentage of an amount (non calculator) <br> -Percentage of an amount (with a calculator) <br> -Percentages as operators with and without a calculator <br> -Reverse percentages |  | -How do we calculate percentages of amounts without using a calculator? |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 7 | SU1 | KSA | Rounding and Estimations | Round to decimal places, significant figures and use this to make an estimation | -Nearest power of 10 <br> -Nearest whole number <br> -Decimal places <br> -Significant figures <br> -Estimation | - Questioning <br> - Retrievals <br> - Assessment 5 <br> - Annual assessment <br> - Homework | -What is a significant figure? | -Significant -Integer -Estimate |
| 7 | SU2 | KSA | Algebraic Expressions | Simplifying expressions (multiplying and dividing) including laws of indices, expanding and factorising | -Understand the difference between a variable, term and expression <br> -Understand the difference between expression, equation and formula <br> -Algebraic notation $a \times a=$, $a \times a \times a=$ etc <br> -Algebraic notation $a / b$, with and without brackets <br> -Collect like terms involving multiplication and division <br> -Laws of indices - products <br> -Laws of indices - division <br> -Laws of indices - powers <br> -Substitution <br> -Expand a single bracket (coefficient OR variable only) <br> -Expand a single bracket (coefficient AND variable) <br> -Expand and simplify multiple single brackets <br> -Factorisation <br> -Equivalence - show algebraic expressions are equivalent | - Questioning <br> - Retrievals <br> - Assessment 5 <br> - Annual assessment <br> - Homework | -What is the difference between an identity, formula, equation and expression? <br> -What are the rules for laws of indices? <br> -What is factorisation ? | -Expand <br> -Factorise <br> -Simplify <br> -Like terms <br> -Variable <br> -Equation <br> -Expression <br> -Formula <br> -Indices |
| 8 | A1 | KSA | Linear Equations | Solve equations | -Solve one step equations <br> -Solve two step equations <br> -Solve with brackets <br> -Solve with unknowns on both sides | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment | -How do we balance equations? | -Solve <br> -Inverse <br> -Balance <br> -Equations |


|  |  |  |  |  | -Expressions and equations from real life contexts | - Homework |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 8 | A1 | KSA | Angles | Recall and apply angle facts | -Angles around a point <br> -Angles on a straight line <br> -Vertically opposite angles <br> -Alternate angles <br> -Corresponding angles <br> -Angles Triangles <br> -Angles in quadrilaterals <br> -Angles in polygons <br> -Regular polygons | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -What angle facts can you recall and apply? | -Polygon <br> -Interior <br> -Exterior <br> -Sum <br> -Alternate <br> Corresponding <br> -Vertically <br> Opposite |
| 8 | A2 | KSA | Area and Perimeter | Calculate the area and perimeter of a variety of shapes including circles | -Unit conversions <br> -Composite shapes - perimeter <br> -Composite shapes - area <br> -Area of parallelograms and trapeziums <br> -Labelling parts of circles <br> -Circumference of a circle <br> -Area of a circle <br> -Composite shapes including parts of circles - area and perimeter | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -What are the units for perimeter and area? <br> -What are the formulas for calculating the area and circumferenc e of a circle? | -Composite <br> -Units <br> -Perimeter <br> -Area <br> -Tangent <br> -Radius <br> -Diameter |
| 8 | A2 | KSA | Percentages | Convert between fractions, decimals and percentages. <br> Calculate percentages of amounts and increase and decrease quantities. | -FDP conversions including improper fractions <br> -Percentages of an amount <br> -Percentage increase and decrease <br> -Percentage change <br> -Simple interest | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -How do we convert between FDP? <br> -What is simple interest? | -Increase <br> -Decrease <br> -Simple <br> interest <br> -Improper <br> fractions |


| 8 | A2 | KSA | Ratio | Calculate and apply ratios | -Equivalent ratios <br> -Sharing into a ratio <br> -Use ratio to find one quantity when one is known <br> -Write ratios as fractions <br> -Speed, distance, time <br> -Compound units such as unit pricing and density <br> -Use scale factors, scale diagrams and maps <br> -Draw and interpret scale drawings | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -What is the formula for calculating speed? | -Ratio <br> -Equivalent <br> -Scale factor |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 8 | SP1 | KSA | Fractions | Multiply and divide fractions | -Recap - mixed numbers, improper fraction, equivalence, simplifying <br> -Multiply a fraction by an integer <br> -Multiply fractions <br> -Divide a fraction by an integer <br> -Divide an integer by a fraction - introduce the reciprocal <br> -Divide fractions <br> -Recap - fractions of an amount <br> -Fractional increase and decrease | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -What is the method for multiplying fractions? <br> -What is the method for dividing fractions? | -Simplify <br> -Mixed <br> number <br> -Improper <br> - Denominator <br> -Numerator |
| 8 | SP1 | KSA | 2D Geometry | Construct lines, triangles and angles | -Constructions - line bisectors <br> -Constructions - angle bisectors <br> -Constructing triangles (SSS, SAS, ASA) <br> -Similarity <br> -Congruency <br> -Geometric Proof | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -What is the process for constructing an angle bisector? <br> -What is the difference between similarity and congruence? | -Similar <br> -Congruent <br> -Construct <br> -Bisect |
| 8 | SP1 | KSA | 3D Geometry | Properties of 3D shapes | -Properties of 3D shapes (faces, edges and vertices) <br> -Nets <br> -Plans and Elevations <br> -Isometric drawings <br> -Volume of a cube/cuboid <br> -Surface area of a cube/cuboid | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -What is surface area? <br> -How can we link nets to surface area? | -Net <br> -Plan <br> -Elevation <br> -Surface area <br> -Volume |


| 8 | SP2 | KSA | Statistics | Represent and interpret a variety of charts, graphs and tables | -Data handling cycle <br> -Questionnaires <br> -Tally Charts <br> -Bar Charts <br> -Pictograms <br> -Pie Charts <br> -Line Graphs <br> -Stem and Leaf <br> -Mode <br> -Median <br> -Mean <br> -Range <br> -Comparing distributions <br> -Scatter graphs | - Questioning <br> - Retrievals <br> - Assessment 4 <br> - Annual assessment <br> - Homework | -What is the difference between mean, mode, median and range? | -Average <br> -Range <br> -Tally <br> -Survey <br> -Bias <br> -Key <br> -Line of best <br> fit <br> -Correlation |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 8 | SU1 | KSA | Probability | Calculate probabilities from single events, two way tables and probability trees | -Probability scale <br> -Sample spaces <br> -Single events <br> -Combined events <br> -Frequency trees <br> -Probability trees <br> -Experimental probability <br> -Two way tables | - Questioning <br> - Retrievals <br> - Assessment 4 <br> - Annual assessment <br> - Homework | What is probability? <br> What is experimental probability? | -Chance <br> -Likely <br> Systematically <br> -Experimental |
| 8 | SU2 | KSA | Percentages | Use multiplier to increase, decrease and calculate compound interest | -Repeated percentage change <br> -Compound Interest <br> -Multiplier for increasing and decreasing <br> -Reverse percentages (calculator) <br> -Real life contexts - profit and loss <br> -Real life contexts - bank statements, debit, credit and balance -Income Tax | - Questioning <br> - Retrievals <br> - Assessment 5 <br> - Annual assessment <br> - Homework | -What is the difference between simple and compound interest? <br> -What is the formula for compound interest? | -Rate <br> -Compound <br> -Simple <br> -Multiplier <br> -Credit <br> -Debit <br> -Balance |
| 8 | SU2 | KSA | Algebraic Expressions | Simplify, expand, factorise and | -Collecting Like Terms <br> -Simplifying Expressions - multiply and divide | - Questioning <br> - Retrievals <br> - Assessment 5 | -Which method is best for | -Expand <br> -Factorise <br> -Coefficient |


|  |  |  |  | substitute <br> into <br> expressions | -Index Laws <br> -Expanding Brackets <br> -Factorisation - one bracket <br> -Expanding Double Brackets <br> -Factorise Double Brackets <br> -Forming Expressions <br> -Substitution | - Annual assessment - Homework | expanding double brackets? <br> -What is the method for factorising quadratics? | -Simplify |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 8 | SU2 | KSA | Linear Equations | Solve more complex linear equations | -Function Machines <br> -Solve simple equations <br> -Solve with brackets and unknowns both sides <br> -Solve equations with fractions <br> -Expressions, equations, formulae and identities <br> -Form and solve equations <br> -Rearrange simple equations <br> -Rearrange equations with roots and squares <br> -Substitution into formulae <br> -Compare coefficients to find unknowns <br> -Changing the subject - advanced <br> -Proof | - Questioning <br> - Retrievals <br> - Assessment 5 <br> - Annual assessment <br> - Homework | -What does it mean to 'change the subject'? | -Solve <br> -Equations <br> -Rearrange <br> -Substitute <br> -Coefficient |
| 9 | A1 | KSA | Percentages | Use multiplier to increase, decrease and calculate compound interest | -Repeated percentage change <br> -Compound Interest <br> -Multiplier for increasing and decreasing <br> -Reverse percentages (calculator) <br> -Real life contexts - profit and loss <br> -Real life contexts - bank statements, debit, credit and balance -Income Tax | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -What is the difference between simple and compound interest? <br> -What is the formula for compound interest? | -Rate <br> -Compound <br> -Simple <br> -Multiplier <br> -Credit <br> -Debit <br> -Balance |
| 9 | A1 | KSA | Algebraic Expressions | Simplify expressions, expand equations and | -Algebra: the basics <br> -Expanding single brackets <br> -Equivalence - show expressions are equivalent <br> -Substituting into formulae | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment | - What does expand mean? | -Expand -Simplify -Substitute |


|  |  |  |  | substitute into expressions |  | - Homework |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 9 | A1 | KSA | Linear Equations | Solve more complex equations | -Expressions, equations, formulae and identities <br> -Solve linear equations involving brackets, fractional and multipl <br> -Solve linear equations including unknowns on both sides <br> -Form and solve equations <br> -Worded problems <br> -Substitution <br> -Changing the subject <br> -Compare coefficients and solve to find unknowns <br> -Simple proofs | - Questioning <br> e-sReqsievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -What is the difference between an equation, expression and a formula? | -Solve <br> -Expression <br> -Equation <br> -Formula <br> -Substitute <br> -Rearrange |
| 9 | A2 | KSA | Ratio and Proportion | Use proportion and ratio to solve problems | -Direct Proportion <br> -Recipe problems <br> -Inverse proportion <br> -Best buys <br> -Sharing into a ratio <br> -Comparing ratio e.g. red:white and white:blue find red:blue <br> -Ratio problems <br> -Writing lengths, areas and volumes as a ratio <br> -Scale drawings <br> -Conversions <br> -Exchange rates | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -What is the difference between direct and inverse proportion? | -Direct <br> -Inverse <br> -Proportion <br> -Share <br> -Scale <br> -Convert |
| 9 | A2 | KSA | Standard Form | Perform operations involving standard form | -Ordinary to standard form <br> -Standard form to ordinary <br> -Ordering numbers in standard form <br> -Multiplying and dividing <br> -Adding and subtracting <br> -Using a calculator | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -How do we add and subtract using standard form? | -Simplify <br> -Convert <br> -Express <br> -Ascending <br> -Descending |
| 9 | SP1 | KSA | Sequences | Use and apply linear nth term | -Types of sequences (geometric and arithmetic) <br> -Linear and non-linear sequences including graphically <br> -Finding the term to term rule and continuing sequences <br> -Sequences from diagrams <br> -Linear nth term <br> -Generate a sequence using the nth term including quadratics | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -What is the nth term used for and how is it generated? | -Term <br> -Linear <br> -Sequence <br> -nth term <br> -Generate |


|  |  |  |  |  | -Use the nth term - is this number in the sequence? |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 9 | SP1 | KSA | Straight Line Graphs | Plot straight line graphs. <br> Calculate the gradient, equation of a line and link this to parallel lines | -Coordinates <br> -Simple graphs e.g. $y=x, x=3$ <br> -Table of values <br> -Table of values - including rearranged formats <br> -Identifying the gradient and $y$-intercept <br> -Finding the gradient (from a graph and from two coordinates) <br> -Finding the equation of a line <br> -Identify parallel lines from their equations <br> -Equation of the line through one point with a given gradient | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -What is the gradient? <br> -What is the relationship between the gradients of parallel lines? | -Gradient <br> - Y-Intercept -Parallel |
| 9 | SP1 | KSA | Real Life Graphs | Draw and interpret real life graphs | -Direct Proportion - conversion graphs <br> -Inverse proportion <br> -Drawing distance- time graphs <br> -Interpreting distance -time graphs | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -How is direct and inverse proportion shown graphically? | -Direct <br> -Inverse <br> -Convert |
| 9 | SP2 | KSA | Transformati ons | Apply and describe transformati ons | -Congruent shapes <br> -Translations <br> -Rotations <br> -Reflections <br> -Enlargements <br> -Enlargements with a centre <br> -Combination of transformations <br> -Describing transformations | - Questioning <br> - Retrievals <br> - Assessment 4 <br> - Annual assessment <br> - Homework | -What is a negative scale factor and what impact does this have on the transformati on? | -Rotate <br> -Reflect <br> -Enlarge <br> -Translate <br> -Describe <br> -Scale factor |
| 9 | SP2 | KSA | Inequalities | Solve inequalities | -Reading and writing inequalities <br> -Number lines <br> -Solving inequalities <br> -Forming and solving inequalities <br> -Solving with unknowns on both sides <br> -Solving 3 part inequalities | - Questioning <br> - Retrievals <br> - Assessment 4 <br> - Annual assessment <br> - Homework | -What is the difference between solving equations and solving inequalities? | -Solve <br> -Equal to <br> -Greater than <br> -Less than |
| 9 | SU1 | KSA | Quadratic Expressions | Expand and factorise quadratics | -Expand double brackets and define a quadratic <br> -Squaring a linear expression ( $x+1)^{\wedge} 2$ <br> -Expand a simplify e.g. $a(b x+c)(d x+e)+f(g x+h)(i x+j)$ <br> -Compare coefficients and solve to find unknowns | - Questioning <br> - Retrievals <br> - Assessment 4 <br> - Annual assessment | -What is a quadratic? | -Expand <br> -Quadratic <br> -Coefficient <br> -Factorise |


|  |  |  |  |  | -Factorise quadratic expressions of the form $x^{2}+b x+c$; <br> -Factorise quadratic expressions of the form $a x^{2}+b x+c$; <br> -Factorise quadratic expressions using the difference of two squares. | - Homework |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 9 | SU1 | KSA | Quadratic, Cubic and Reciprocal Graphs | Accurately plot and sketch quadratics and identify its properties | -Plotting quadratic graphs <br> -Properties of quadratic - graphs line of symmetry <br> -Properties of quadratic - graphs find approximate solutions using the graph <br> -Properties of quadratic - roots, intercepts and turning points <br> -Recognise and sketch simple cubic functions <br> -Recognise and sketch simple reciprocal functions $x \neq 0$ <br> -Recognise and sketch simple exponential functions; <br> -Solve problems involving inverse proportion shown graphically <br> -Represent growth and decay graphically | - Questioning <br> - Retrievals <br> - Assessment 4 <br> - Annual assessment <br> - Homework | -What does a quadratic look like graphically? | -Quadratic <br> -Turning point <br> -Roots <br> -Line of symmetry <br> -Parabola |
| 9 | SU2 | KSA | Probability | Calculate probabilities from trees and tables | -Combined events <br> -Venn diagrams <br> -Tree diagrams <br> -Relative frequency | - Questioning <br> - Retrievals <br> - Assessment 5 <br> - Annual assessment <br> - Homework | -What is relative frequency? | -Probability -Union -Intersection |
| 9 | SU2 | KSA | Pythagoras' <br> Theorem | Apply <br> Pythagoras' theorem | -Introduction - square and square roots <br> -Finding the hypotenuse <br> -Finding the shorter side <br> -Finding the hypotenuse and shorter side - mixed <br> -Multi step problems <br> -Apply Pythagoras to triangles drawn on a coordinate grid <br> -Find the length knowing two coordinates <br> -Leaving your answer in exact form <br> -3D Pythagoras' theorem | - Questioning <br> - Retrievals <br> - Assessment 5 <br> - Annual assessment <br> - Homework | -What is the formula for Pythagoras' Theorem? <br> -What is the hypotenuse? | -Hypotenuse <br> -Exact form |
| 9 | SU2 | KSA | Right Angled Trigonometr y | Calculate missing sides and angles using trigonometry | -Missing sides <br> -Missing angles <br> -Missing sides and angles - mixed <br> -Multi step problems <br> -Angle of elevation and depression <br> -3D trigonometry | - Questioning <br> - Retrievals <br> - Assessment 5 <br> - Annual assessment <br> - Homework | -What is the inverse function? <br> -What does SOH, CAH, | -Adjacent <br> -Hypotenuse <br> -Opposite <br> -Inverse |


|  |  |  |  |  | -Exact values <br> -Sketch and identify sin, cos and tan graphs |  | TOA stand for? |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 10F | A1 | KSA | Tables | Construct and interpret tables | -Two way tables <br> -Timetables | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -Why do we use two-way tables? <br> -What are the benefits? | -Represent <br> -Combine <br> -Probability |
| 10F | A1 | KSA | Sampling | Design a questionnair e and collect data | -Collecting data, understand sample and population -Questionnaires/surveys | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -What makes <br> a good questionnair e? | -Leading <br> questions <br> -Bias <br> -Sample size <br> Representativ <br> e |
| 10F | A1 | KSA | Averages | Calculate the averages from data in a table | -Averages for discrete data <br> -Combined mean problems for discrete data <br> -Ungrouped data - frequency tables <br> -Grouped data - frequency tables <br> -Averages from a bar chart <br> -Comparing two distributions <br> -Advantages and disadvantages of different averages | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -What is the process for estimating the mean? | -Estimate <br> -Grouped data <br> -Intervals <br> -Compare <br> -Averages |
| 10F | A1 | KSA | Charts and Graphs | Investigate the different ways of representing data | -Bar charts <br> -Composite bar charts <br> -Dual/comparative bar charts <br> -Line graphs <br> -Frequency polygons <br> -Pictograms | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | What are the benefits of a composite bar chart? | -Composite <br> -Frequency <br> -Key <br> -Dual |
| 10F | A1 | KSA | Pie Charts | Draw and interpret pie charts | -Reading pie charts <br> -Drawing pie charts | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -Can you use a protractor to draw an accurate pie chart? | -Construct <br> -Protractor <br> -360 degrees <br> -Represent |


| 10F | A2 | KSA | Scatter Graphs | Plot and interpret scatter graphs | -Drawing scatter graphs <br> -Interpreting scatter graphs | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -What is correlation? | -Correlation <br> -Line of best fit <br> -Relationship <br> -Plot <br> -Predict |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 10F | A2 | KSA | Properties of Shapes, Parallel Lines and Angle Facts | Recall and apply the angle facts | -Estimating and measuring angles <br> -Properties of 2D shapes including perpendicular lines <br> -Angle facts including vertically opposite <br> -Angles in triangles <br> -Angles in quadrilaterals <br> -Alternate angles <br> -Corresponding angles <br> -Symmetry and rotational symmetry | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -Which angle facts can you recall and apply? | -Estimate <br> -Alternate <br> Corresponding <br> -Rotational <br> symmetry <br> -Perpendicular |
| 10F | A2 | KSA | Interior and Exterior Angles of Polygons | -Calculate the sizes of interior and exterior angles | -Interior angles <br> -Exterior angles <br> -Solve angle problems <br> -Congruent shapes and understanding why some shapes tessellate | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -How do we calculate the sum of interior angles? | -Interior <br> -Exterior <br> -Sum <br> -Tessellate |
| 10F | A2 | KSA | Quadratic Equations | Expand, factorise and solve quadratics | -Expand to form a quadratic <br> -Factorise a quadratic <br> -Factorise a quadratic - difference of two squares <br> -Solve quadratics by factorising <br> -Identify the roots of a quadratic | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -How do we use factorising to solve quadratics? | -Expand <br> -Factorise <br> -Solve <br> -Roots |
| 10F | A2 | KSA | Quadratic Graphs | Accurately plot and sketch a quadratic and use this to highlight is properties | -Plot a quadratic graph <br> -Identify the roots, intercept, line of symmetry and turning point <br> -Find approximate solutions to quadratic equations using graph <br> -Interpret quadratic graphs from real life problems | - Questioning <br> frBftrieqral/bh <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -What properties can we identify once a quadratic has been plotted? | -Roots <br> -Solutions <br> -Parabola <br> -Turning point |
| 10F | SP1 | KSA | Right Angled Trigonometr y | Calculate missing sides and angles | -Finding the hypotenuse <br> -Finding the short side <br> -Mixture practice <br> -Given 3 sides prove it is/is not a right angled triangle | - Questioning <br> - Retrievals <br> - Assessment 2 | -What is the inverse function? | -Adjacent <br> -Hypotenuse <br> -Opposite <br> -Inverse |


|  |  |  |  | using trigonometry | -Apply Pythagoras with a triangle drawn on a coordinate grid -Calculate the length when given a pair of coordinates -Exam Style Questions | - Annual assessment - Homework | -What does SOH, CAH, TOA stand for? |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 10F | SP1 | KSA | Area and Perimeter | Calculate perimeter, area and surface area | -Perimeter of rectangles, triangles, parallelograms and trapezia <br> -Perimeter of compound shapes <br> -Solve perimeter problems using algebra <br> -Area of rectangles and triangles <br> -Area of parallelograms and trapezia <br> -Area of compound shapes <br> -Solve area problems involving algebra <br> -Surface area of cubes and cuboids <br> -Surface area of other prisms | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -What is the difference between area and surface area? | -Compound <br> -Prism <br> -Perimeter <br> -Area <br> -Units |
| 10F | SP2 | KSA | 3D Forms and Volume | Calculate surface area and volume of 3D shapes | -Identify 3D shapes and nets <br> -Volume of prisms <br> -Surface area of prisms including triangular prism, cube and cuboid <br> -Volume and surface area of shapes made from cubes and cuboids <br> -Convert between metric measures of volume and capacity e.g. $1 \mathrm{ml}-1 \mathrm{~cm} 3$ | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -How can we use nets to help calculate the surface area? | -Compound <br> -Prism <br> -Net <br> -Surface Area <br> -Units |
| 10F | SP2 | KSA | Probability | Calculate probabilities from trees and tables | -Probability scale and theoretical probability, <br> -Add simple probabilities and using 1-p (event not occurring) <br> -Sample spaces and listing systematically <br> -Probability from frequency tables and two way tables <br> -Record outcomes in a table and calculate relative frequency <br> -Probability from a Venn diagram <br> -Draw and use frequency trees <br> -Tree diagrams - two independent events | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -What is theoretical probability and how is it calculated? <br> -What is relative frequency? | -Chance <br> -Relative <br> Frequency <br> -Outcomes <br> -Theoretical |
| 10F | SU1 | KSA | Loci, Construction $s$ and Bearings | Use a compass, pencil and ruler to find regions | -Loci - a region bounded by a circle and an intersecting line and a given distance from a point and a given distance from a line <br> -Loci - equal distances from two points or two line segments and regions being defined as 'nearer to' or 'greater than' <br> -Interpret maps and scale drawings <br> -Bearings | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -What is the difference between an angle and a bearing? | -Loci <br> -Boundary <br> -Intersect <br> -Bisect |


|  |  |  |  | Use bearings to solve problems |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 10F | SU1 | KSA | Compound Measures | Work with speed, density and pressure | -Metric conversions for length, weight and capacity <br> -Convert between metric speed measures <br> -Convert between density measures <br> -Convert between pressure measures | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -What are the units for speed, density and pressure? | -Convert <br> -Rearrange <br> -Units |
| 10F | SU1 | KSA | Ratio | Solve a <br> variety of ratio problems | -Simplifying and equivalent rations <br> -Sharing into a ratio <br> -Knowing the difference <br> -Knowing one quantity <br> -Combining ratios <br> -Ratio problems | - Questioning <br> - Retrievals <br> - Annual assessment <br> - Homework | -How do we combine ratios? | -Ratio <br> -Equivalent <br> -Scale factor |
| 10F | SU2 | KSA | Similarity and Congruence | Name the rules of congruence | -Understanding congruence and solve problems using the rules <br> -Solve problems involving similarity in 2D shapes <br> -Understand the effect of enlargement on perimeter of shapes <br> -Know that scale diagrams, including bearings and maps are 'similar' to the real-life examples | - Questioning <br> - Retrievals <br> - Annual assessment <br> - Homework | -What is the difference between similar and congruent shapes? | -Similar <br> -Scale factor <br> -Congruent |
| 10F | SU2 | KSA | Primes and Indices | Use prime decompositi on to find the HCF and LCM | -Prime factorisation <br> -LCM and HCF | - Questioning <br> - Retrievals <br> - Annual assessment <br> - Homework | -How do we use a Venn diagram to find HCF and LCM? | -Prime numbers -HCF <br> -LCM <br> -Venn diagram |
| 10F | SU2 | KSA | Perimeter, Area and Volume | Calculate the area and missing lengths and angles of a sector <br> Calculate surface area and volume of 3D shapes | -Arc lengths of sectors <br> -Calculate the missing radius or angle (inverse) <br> -Area of sectors <br> -Calculate the missing lengths or angle (inverse) <br> -Volume of composite solids <br> -Surface area of composite solids <br> -Surface area and volume of spheres <br> -Surface area and volume of pyramids <br> -Surface area and volume of cones | - Questioning <br> - Retrievals <br> - Annual assessment <br> - Homework | -How do we calculate the area of a sector? | -Area <br> -Sector <br> -Radius <br> -Volume <br> -Surface area |


|  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 10 H | A1 | KSA | Indices | Introduce fractional and negative powers. <br> Change the base to solve equation | Index Laws recap <br> Fractional and negative indices <br> Changing the base <br> Solving problems involving index laws | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -What is the impact of a negative power? | -Reciprocal <br> -Index <br> -Power <br> -Base |
| 10 H | A1 | KSA | Surds | Manipulate and simplify surds | Simplifying surds <br> Multiplying surds <br> Multiplying surds with powers <br> Adding and subtracting surds <br> Expanding brackets with surds <br> Rationalising the denominator | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -What does it mean to rationalise? | -Simplify <br> -Root <br> -Expand <br> -Rationalise <br> -Conjugate |
| 10 H | A1 | KSA | Recurring <br> Decimals to Fractions | Convert a recurring decimal to a fraction | Convert a recurring decimal to a fraction | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -What is the algebraic process of converting a recurring decimal to a fraction? | -Recurring <br> -Terminating |
| 10 H | A1 | KSA | Change the Subject | Rearrange complex formulae to change the subject | Changing the subject <br> Changing the subject - involving factorising | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -What is the impact of factorising when rearranging formulae? | -Rearrange <br> -Factorise |
| 10 H | A1 | KSA | Linear Graphs | Identify the properties of parallel and perpendicula $r$ lines and use this to calculate the equations of these lines | Plotting linear graphs <br> $y=m x+c$, does this point lie on the line? <br> Equation of a line from a graph <br> Equation of a line between two points <br> Parallel lines <br> Perpendicular lines | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -What do we know about the gradients of parallel and perpendicula r lines? | -Parallel <br> -Perpendicular |


| 10H | A2 | KSA | Solving <br> Quadratics | Use 4 methods to solve a quadratic | Expand more than two brackets <br> Compare coefficients and solve to find unknowns <br> Factorising and solving quadratics including difference <br> of two squares <br> Factorising and solving quadratics - coefficients greater than one <br> Solving quadratics using the formula <br> Graphical quadratics - plot, sketch, find roots <br> Solving quadratics by completing the square | - Questioning <br> - Retrievals <br> - Assessment 1 <br> - Annual assessment <br> - Homework | -How does having a coefficient of x squared make factorising harder? | -Factorise <br> -Formula <br> -Completing the square -Graphing |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 10H | A2 | KSA | Simultaneou s Equations | Use elimination and substitution to solve a pair of simultaneous equations | Solve by elimination <br> Form and solve simultaneous equations <br> Solve by substitution <br> Solve by substitution involving quadratics <br> Solving simultaneous equations graphically | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -When is substitution used to solve simultaneous equations? | -Variable <br> -Unknown <br> -Substitute |
| 10H | A2 | KSA | Proportion | Solve direct and inverse proportion algebraically | Direct proportion Inverse proportion Set up and solve proportion problems | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -What are the formulas for direct and inverse proportion? | -Direct <br> -Inverse <br> -Constant |
| 10H | SP1 | KSA | Averages and Range | Calculate the averages from tables | Averages from (discrete) frequency tables <br> Quartiles and interquartile range for discrete data in a list or table <br> Averages from grouped frequency tables <br> Averages from ungrouped frequency tables <br> Averages from a bar chart | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -What is the process for estimating the mean? | -Estimate <br> -Grouped data <br> -Intervals <br> -Compare <br> -Averages |
| 10H | SP1 | KSA | Representing and Interpreting Data | Draw and interpret histograms, box plots and cumulative frequency graphs | Sampling - stratified, limitations, data handing cycle, types pf data <br> Drawing histograms <br> Interpreting histograms <br> Draw and interpret box plots <br> Drawing a cumulative frequency graph <br> Interpreting a cumulative frequency graph | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -What is frequency density? | -Cumulative <br> -Median <br> -Quartiles <br> -Frequency density |


| 10H | SP1 | KSA | Angles in <br> Polygons and Parallel Lines |  | Angles in parallel lines <br> Interior Angles <br> Exterior Angles <br> Problem solving questions involving by why polygons will tessellate | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | -How do we calculate the sum of interior angles? | -Interior <br> -Exterior <br> -Sum <br> -Tessellate <br> Corresponding <br> -Alternate |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 10H | SP2 | KSA | Pythagoras and Trigonometr y | Calculate missing sides and angles of right angled triangles | 3D Pythagoras <br> Right angled triangles - missing sides <br> Right angled triangles - missing angles <br> Find angles of elevation and depression <br> 2D and 3D trigonometry problems <br> Sketch and identify sin, cos and tan graphs <br> Exact values | - Questioning <br> - Retrievals <br> - Assessment 2 <br> - Annual assessment <br> - Homework | How do we know when to use Pythagoras or SOH, CAH, TOA? | -Adjacent <br> -Hypotenuse <br> -Opposite <br> -Inverse |
| 10H | SP2 | KSA | Perimeter, Area and Circles | Calculate the area of a sector and calculate the size of the radius and angle | Recaps circles <br> Calculate arc lengths of sectors <br> Calculate missing angles of sectors of circles given the arc length and radius, or find the missing radius given the arc length and angle <br> Area of sectors <br> Calculate missing angles of sectors of circles given the area and radius, or find the missing radius given the area of sector and angle | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -How do we calculate the area of a sector? | -Area <br> -Sector <br> -Radius <br> -Volume <br> -Surface area |
| 10H | SU1 | KSA | Bounds | Use error intervals to perform calculations | Find the upper and lower bounds including the error interval form Upper and lower bounds with real life measurements 4 operations with upper and lower bounds | maduestioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -Which values are selected when finding an upper or lower bound of a division? | -Error interval <br> -Upper <br> -Lower |


| 10H | SU1 | KSA | Loci, Construction and Bearings | Use a compass, pencil and ruler to find regions <br> Use bearings to solve problems | Draw and construct diagrams from given instructions, including the following: <br> -a region bounded by a circle and an intersecting line; <br> -a given distance from a point and a given distance from a line; <br> -equal distances from two points or two line segments; <br> -regions may be defined by 'nearer to' or 'greater than'; <br> -Find and describe regions satisfying a combination of loci; <br> -Use constructions to solve loci problems (2D only); <br> Use and interpret maps and scale drawings; <br> Estimate lengths using a scale diagram; <br> Make an accurate scale drawing from a diagram; <br> Use three-figure bearings to specify direction; Mark on a diagram the position of point $B$ given its bearing from point $A$; give a bearing between the points on a map or scaled plan; given the bearing of a point $A$ from point $B$, work out the bearing of $B$ from $A$; <br> Use accurate drawing to solve bearings problems; solve locus problems including bearings. | - Questioning <br> - Retrievals <br> - Assessment 3 <br> - Annual assessment <br> - Homework | -What is the difference between an angle and a bearing? | -Loci <br> -Boundary <br> -Intersect <br> -Bisect |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 10H | SU1 | KSA | Probability | Calculate probabilities from trees, Venn diagrams and tables | Two-Way Tables <br> Probability involving algebra <br> Venn Diagrams <br> Set Notation <br> Probability Trees <br> Conditional Probability | - Questioning <br> - Retrievals <br> - Annual assessment <br> - Homework | -How is probability calculated form a tree diagram? | -Chance <br> -Relative <br> Frequency <br> -Outcomes <br> -Theoretical <br> -Intersection |
| 10H | SU1 | KSA | Compound Measure | Work with speed, density and pressure | SDT <br> DMV <br> PFA <br> Mixed and Problem Solving | - Questioning <br> - Retrievals <br> - Annual assessment <br> - Homework | -What are the units for speed, density and pressure? | -Convert <br> -Rearrange <br> -Units |
| 10H | SU1 | KSA | Similarity and Congruence | Use and apply the rules of congruence | Congruence <br> Similarity <br> Effects of Similarity <br> Problem Solving | - Questioning <br> - Retrievals <br> - Annual assessment <br> - Homework | -What is the difference between similar and congruent shapes? | -Similar <br> -Scale factor <br> -Congruent |


| 10H | SU2 | KSA | Further Trigonometr y | Apply the Sine rule and the Cosine rule | Right-Angled Trigonometry recap <br> Sine Rule <br> Cosine Rule <br> Area Rule <br> Problem Solving <br> 3D Trig | - Questioning <br> - Retrievals <br> - Annual assessment <br> - Homework | -What is the sine and cosine rule? <br> -When do you use the sine and cosine rule? | -Adjacent <br> -Hypotenuse <br> -Opposite <br> -Inverse - |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 10H | SU2 | KSA | Vectors | Prove using vectors | Vector Notation <br> Represent Vectors <br> Length of a Vector <br> Sums and Scalar Multiples of Vectors <br> Geometry Problems <br> Vectors and Ratio <br> Proof | - Questioning <br> - Retrievals <br> - Annual assessment <br> - Homework | -How do we use vectors to show two lines are parallel? | -Parallel <br> -Straight line <br> -Multiple <br> -Scalar |
| 10H | SU2 | KSA | 3D Forms and Volume | Calculate the surface area and volume of 3D shapes and use these to solve complex problems | Volume of a pyramid <br> Volume of a cone <br> Surface area of a pyramid <br> Surface area of a cone <br> Volume and surface area of spheres <br> Complex shapes such as segments of circle and frustums of cones <br> Surface area and volumes of compound solids constructed from cubes, cuboids, cones, pyramids, spheres, hemispheres and cylinders <br> Form equations involving more complex shapes and solve these equations - problem solving | - Questioning <br> - Retrievals <br> - Annual assessment <br> - Homework | -How do we calculate the surface area of a pyramid? | -Surface area <br> -Volume <br> -Cone <br> -Pyramid <br> -Frustum |
| 11F | A1 | KSA | Trigonometr y | Find missing sides and angles of right angled triangles | Similarity <br> Labelling Tringles <br> SOHCAHTOA <br> Finding Sides <br> Finding Angles <br> Finding Sides and Angles <br> Multi step problems <br> Worded Problems | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -What is the inverse function? <br> -What does SOH, CAH, TOA stand for? | -Adjacent <br> -Hypotenuse <br> -Opposite <br> -Inverse |


|  |  |  |  |  | Angle of elevation and depression Sketch and identify sin, cos and tan graphs Exact values |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 11F | A1 | KSA | Vectors | Use correct notation to describe a vector <br> Draw vectors | Vector Notation <br> Represent Notation <br> Sum of Column Vectors <br> Scalar Multiples <br> Geometry Problems Proof | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -How do we draw a vector? | -Scalar <br> -Multiple <br> -Vector |
| 11F | A2 | KSA | Straight Line Graphs | Plot straight line graphs. <br> Calculate the gradient, equation of a line and link this to parallel lines | Simple graphs e.g. $y=x, x=3$ <br> Table of values <br> Table of values - including rearranged formats <br> Identifying the gradient and $y$-intercept <br> Finding the gradient (from a graph and from two coordinates) <br> Finding the equation of a line <br> Identify parallel lines from their equations <br> Equation of the line through one point with a given gradient | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -What is the gradient? <br> -What is the relationship between the gradients of parallel lines? | -Gradient <br> - Y-Intercept <br> -Parallel |
| 11F | A2 | KSA | Simultaneou s Equations | Use elimination, substitution or graphing to solve simultaneous equations | Elimination Substitution Graphically | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -When do we use elimination? | -Eliminate <br> -Variable <br> -Substitute <br> -Intersection |
| 11F | A2 | KSA | Bounds | Find the upper and lower bounds | Rounding to the nearest integer, ten, hundred etc. <br> Decimal places <br> Significant figures <br> Error intervals | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -What is an error interval? | -Upper <br> -Lower <br> -Error interval |
| 11F | A2 | KSA | Proof | Use algebra to prove/dispro ve statements | Algebraic proof | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -How do we use algebra to show an even number? | -Even <br> -Odd <br> -Consecutive |


| 11H | A1 | KSA | Quadratic <br> Sequences | Find the nth term of a quadratic | Generate terms of a quadratic sequence Find the quadratic $n$th term | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -What are the three expressions for quadratic nth term? | -Quadratic <br> -Difference <br> -Linear <br> -Coefficient |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 11H | A1 | KSA | Quadratic Inequalities | Solve quadratic inequalities | Recall solving quadratics <br> Solving quadratic inequalities | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -How is this similar to solving quadratic equations? | -Quadratic formula -Factorising |
| 11H | A1 | KSA | Graphing Inequalities | Show inequalities graphical and interpret the graph | Recall sketching quadratics Sketching quadratic inequalities Interpreting quadratic inequalities | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -When do you know to shade below or above the curve? | -Parabola <br> -Sketch |
| 11H | A1 | KSA | Circle <br> Theorems | Apply all of the circle theorems | Learn and apply the circle theorems Solve problems involving circle theorems | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -What are the circle theorems? | -Segment <br> -Radius <br> -Tangent <br> -Alternate <br> -Cyclic <br> quadrilateral |
| 11H | A2 | KSA | Circle Geometry | Know and apply the equation of a circle | Equation of a circle Equation of a tangent | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -What is the equation of a circle? <br> -What do we know about perpendicula rgradients? <br> -What do we know about a radius and a tangent? | -Tangent <br> -Reciprocal <br> -Radius |
| 11H | A2 | KSA | Function | Find inverse and composite functions | Introduction to functions <br> Inverse functions <br> Composite functions <br> Solve complex problems involving functions | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -What does $\mathrm{gf}(\mathrm{x})$ mean? | -Inverse <br> -Composite |


| 11H | A2 | KSA | Graph Transformati ons | Transform graphs algebraically | Transform graphs <br> Transform sin, cos and tan graphs | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -How do we know a graph has been reflected? | -Reflect <br> -Stretch <br> -Translate |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 11H | A2 | KSA | Algebraic Fractions | Perform operations and simplify algebraic fractions | Multiplying and dividing algebraic fractions Adding and subtracting algebraic fractions Simplifying algebraic fractions Solve complex fractions | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -How do you add algebraic fractions? | -Simplify <br> -Operations |
| 11H | A2 | KSA | Gradient and Area under a Curve | Find the area under a curve and the gradient at a point on the curve | Gradient of a curve <br> Area under the curve <br> Area under the curve - trapezium rule <br> Exam style questions | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -How do you calculate the gradient of a curve? | -Tangent <br> -Trapezium |
| 11H | SP1 | KSA | Iteration | Use iterative processes to estimate a solution | Show a solution is between two points Rearranging equations Perform the iterative process | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -Why are more iterative processes better? | -Rearrange <br> -Estimate -Show |
| 11H | SP1 | KSA | Growth and Decay | Solve problems involving growth and decay | Growth and decay problems | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -What is meant by growth and decay? <br> -When is it seen? | -Power -Rate -Pattern |
| 11H | SP1 | KSA | Proof | Prove/dispro ve statements using algebra | Algebraic proof | - Questioning <br> - Retrievals <br> - GCSE Exam <br> - Homework | -How do we use algebra to show two consecutive integers? | -Even <br> -Odd <br> -Consecutive |

