

Appendix 2 – Stage overviews

Stage G

Block 1	Place Value	<ul style="list-style-type: none"> Understand the place value of numbers up to 10 000 000 Read and write numbers up to 10 000 000 Use $<$, $>$ and $=$ signs to compare numbers up to 10 000 000 Order number up to 10 000 000 Interpret and represent numbers on numbers lines Count forward in whole number steps Count backwards in whole number steps
Block 2	Adding, subtracting and the bar model	<ul style="list-style-type: none"> Use number bonds to 10, 20 and 100 Introduce to the bar model and how it can be used for addition Add two numbers using column addition including carries Add sets of numbers using column addition including carries Introduce the bar model and how it can be used for subtraction Subtract two numbers using column addition including carries Subtract sets of numbers using column addition including carries
Block 3	Times tables and multiplication	<ul style="list-style-type: none"> Recall and use number facts for the 2, 5 and 10 times tables Recall and use number facts for the 3 and 4 times tables Recall and use number facts for the 6 and 7 times tables Recall and use number facts for the 8 and 9 times tables Recall and use number facts for the 11 and 12 times tables Multiplying two digit numbers by a single digit using long multiplication. Multiplying many digit numbers by a single digit using long multiplication.
Assessment of blocks 1-3		
Block 4	The fraction wall	<ul style="list-style-type: none"> Split shapes, objects or sets of objects into equal size parts Express proportions of shapes, objects or sets of objects using fractions Split 'wholes or ones' to create a fraction wall Look at equivalence on fraction wall Compare fractions within fraction wall using numerators Compare fractions within fraction wall using denominators Link understanding of fraction wall back to sets of objects.
Block 5	Multiplying, dividing and rounding integers	<ul style="list-style-type: none"> Multiply integers by 10 Multiply integers by 100 and 1000 Divide integers by 10 Divide integers by 100 and 1000 Round numbers up to 10 000 000 to the nearest 10 Round numbers up to 10 000 000 to the nearest 100 Round numbers up to 10 000 000 to the nearest 1000
Block 6	Negative Numbers	<ul style="list-style-type: none"> Understand the concept of negative numbers Count forwards and backwards in whole number steps involving negatives Compare positives and negatives Order positives and negatives in ascending or descending order Moving up and down the number line in integers Find the difference between two numbers involving negatives Solve problems in context involving negatives
Assessment of blocks 4-6		
Block 7	Measuring lengths and perimeter	<ul style="list-style-type: none"> Accurately measure lines in both cm and mm Accurately draw lines in both cm and mm Measure and calculate the perimeter of 2D shapes when dimensions are unknown Calculate the perimeter of rectangles when dimensions are known Calculate the perimeter of other rectilinear shapes when dimensions are known Finding perimeters of more complex shapes Calculating missing lengths from perimeter

Block 8	Division	<ul style="list-style-type: none"> Understand division as the process of sharing into groups Solve division problems by 'counting on' Solve missing number multiplication problems and establish link with division Recall and use times table facts to solve division problems Recall and use times table facts to solve more complex division problems Identify fractions of amounts by division Understand that multiplication is commutative and division is not
Assessment of blocks 7-8		
Block 9	Shapes and symmetry	<ul style="list-style-type: none"> Identify a line of symmetry of a 2D shape Identify a line of symmetry of a pattern and for a diagram of a reflection Use a line of symmetry to produce or complete a symmetrical pattern Know that a shape and its reflection are congruent Know and use the names of special types of triangle Know and use the names of polygons Compare and classify 2D shapes using given categories; e.g. number of sides
Block 10	Time	<ul style="list-style-type: none"> Read and write times using the digital 24-hour clock Write times using analogue 12-hour clock Convert between 12-hour time and 24-hour notation Solve problems involving converting from hours, minutes and seconds Solve problems involving converting from weeks to days Solve problems involving converting from years to months Know calendar facts and use to solve related problems
Block 11	Coordinates	<ul style="list-style-type: none"> Use coordinates to describe the position of a point in the first quadrant Plot points in the first quadrant using co-ordinates Use coordinates to plot a set of points to construct a polygon Link compass directions to coordinates Describe movements as translations of a given unit to the left/right Describe movements as translations of a given unit to the up/down Describe movements as translations of a given unit to the left/right and up/down
Assessment of blocks 9-11		
Block 12	Money	<ul style="list-style-type: none"> Recognise the value of coins and solve problems involving them Add amounts of money when the units are the same Add amounts of money when the units are different Subtract amounts of money when the units are the same Subtract amounts of money when the units are different Record a practical money problem using £ and/or p notation Solve practical problems that involve calculating change in manageable amounts
End of school Year tests assessing all work taught this academic year		
Block 13	Equivalent fractions	<ul style="list-style-type: none"> Express the relationship between quantities in a picture as a fraction Express the relationship between quantities in a table as a fraction Identify equivalent fractions from diagrams Find families of equivalent fractions Create diagrams to show families of equivalent fractions Calculate a unit fraction of an amount when the answer is an integer Calculate a non-unit fraction of an amount when the answer is an integer
Block 14	Presentation of data	<ul style="list-style-type: none"> Collect data and construct tally and frequency tables Interpret a pictogram where the symbol represents multiple items Construct a pictogram where the symbol represents multiple items Interpret a bar chart Construct a bar chart Interpret data in tables Answer two-step questions about charts and tables (e.g. 'How many more?')

Stage F

Block 1	Addition subtraction and the bar model	<ul style="list-style-type: none"> • Introduce to the bar model and how it can be used for addition • Addition of integers up to 10 000 000 using column method • Addition of integers and decimals up to 2 d.p. using column method • Introduce to the bar model and how it can be used for subtraction • Subtraction of integers up to 10 000 000 using column method • Subtraction of integers and decimals up to 2 d.p. using column method • Solving more complex problems using bar method
Block 2	Multiples, factors and primes	<ul style="list-style-type: none"> • Find multiples and common multiples by listing • Find factors and common factors by listing • Calculate and test whether numbers are prime or composite • Find prime factors and write prime factor decomposition of numbers • Find common multiples using prime factors • Find common factors using prime factors • Solve problems involving common factors and multiples
Block 3	Multiplication and division	<ul style="list-style-type: none"> • Mental methods for multiplication and division • Multiply numbers up to 10 000 000 by a single digit • Multiplication of 2 digit numbers by 2 and 3 digit numbers • Division of integers up to 1000 by single digits using long division • Division of integers by 2 digit numbers using long division • Division with remainders writing as fractions • Interpreting solutions to division in context
Assessment of blocks 1-3		
Block 4	Fractions	<ul style="list-style-type: none"> • What is a fraction and expressing using bar model • Identify equivalent fractions using common multiples • Simplify fractions using common factors • Compare fractions using common numerators • Compare fractions using common denominators • Order fractions • Understand fractions association with division and finding fractions
Block 5	Negative numbers	<ul style="list-style-type: none"> • Extending the number line and moving up and down • Combine positives and negatives • Add negative numbers to positives or negatives • Subtract negative numbers from positives or negatives • Multiplication involving positive and negative numbers • Multiplication involving positive and negative numbers • Order of operation involving positives and negatives
Block 6	Decimals and rounding	<ul style="list-style-type: none"> • Read, write and counting on in decimals, adding to number lines • Compare decimals giving explanations • Order decimals up to 4 d.p. • Round decimals to the nearest integer • Round decimals to 1 and 2 d.p. • Approximate using an informal method (not using significant figures) • Write decimals as fractions
Assessment of blocks 4-6		
Block 7	Angles	<ul style="list-style-type: none"> • Use a protractor to draw angles up to 360° • Use a protractor to measure angles up to 360° • Use the words acute, right, obtuse and reflex when describing angles • Know the angle sum for straight lines and points • Know the angle sum of a triangle and use to find missing angles • Know the angle sum of a quadrilateral and use to find missing angles • Find the missing angle in an isosceles triangle when only one angle is known

Block 8	Properties of shapes and solids	<ul style="list-style-type: none"> Know the definitions of special triangles Know the definitions of special quadrilaterals Classify 2D shapes using given categories; e.g. number of sides, symmetry Know the names of common 3D solids Use mathematical language to describe 3D solids Construct 3D solids from given nets Draw accurate nets for common 3D solids
Assessment of blocks 7-8		
Block 9	Area	<ul style="list-style-type: none"> Understand concept of area and approximate areas of complex shapes Calculate areas of rectangles Calculate areas of rectangle compound shapes Recognise that shapes with the same areas can have different perimeters Discover how area of triangles can be found Know that the area of a triangle is given by the formula $\text{area} = \frac{1}{2} \times \text{base} \times \text{height}$ Calculate the areas of more complex triangles
Block 10	Proportional reasoning	<ul style="list-style-type: none"> Identify when a comparison problem can be solved using multiplication or division Identify when a comparison problem requires both division and multiplication Use the value of a single item to solve a comparison problem Use ratio notation to describe a comparison of more than two measurements Identify when a ratio is written in its lowest terms and simplify using common factors Find a quantity using a ratio and another quantity Divide a quantity in two parts in a given ratio
Block 11	Fractions and percentages	<ul style="list-style-type: none"> Understand that a percentage represent a fraction of 100 Convert fractions to percentages and vice-versa Calculate fractions of amounts Use fraction equivalents to find a percentage of an amount Use non-calculator methods to find a percentage of an amount (combining %s) Increase quantities by a percentage Decrease quantities by a percentage
Assessment of blocks 9-11		
Block 12	Measurements	<ul style="list-style-type: none"> Reading Scales Understand and estimate and measure using metric measurements for length Understand and estimate and measure using metric measurements for weight Understand and estimate and measure using metric measurements for capacity Convert between metric units of length Convert between metric units of weight and capacity Solve problems involving lengths, weight and capacity
End of school Year tests assessing all work taught this academic year		
Block 13	Squares, cubes roots and order of operations	<ul style="list-style-type: none"> Identify square numbers and understand associated notation Identify triangular numbers and their links to square Identify cube numbers and understand notation Understand the meaning of square roots and links with squares Use trial and error/improvement to estimate square roots Use order of operations for $+$ $-$ \times \div $()$ Use order of operations with squares, cubes and roots.
Block 14	Averages and data	<ul style="list-style-type: none"> Understand the mean as a measure of typicality Calculate the mean of a set of data Use the mean to find a missing number in a set of data Understand that pie charts show proportions and calculate frequencies from angles Use a table of frequencies to work out angles and draw pie charts Use scaling when constructing line graphs Answer two-step questions about data in line graphs (e.g. 'How much more?')

Stage E

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Block 2	Multiples, factors and primes	<ul style="list-style-type: none"> • Find multiples and common multiples by listing • Find factors and common factors by listing • Calculate and test whether numbers are prime or composite • Find prime factors and write prime factor decomposition of numbers • Find common multiples using prime factors • Find common factors using prime factors • Solve problems involving common factors and multiples
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Assessment of blocks 1-3		
Block 4	Fractions	<ul style="list-style-type: none"> • What is a fraction and expressing using bar model • Compare fractions using numerators • Compare fractions using denominators • Order fractions • Identify equivalent fractions using common multiples • Simplify fractions using common factors • Understand fractions association with division and finding fractions
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Block 6	Decimals and rounding	<ul style="list-style-type: none"> • Read, write and counting on in decimals, adding to number lines • Compare decimals giving explanations • Order decimals up to 4 d.p. • Round decimals to the nearest integer • Round decimals to 1 and 2 d.p. • Approximate using an informal method (not using significant figures) • Write decimals as fractions
Assessment of blocks 4-6		
Block 7	Lines and angles	<ul style="list-style-type: none"> • Use notation for parallel lines and identify perpendicular lines • Know the meaning of 'regular' polygons • Identify line and rotational symmetry in polygons • Use AB notation for describing lengths and ABCDE notation for polygons • Use $\angle ABC$ notation for describing angles • Use ruler and protractor to construct triangles from written descriptions • Use ruler and compasses to construct triangles when all three sides known

Block 8	Algebraic thinking	<ul style="list-style-type: none"> • Know the meaning of expression, term and equation • Use letters to represent variables and basic algebraic notation • Identify like terms in an expression • Simplify expressions by collecting like terms • Know how to multiply a single term by a bracket • Substitute numbers into expressions and formulae • Use the order of operations correctly in algebraic situations
Assessment of blocks 7-8		
Block 9	Fractions	<ul style="list-style-type: none"> • Convert mixed numbers to improper fractions and vice versa • Apply addition to proper fractions, improper fractions and mixed numbers • Apply subtraction to proper fractions, improper fractions and mixed numbers • Multiply proper and improper fractions • Multiply mixed numbers • Divide a proper fraction by a proper fraction • Apply division to improper fractions and mixed numbers
Block 10	Solving equations	<ul style="list-style-type: none"> • Use the bar model to represent equations • Solve one and two step equations using the bar model looking at order • Introduce formal written method for solving one and two step equations • Solve two step equations when solution is a fraction • Solve equations involving brackets both ways • Solve three step equations with any type of solution • Check solutions to equations using substitution
Block 11	Sequences	<ul style="list-style-type: none"> • Use a term-to-term rule to generate linear and nonlinear sequences • Describe number sequences and find term to term rules • Use position-to-terms rule and use to generate a sequences • Find the position-to-term rule for a given sequence • Use position to term rules to create formulae for patterns • Use the nth term of a sequence to deduce if a given number is in a sequence • Generate a sequence using a spreadsheet
Assessment of blocks 8-11		
Block 12	Transformations	<ul style="list-style-type: none"> • Plot and describe coordinates in all four quadrants • Write equations of, identify and draw lines parallel to x and y axis • Identify and draw the lines $y = x$ and $y = -x$ • Reflect shapes in horizontal, vertical and 45° mirror lines • Find the equation of a mirror line for a given reflection • Use vectors to translate shapes • Carry out a rotation using a given angle direction and centre • Describe rotations using mathematical language
End of school Year tests assessing all work taught this academic year		
Block 13	Representations of solids	<ul style="list-style-type: none"> • Identify and define solids using vertices, edges and sides • Using isometric paper draw 2 dimensional representations of solids • Linking isometric drawing to nets of solids • Looking at 3D solids from different viewpoints • Drawing plan and elevations to represent solids • Using a plan and elevation to construct a solid • Linking between all representations
Block 14	Understanding averages	<ul style="list-style-type: none"> • Identify mean, medians and modes for sets of data. • Use mean, median and mode to find missing data within sets. • Identify scenarios where different averages could be used and limitations • Understand the range as a measure of spread (or consistency) • Calculate means from frequency tables and bar charts • Calculate modes, median and range from frequency tables and bar charts • Analyse and compare sets of data

Stage D

Block 1	Rounding and approximation	<ul style="list-style-type: none"> How and why to do we round numbers? What is a significant figure and how do we round using them? How do we round small numbers to significant figures? If an answer is given to a degree of significant figures what are the largest and smallest values this could take? How and why do we approximate? When approximating in what order should I do the calculation? How can approximation be used to solve problems?
Block 2	Formulae	<ul style="list-style-type: none"> How can formulae be used to show the relationship between measurements? What can be calculated from a formula? How do we use formulae to find a variable that is not the subject? Why is it sometimes useful to change the subject of formulae? In what order do we rearrange more complicated formulae? What do we do if we can't solve a problem algebraically? (trial and improvement) What steps do we have to show to fully justify our answers when using trial and improvement?
Block 3	Ratio and proportion	<ul style="list-style-type: none"> How can the relationship between two or more quantities be written as a ratio and can they be expressed in more than one way? What is the link between ratios and fractions? If we know the ratio between two quantities what else can we find? How do ratios on maps and scale drawings work? What is meant by direct proportion and how does this link to ratio? How can we use direct proportion to solve problems (including converting common metric and imperial measures)? How can we use proportion find which item represents the best value?
Assessment of blocks 1-3		
Block 4	Percentage change	<ul style="list-style-type: none"> How can calculators to find a percentage of an amount using multiplicative methods? How do we identify the multiplier for a percentage increase or decrease? How do we use calculators to increase or decrease an amount by a percentage using a multiplier? How do we solve repeat percentage problems using multipliers? How do we solve compound percentage problems? (including finding using index notation) Can we derive a formula for percentage change? How do we calculate the percentage change including percentage increase / decrease?
Block 5	Maps, bearings, constructions and loci	<ul style="list-style-type: none"> What are scale drawings used for and how are they made? How do we interpret scale drawings including maps? What are bearings used for and why do we need them? How do we construct triangles with given side lengths? How do we bisect lines and angles? How can we solve loci problems involving paths of objects? How can we solve loci problems involving where objects can be? (areas)
Block 6	Straight Line Graphs	<ul style="list-style-type: none"> How can we find corresponding x and y values for an equation How do we draw the graph of a linear equation written in terms of x and y? For equations in the form of $y=mx + c$ what effect does changing c have? For equations in the form of $y=mx + c$ what effect does changing m have? How do we find the gradient of a line segment? Can we identify an equation from its graph? What else can we spot about graphs just by looking at their equations?
Assessment of blocks 4-6		
Block 7	Perimeter of shapes	<ul style="list-style-type: none"> What is pi? How can we calculate the circumference of a circle How do we calculate the lengths of arcs? How do we calculate the perimeter of segments? If we know the perimeter of a sector can we calculate its radius or angle? How do we calculate the perimeter of circle composites? If we know the know the perimeter of a composite shape what can we deduce about the shape?

Block 8	Geometry and angles	<ul style="list-style-type: none"> What patterns can we spot when we have a set of parallel lines intersected by line segment? What language is used to describe angles on parallel lines and can we use are derived facts to solve problems How can we calculate the internal angles of regular polygons? What are external angles and how can they be calculated for regular polygons? What can we deduce about polygons from their external and internal angles? Can we solve problems involving non-regular shapes using what we have learnt about external and internal angles? What is tessellation and how can we identify if shapes will tessellate?
Assessment of blocks 7-8		
Block 9	Compound measures	<ul style="list-style-type: none"> Why is it important to be able to convert between different units of time? What is meant by speed and how is it calculated? What can we deduce about an object if we know its speed (finding distances and times) How can journeys be represented graphically? What is density and what problems can be solved using it? Are there any other compound measures?
Block 10	Probability	<ul style="list-style-type: none"> How do we calculate the theoretical probability of an event occurring? How can we compare probabilities How can probabilities be calculated from two way tables? How can probabilities be calculated using Venn diagrams? What is meant by relative frequency? How are theoretical probabilities and relative frequencies linked? (bias) How do we calculate how often we expect an event to occur?
Block 11	Area of shapes	<ul style="list-style-type: none"> How do we calculate the area of compound shapes? How do I calculate the areas of irregular shapes? How do we derive a formula for the area of a parallelogram? How do we derive a formula for the area of a trapezium? How do I derive a formula for the area of a circle? How do I find the area of shapes involving semi-circles and quadrants? How do I find the area of sectors?
Assessment of blocks 9-11		
Block 12	Volume and surface area of prisms	<ul style="list-style-type: none"> What is meant by volume? How do we calculate volumes of cuboids? What are prisms and how do we calculate their volume? Is a cylinder a prism and how do we calculate its volume? How do we calculate the surface area of cuboids? How do we calculate the surface area of other prisms? How do we calculate the area of the curved face of a cylinder?
End of school Year tests assessing all work taught this academic year		
Block 13	Pythagoras Theorem	<ul style="list-style-type: none"> What is the relationship between the lengths of the sides in a triangle? What are Pythagorean Triples? How can Pythagoras Theorem be used to find the hypotenuse of a triangle? How can Pythagoras Theorem be used to find other sides in a triangle? Can Pythagoras Theorem be used to solve problems involving non-right angled triangles (dropping a vertical and splitting in two) What problems can be solved using Pythagoras theorem? How can Pythagoras be used to prove if a triangle is right angled?
Block 14	Grouped and bivariate data	<ul style="list-style-type: none"> Why do we group continuous and discrete data in different ways? Is it possible to find the mean for grouped data? Can other averages be found from data which has been grouped? How can grouped data be represented graphically? How do we compare two sets of grouped data? How do we establish if there is a relationship between two separate variables? How do we describe the relationship between variables?

Stage C

Block 1	Quadratic Expressions	<ul style="list-style-type: none"> What areas are represented by quadratic expressions? In what ways can quadratic expressions be written? (double brackets) How do we factorise quadratic expressions with positive coefficients (where coefficient of x^2 is 1) How do we factorise quadratic expressions with positive or negative coefficients How do we draw graphs of quadratic functions? (Using calculator table function) What do quadratic graphs look like when the coefficient of x^2 is negative?
Block 2	Simultaneous equations	<ul style="list-style-type: none"> How do we draw the graph of a linear equation without calculating its coordinates How do find the point of intersection of two straight lines. How do we solve simultaneous equations graphically? How do we formulate simultaneous equations? How do we solve simultaneous equations using elimination when we have matching coefficients? How do we solve simultaneous equations when we have no-matching coefficients?
Block 3	Positive and negative Indices and Standard Form	<ul style="list-style-type: none"> What are the laws of indices How can the laws of indices be used to simplify algebraic expressions and fractions. What do negative indices mean? How are large numbers represented in standard form? How are small numbers represented in standard form? How do we add and subtract numbers written in standard form? How do we multiply and divide numbers written in standard form?
Assessment of blocks 1-3		
Block 4	Linear Inequalities	<ul style="list-style-type: none"> How can inequalities be used to represent information? How can inequalities be represented on a number line? What integers satisfy a given inequality? How do we solve inequalities? When we solve some inequalities do our answers not make sense (\times or \div by -ve) How do we solve inequalities with more than one inequality symbol? How can inequalities be used to solve geometry problems
Block 5	Quadratic equations	<ul style="list-style-type: none"> How do we solve basic quadratic equations graphically (LHS or RHS = 0) How can we solve a quadratic equation graphically when one side does not equal zero? How do we solve quadratic equations by factorising equations (LHS or RHS = 0) Do some quadratic equations need to be rearranged before they can be solved by factorising? Do all quadratic equations have two integer solutions? What is the quadratic formulae? What does it mean if the quadratic formula does not give us any solutions?
Block 6	Direct and inverse proportion	<ul style="list-style-type: none"> What is the difference between direct and inverse proportion? How can we tell if two quantities are directly proportional to each other? How do we formulate equations for direct proportion? How can we tell if two quantities are inversely proportional to each other? How do we formulate equations for inverse proportion? How do we solve problems involving non-linear direct proportion? How do we solve problems involving non-linear inverse proportion?
Assessment of blocks 4-6		
Block 7	Enlargement and similar shapes	<ul style="list-style-type: none"> How do we enlarge shapes using a centre of enlargement? Does enlarging a shape always make it bigger? Is it possible to enlarge a shape by a negative scale factor? What is meant by congruent and similar shapes? How are scale factors between similar shapes calculated? How can scale factors be used to find missing lengths in similar shapes How can we prove if two triangles are congruent?

Block 8	Trigonometry	<ul style="list-style-type: none"> What is the relationship between the lengths and angle of RA triangles? What are trig ratios? How can the trig ratios be used to find missing sides of RA triangles? How can we find sides if the unknown is the denominator? How can we find areas of RA triangles using trigonometry? How do we find angles in RA triangles using trig ratios? How can we solve problems featuring multiple triangles?
Assessment of blocks 7-8		
Block 9	Geometric and quadratic sequences	<ul style="list-style-type: none"> What is the difference between an arithmetic and geometric sequence? How do we find position to term rules for geometric sequences? What do the graphs of geometric sequences look like? What is a quadratic sequence and how can we generate them using position to term rules? How do we find the position to term rules for quadratic sequences? How can your understanding of quadratic sequences be applied in solving geometry problems?
Block 10	Set notation and probability	<ul style="list-style-type: none"> What is set notation? How can information given in set notation be used to find probabilities in Venn diagrams? How can listing outcomes allow us to calculate the probability of an event? (product rule for counting) What is a sample space diagram? How events be represented on a tree diagram? How can probabilities events be calculated using tree diagrams? How can probabilities of dependent events be calculated using tree diagrams?
Block 11	Proof	<ul style="list-style-type: none"> How do we show that two expressions are always equal? What is the difference between a proof and a demonstration? How can we write odd and even numbers algebraically? How can we show that an expression is a particular multiple? How can we describe consecutive numbers algebraically? How can we describe the relationship between other numbers on a number grid? What problems can be solved with proof?
Assessment of blocks 9-11		
Block 12	Cumulative frequency, and box plots	<ul style="list-style-type: none"> How do we find the median and quartiles for discrete data? What is the interquartile range and why is it useful? (discrete data) How do we calculate cumulative frequencies? How do draw cumulative frequency curves? What information can we find from a cumulative frequency curve? How do we draw box plots using data from a cumulative frequency graph? What conclusions can we make by comparing box plots?
End of school Year tests assessing all work taught this academic year		
Block 13	Volume and surface area	<ul style="list-style-type: none"> What solids do we know how to calculate the volumes of? How do we find the volumes of cones and pyramids? How do we find volumes of spheres? What solids do we know how to calculate the surface area of? How do we find the surface area of cones and pyramids? How do we find surface of spheres? How do we find the volume and SA of a frustum?
Block 14	Vectors	<ul style="list-style-type: none"> What is a vector and how can we write column vectors? How can we identify if two column vectors are parallel? What different notation is used for vectors? How do we add and subtract column vectors? How do we identify how to get from one point to another using algebraic vector notation? How can we identify if two algebraic vectors are parallel? How can we find the midpoint of a vector?

Stage B

Block 1	Rational and irrational numbers	<ul style="list-style-type: none"> What are rational and irrational numbers? How can we write recurring decimals as fractions and vice versa? What is a surd? How do we simplify surds? How do we add and subtract surds? How do we multiply and divide surds? What is meant by rationalising denominators?
Block 2	Completing the square	<ul style="list-style-type: none"> What methods have we learnt to solve quadratic equations? How do we draw graphs of quadratic functions? What parts of a quadratic graph are we able to sketch from the equation? What do we mean by 'completing the square'? How do we find the vertex of quadratic functions? How do we solve equations by completing the square? How do we sketch functions using completed square form?
Block 3	Circle theorems	<ul style="list-style-type: none"> What are the parts of a circle called? What angles are formed by a centre and a chord? How big is an angle that is subtended by a diameter? What properties do other angles subtended by chords have? What is a cyclic quadrilateral? What angle properties do tangents have? What is the alternate segment theorem?
Assessment of blocks 1-3		
Block 4	Speed/time graphs and kinematics	<ul style="list-style-type: none"> What is the difference between distance/time and displacement/time graphs? How do we draw speed/time and velocity/time graphs for journeys? What information can we find from a velocity time graph? What formulae can we derive from a velocity time graph? Can we derive any more formulae from our existing ones? How do we decide which kinematics formula to use to solve a problem? What happens if we get more one solution to a kinematics problem?
Block 5	Probability diagrams and conditional probability	<ul style="list-style-type: none"> What probability diagrams we know and how do we use them? How do we decide which is the most appropriate probability diagram? How can we convert between Venn diagrams, two-way tables and frequency trees? What is conditional probability and what notation do we use? How do we calculate conditional probability from our probability diagrams? What formulae can we discover for conditional probability?
Block 6	Algebraic fractions	<ul style="list-style-type: none"> What makes a fraction an algebraic fraction? Can we simplify algebraic fractions? How can factorising be used to simplify algebraic fractions? How do we multiply algebraic fractions? How do we divide algebraic fractions? How do we add/subtract algebraic fractions? How do we solve equations containing algebraic fractions?
Assessment of blocks 4-6		
Block 7	3d Coordinates, Pythagoras and trigonometry	<ul style="list-style-type: none"> How do we use Pythagoras' theorem and trigonometry in 2D? Can we use Pythagoras' theorem to find missing sides/lengths in cuboids? Can we use Pythagoras' theorem to find missing side/lengths in other 3D shapes? How can we use trigonometry to find missing angles within cuboids? How can we use trigonometry in other 3D shapes? What are 3D coordinates? Can we solve problems in a 3D Cartesian axis?
Block 8	Circle compounds	<ul style="list-style-type: none"> How did we find the areas of composite shapes involving sectors? How do we find the angle of a sector or its radii if we know its area? How did we find the perimeters of composite shapes involving sectors? How do we find the angle of a sector or its radii if we know the arc length? How do we find the angle of a sector or its radii if we know the perimeter? How do we solve volume problems involving prisms, cones, spheres and pyramids? How do we solve surface area problems involving prisms, cones, spheres and pyramids?

Assessment of blocks 7-8		
Block 9	Functions, cubic/reciprocal graphs and transformations	<ul style="list-style-type: none"> What is a function? What do we mean by a composite function? What is an inverse function? How do we draw the graphs of cubic functions? How do we draw the graphs of reciprocal functions? How can we show single translations or reflections of functions? How can we show multiple translation or reflections of functions?
Block 10	Sine rule, cosine rule and area of a triangle	<ul style="list-style-type: none"> How can we find the area of a triangle? Can we use the area to find a missing angle or side? What is the sine rule and where does it come from? How do we use the sine rule to find missing sides in non-right angle triangles? How do we use the sine rule to find missing angles in non-right angle triangles? What is the cosine rule and why do we need it? How do we use the cosine rule to find missing sides in non-right angle triangles? How do we use the cosine rule to find missing angles in non-right angle triangles?
Block 11	Graphs of inequalities and linear programming	<ul style="list-style-type: none"> How do we solve linear inequalities algebraically? How do we solve quadratic inequalities algebraically? How do we represent an inequality graphically? Can we solve linear inequalities graphically? Can we solve quadratic inequalities graphically? What is linear programming? How can we solve problems using linear programming?
Assessment of blocks 9-11		
Block 12	Quadratics and identities	<ul style="list-style-type: none"> How do we factorise and solve quadratic equations of the form $x^2 + bx + c$? How do we factorise quadratics when they have a coefficient of x^2? How do we solve quadratic equations of the form $ax^2 + bx + c$? How can we expand triple brackets? What is an identity? How can we use our knowledge of expanding brackets to find coefficients in an identity?
End of school Year tests assessing all work taught this academic year		
*Block 13	Further data analysis	<ul style="list-style-type: none"> What is meant by 'sampling' and why is it useful? What is a population and how does it differ from a sample? How can we spot trends in data over time? (Time series) What is a moving average? What is the difference between a frequency diagram and a histogram? How do we draw histograms with unequal class widths? What information can we find from histograms? (Medians)
*Block 14	Fractional indices, estimating powers and bounds	<ul style="list-style-type: none"> What do we mean by the upper and lower bounds of a number? (use the word truncate) Can we find the upper and lower bounds for numerical calculations? What laws of indices have we seen so far? What does it mean when the exponent is a unit fraction? How do we evaluate expressions with exponents of the form a/b? How do we solve equations containing indices? How can we use our knowledge of powers to estimate the roots of numbers?

Stage A (Year 11 only)

Block 1	Further quadratic and simultaneous equations	<ul style="list-style-type: none"> How do we complete the square when we have coefficients of x^2? How do we use completing the square to solve equations of the form $ax^2 + bx + c$? How do we choose which method we use to solve problems involving quadratic equations? (Discriminant)? What methods do we know for solving simultaneous equations? How do we solve simultaneous equations graphically where there is one linear and one quadratic? How do we solve simultaneous equations algebraically where there is one linear and one quadratic?
Block 2	Vectors and similar figures	<ul style="list-style-type: none"> How can we use our geometry skills to solve vector problems? How do we solve vector problems involving ratios? What is meant by 'collinearity' and how do we prove it? How do we solve more difficult similarity problems (including proofs)? How are scale factors for length, area and volume linked? How do we convert between different units for area and volume?
Block 3	Equations of perpendicular lines and coordinate geometry	<ul style="list-style-type: none"> What is a linear function and how can we find their equation? What mathematical relationships can two linear functions have? How do we find the equations of linear functions which are perpendicular? What is special about functions in the form $x^2 + y^2 = r^2$? How can we find equations of tangents to circles? How can we use our knowledge of circle theorems to tackle coordinate geometry problems?
Block 4	Fractional sequences, complex quadratic sequences and iteration	<ul style="list-style-type: none"> What notation should we use for term to term and nth term rules? How does the nth term rule change if the constant second difference of a sequence isn't 2? How do we find the nth term rule for sequences of the form $an^2 + bn + c$? What is a fractional sequence and how do we find the nth term rule? What is iteration and why is it useful? How can we use iteration to find roots of an equation? How can we find iterative forms of an equation? (rearranging to find converging sequences)
Block 5	Rates of change and areas under curves	<ul style="list-style-type: none"> What information can be extracted from speed/time graphs? How does variable acceleration impact on us calculating the distance travelled? How can we approximate the area under curves/functions? How do we find the rate of change for linear functions? (gradient) Will rate of change always be constant? How do we find the rate of change of non-linear functions? (graphically)
Block 6	Trigonometric graphs and equations	<ul style="list-style-type: none"> Can we solve trigonometry problems without a calculator? How can we derive the exact trig values? What is the value of $\sin 560^\circ$? What would the graphs of the functions sine and cosine look like? What does the graph of tan look like and what are asymptotes? How do we transform trigonometric graphs? How can we use the graphs to solve trigonometric equations within a given interval?
Revision onwards		