Mathematics

Curriculum Principles

By the end of their all-through education, a student of mathematics at Dixons Trinity Chapeltown will:

- know the fundamental skills in mathematics which allow students to understand how to use this knowledge in future learning and employment. These include money management; reading timetables; discovering and understanding patterns in data and being able to solve problems.

- recognise the beauty in sophisticated mathematical methods; be analytical thinkers and have a thirst for mathematical reasoning. On leaving Dixons Trinity Chapeltown, students will have developed fluency in procedures and be keen problem solvers.

Our uniting 'sentence' is: "The mathematics department at Dixons Trinity Chapeltown allowed students to question and explore the beauty of mathematics, leading to the development of resilient and analytical problem solvers."

In order to achieve a true understanding of mathematics, topics have been intelligently sequenced based on the following rationale:

- the overall aim of the all-through mathematics curriculum is to provide students with the knowledge they need to increase their cultural capital and be successful in their lives beyond the academy. With this in mind, throughout both Primary and Secondary, the schemes of work sequence topics in an order closely following that set out by the 'mathematics Mastery Programme'. Adopting a spiral curriculum, in which topic areas are revisited and extended on a yearly basis, this sequence of learning promotes a deeper understanding of the mathematical concepts being taught, both in-line with the National Curriculum and in the wider domain.

- within the classroom, all through, lessons roughly follow a six-part lesson format: Do Now, New Learning, Talk Task, Develop Learning, Independent Task, Plenary. In basecamp and lower peak, there is more emphasis on 'talk tasks' to develop deeper understanding whilst middle and upper peaks spend more time on practice and application to promote resilience and independence. Secondary lessons in middle peak synthesise knowledge learned in a lesson with an exam question and there is a greater emphasis on this in upper peak to provide students with applied practice, underpinned by real life contexts. In accordance with the curriculum overview, each peak throughout Primary and Secondary promotes a slight variation in pedagogy suitable to the students' developmental stage, whilst continuing to promote ambitious expectations for all pupils and educational equality throughout.

- the concept of interrupting the forgetting process permeates the all-through mathematics long term plan (LTP) and schemes of work (SOW). Interleaving and spaced learning are utilised in several ways. Across each year, new learning is split into units of work, each beginning with quick revision, then focussing on extension and application of similar learning the year before. As a result, students will consistently revisit topics (spaced learning) and interleave concepts throughout their mathematics career. In addition, in base camp and lower peak a daily mathematics meeting begins the learning each day. This focusses on revision of previous concepts using 'call and response' and targeted questioning in order to address students' gaps. Additionally, 'Fluency Fridays' allow Teachers to deliver bespoke intervention with students whilst also ensuring students are fluent in the fundamentals of mathematics. In Secondary, every lesson begins with a 'Do Now', which promotes recall of integral knowledge, along with applied practice, from topics in the previous unit of work, allowing for spaced practice of up to six weeks. In addition, each topic taught has a mini-test and consolidation or extension re-test attached to assess understanding. Staff mark all re-tests and gaps in learning are addressed through global feedback, with opportunity for targeted additional practice. These tests ensure learning is visited repeatedly. Spaced learning through retrieval practice and brain dumps in morning meetings and recall homework from knowledge organisers, are supplementary ways in which the forgetting process is interrupted, leading to true mastery of the mathematical curriculum.

The mathematics curriculum will address social disadvantage by addressing gaps in students' knowledge and skills:

- the spiral nature of the mathematics curriculum is designed with the most vulnerable student in mind, assuming a basic mathematical understanding from previous learning, each peak builds the students' knowledge. Middle peak in particular is used to ensure fluency in fundamental mathematics by closing any knowledge gaps evidenced in assessment, whilst also providing suitable extension.

- in Primary, students in need of intervention are targeted by close teacher observation and ongoing formative assessment. With a focus on students performing below age related expectations, frequent five minute interventions occur 1-to-1 with the main class teacher whilst other students complete the daily Maths Morning Meeting. These ensure gaps are closed as swiftly as possible.

- on entry, students in Y7 working below the nationally expected level are immediately targeted in interventions such as 'Morning Mastery' sessions. Priority is given to students recognised as disadvantaged and topics covered in these sessions are identified through baseline testing. Throughout the year, attendance and topics covered in intervention sessions are altered according to mini-test scores, question level analysis from cycle assessments and in-class effective formative assessment. In order to meet the needs of all students, additional staff from the Tutor Trust, an Ofsted accredited charity, are employed to deliver additional small group tutoring to address knowledge gaps. Again, priority is given to disadvantaged students for this additional intervention.

- oracy skills are developed through the exploration of functional questions all through. At Primary, emphasis is given to 'talk tasks' and explaining mathematical reasoning. At Secondary level, using techniques such as Lemov's Reading Reconsidered ensures full understanding of the context of a question, including any assumed 'real life' knowledge, before tackling the mathematics behind it.

In addition, in both Lower and Middle Peak, 'Rolling Numbers' and Times Table Rockstars encourage the drill like practice not every student is exposed to. Additionally, in Secondary, disadvantaged students are supported to succeed in mathematics through prioritised invites to Maths Homework club. Run weekly, this provides focussed time with a teacher after school where students can have access to a computer in order to master the skills set in the homework.

- students with special educational needs or disabilities have additional support. Over timetabling and double staffing are used all through to target this cohort to help close any gaps. Such students also receive further intervention through 'Morning Mastery' and 'Prep'. All students access the same curriculum, and we have the highest expectations of all. We teach to the top with scaffolding and support for those who need it in order to allow all students to achieve and experience the very best of what has been thought and said.

We fully believe mathematics can contribute to the personal development of students at DTC:

- students will be encouraged to develop socially in mathematics lessons through the celebration of making mistakes and setting high expectations helps students to develop listening and speaking skills. Taking part in 'The Maths Challenge' and 'Dixons Group Cup' events also encourages teamwork in problem solving. Self-awareness is developed through self-assessment, which enables students to have an accurate understanding of their strengths and weaknesses, to accept them and the understand how to learn from them. Additionally, students are encouraged to tutor other students in Hegarty Maths and TTRS clubs, developing further their social interaction skills in a professional manner.

- developing morality is evident in much of the mathematics curriculum where there is reference to real life contexts and students are encouraged to make decisions thus developing an understanding that certain choices may have different consequences and outcomes. One example where this applies is in percentages where comparing interest rates occurs and the role of 'loan sharks' can be discussed. Additionally, topics such as tracking and how the media use misleading statistical diagrams are also addressed.

- encouraging students to question how mathematics impacts the way the world works promotes the spiritual growth of our students. Referring to 'big issues' such as the gender pay gap, birth and death rates, gambling through probability and global warming within contextual questions allows students to have a concrete understanding of where mathematics fits into the bigger picture. Teaching a variety of strategies that allow creativity to blossom (i.e. construction and symmetry) and incorporating enrichment tasks during Maths Week such as money management and sport investigations allow students to develop more than just their problem solving skills in this subject.

- being a universal language, and having phenomena developed all over the world, lends mathematics to promoting cultural capital. Discussion when introducing many topics, such as place value, time, Fibonacci sequences, Pythagoras and Trigonometry to name a few, allows cultural influences to be explored.

At KS2, KS3 and KS4, our belief is that homework should be interleaved revision of powerful knowledge that has been modelled and taught in lessons. This knowledge is recalled and applied through a range of low-stakes quizzing and practice.

Opportunities are built in to make links to the world of work to enhance the careers, advice and guidance that students are exposed to:

- the mathematics curriculum provides students with opportunities to consider the world of work and how mathematics leads to successful careers. Each LI has a purpose attached for all students to see and, where relevant, the SoW refers to how the skill in question relates to specific careers or a future life context. For example, when teaching constructions, reference can be made to any form of design work or navigational career. Every unit of work also contains a careers spotlight where students are introduced to a variety of careers, which utilise the learning of the unit. Information about qualifications needed, salaries and career progression are also referenced.

- students have the opportunity to visit, and be visited by, mathematics specialists such as Dr Katie Chicot and mathematicians from companies such as Explore Learning through the ongoing collaborative work of the Dixons Group Maths Leads. Additionally, map and scale reading skills developed as part of the Duke of Edinburgh Award, which all children participate in, further develops mathematical skill.

A true love of mathematics involves learning about various cultural domains. We teach beyond the specification requirements, but do ensure students are well prepared to be successful in GCSE examinations:

- built into each Secondary SOW is content that will benefit students in their understanding of the wider impact of mathematics. For example, in Y7 students will recap telling the time and its Babylonian origins, explore where our place value systems came from and be introduced to Fibonacci and the 'Golden Ratio'. In Y8, students will discover Venn diagrams and the nuances of interest rates through percentages. Y9 and Y10 offer an insight into the history of Pythagoras Theorem and the origins of Trigonometry. Whilst not strictly appearing on the GCSE specification, providing this additional information will allow students to build their cultural capital and deepen their understanding into the true beauty behind the mathematics they learn.

- in Y5 to Y8, students take part in Maths Week during Cycle 1. A variety of enrichment activities are provided to complement their mathematics lessons to allow students to further explore the domain of mathematics. Such activities include Roman Numerals, symmetry in Mandala patterns, code breaking, visits from external companies running problem solving activities and tasks such as 'setting up your life'.

Curriculum Overview

All children are entitled to a curriculum and to the powerful knowledge that will open doors and maximise their life chances. Below is a high-level overview of the critical knowledge children will learn in this particular subject, at each key stage from Reception through to Year 11, in order to equip students with the cultural capital they need to succeed in life. The curriculum is planned vertically and horizontally giving thought to the optimum knowledge sequence for building secure schema.

Review of topics is a continual process; in Primary, daily Maths meetings recapping knowledge covered in previous units occurs and in Secondary, every lesson has a Do Now that recaps knowledge covered in the last unit covered. All through, these reviews are an opportunity to close gaps of specific students identified through intervention planning and continual effective formative assessment.

		Knowledge, skills and understanding to be gained at each stage*		
		Cycle 1	**Cycle 2**	**Cycle 3**
EYFS	**New learning**	**Early mathematical experiences** Classifying; matching; comparing; ordering **Pattern, shape and early number** Recognise, describe, copy patterns; 3-D shapes; position; count up to 6 objects reliably; one more/one less; concept of zero; addition and subtraction within 6 **Measures, length and time** Capacity, size and length of every day objects using every day vocabulary; weeks, seasons, time; ordinal language	**Numbers** Numbers up to 10: count, represent, recognise and order; addition and subtraction, augmentation and reduction Numbers up to 15:explore, represent, count and order; grouping and sharing Numbers within 20: investigate number combinations; ordinal numbers; double and half	**Shape and pattern** Describe / sort shapes; recognise, continue and create pattern **Addition and subtraction** Commutativity; comparing two amounts; doubling and halving **Money and measures** Compare / describe coins capacities, volumes, weights and lengths **Number** Different representations; recognise and extend a pattern; recognise, compare and say numbers to 50
YEAR 1 Manipulation and making links	**New learning**	**Number** Numbers up to 20: identifying, comparing, ordering, doubling, halving, addition, subtraction and number bonds **Shape and pattern** Common 2D and 3D shapes; positioning; instructional language	**Number** Telling the time; exploring calculation strategies within 20; numbers to 50; addition and subtraction within 20 **Fractions and measures** Recognise and find a half, one quarter; compare lengths and masses; measure and record	**Number** Numbers 50 to 100 and beyond; counting in 1s / 5s / 10s; place value; add / subtract beyond 20; multiply and divide **Money and measures** Recognise value of coins and notes; add / subtract with money; compare, describe and measure capacity / volume
YEAR 2 Manipulation and making links	**New learning**	**Number** Numbers within 100; add and subtract 2-digit numbers; addition and subtraction word problems; multiply and divide by 2 / 5/ 10 **Measures and graphs** Measuring length: cm, m; reading scales; tally charts; pictograms; tables; totalling	**Number** Time; simple fractions of objects; equivalent fractions; 2-digit calculation, including regrouping / adjusting; money **Geometry** Faces; shapes and patterns; lines; turn; positional language	**Number** Numbers within 1000; exploring calculation strategies, including mental and formal written methods; multiply / divide by 3 / 4 **Measures** Capacity and volume measures; appropriate measures for mass; read scales up to 1000
YEAR 3 Building independence and autonomy	**New learning**	**Number** Number sense and exploring calculation strategies; place value; rounding; addition; subtraction using various strategies **Measures and graphs** Interpret data from charts / tables; solve one-step and two-step problems; measure / compare / add / subtract lengths using appropriate units	**Number** Multiplication and division methods; problem solving; inverse; formal methods of multiply / divide **Time and fractions** Tell / record / write time in 12-hour using am / pm; use simple fractions; simple fraction calculation methods	**Shape and measure** Angles; parallel / perpendicular lines; draw and measure 2D shapes; measure using appropriate tools and units **Number** Securing multiplication and division for 6 and 8 times tables; mental addition / subtraction; numbers beyond 1000
YEAR 4 Building independence and autonomy	**New learning**	**Number** Reasoning with 4-digit numbers; rounding; addition / subtraction; multiplication / division methods **Data** Discrete and continuous data; interpret and present using graphical methods	**Number** Securing multiplication facts; equivalent fraction; add / subtract fractions to more than 1; decimals **Geometry and Time** Time conversions; calculate perimeter and area of rectilinear shapes	**Problem solving** Solving problems involving measure and money; fractions and decimals **Geometry and pattern** Shape and symmetry; position and direction; reasoning with patterns and sequences; 3D shapes

		Knowledge, skills and understanding to be gained at each stage*		
		Cycle 1	**Cycle 2**	**Cycle 3**
YEAR 5 Formalisation and consolidation	**New learning**	**Number** Reasoning with large whole numbers; integer addition and subtraction; factors; primes; squares; cubes **Graphs and geometry** Tables and line graphs; perimeter and area of non-rectilinear shapes	**FDP** Converting between fractions; decimals and percentages; four operations with fractions **Angles and transformations** Acute; obtuse; reflex, draw and measure angles; angle facts; translations; reflections	**Number** Solving multi-step problems with whole numbers and decimals using all operations **Geometry** Unit conversion; regular and irregular polygons; nets of 3D shapes; circles; volume / capacity and cube numbers
YEAR 6 Formalisation and consolidation	**Application and extension of key skills**	Integers and decimals addition and subtraction; multiplication and division; calculation problems including algebraic solving	Equivalence; simplification; comparing, ordering and calculation of fractions; missing angles and lengths; coordinates and shapes	Conversions of metric measures; time; area; volume; FDP equivalence; statistical diagrams; averages; proportion problems
YEAR 7 Formalisation and consolidation	**New learning**	**Unit 1: Algebra** Order of operations, algebraic notation, simplifying including expanding and factorising single brackets, negative numbers, substituting, forming expressions, solving 1, 2 and 3-step equations, common sequences, nth term **Unit 2: Number** Place value, inequalities, comparing numbers, +/- methods, decimals, money calculations, factors & multiples, HCF & LCM, product of prime factors, x/÷ methods, decimals, estimation, rounding, perimeter and area including compound shapes, time	**Unit 3: Geometry** Reading scales, powers of 10, unit conversions, identify, draw & measure angles, properties of 2D shapes, angle facts, tessellation **Unit 4: Fractions** Fractions of amounts, converting improper fractions and mixed numbers, simplifying including algebraic fractions, equivalent fractions, four operations including algebraic fractions, comparing, ordering	**Unit 5: Percentages** Fraction/decimal/% conversions, ordering fractions/decimals/%, % of (calculator and non-calculator), expressing %, % increase and decrease **Unit 6: Probability and Statistics** Averages, probability scale, sample space and listing outcomes, single event probability, probability 'not', frequency trees, pictograms, bar graphs, line graphs, pie charts
	CEAIG	Careers in animation (Unit 1: linear sequences) and interior design (Unit 2: perimeter)	Careers in astronomy (Unit 3: angles) and catering (Unit 4: fractions of amounts)	Careers in accountancy (Unit 5: % increase/decrease) and medicine (Unit 6: statistical diagrams)
YEAR 8 Formalisation and consolidation	**New learning**	**Unit 1: Number** Index laws, powers and roots, Pythagoras' theorem, standard form, prime factorisation for HCF and LCM, set notation, Venn diagrams including problem solving **Unit 2: Algebra** Inequalities, complex simplifying including algebraic fractions, formulae, transposing formulae, solving equations involving brackets and with variables on both sides, forming and solving from worded and geometric problems, expanding binomials, factorising quadratics, fractional sequences, problem solving with linear sequences, plotting linear functions from a table	**Unit 3: 2D Geometry** Constructions including triangles, angle facts involving parallel lines, conversions of units including squared and cubed units, composite shapes, area of specific quadrilaterals, circumference and area of circles and part circles **Unit 4: Proportional Reasoning** % increase/decrease, percentage change, repeated percentage change, simple and compound interest, reverse percentage, rates and ratio, speed/distance/time, density/mass/volume, pressure/force/area	**Unit 5: 3D Geometry** Properties of 3D shapes, nets, plans and elevations, volume of prisms, pyramids and cones, surface area **Unit 6: Statistics** Representing data, comparing data sets, scatter graphs, time series and moving averages, MMMR from tables, frequency diagrams including polygons and simple histograms, identifying errors from statistical diagrams
	CEAIG	Careers in ecology (Unit 1: index laws) and cryptoanalysis (Unit 2: forming and solving)	Careers in fashion design (Unit 3: area) and space travel (Unit 4 : speed, distance, time)	Careers in architecture (Unit 5 : plans and elevations) and data analysis (Unit 6 : MMMR from tables)
YEAR 9 Application and extension	**New learning**	**Unit 1: Graphs and Proportion** Coordinates, mid-points, linear graphs, equation of a straight line, direct/inverse proportion, scales and scale drawing	**Unit 3: 2D Geometry** Perpendicular and angle bisectors, loci problems, mixed angle fact problems, angles in polygons, congruence and similarity, similar shapes lengths/areas/volumes, arc lengths, sector areas, geometric proof	**Unit 5: Geometry – Triangles and Transformations** Pythagoras, 3D Pythagoras, trigonometry introduction, trigonometric functions, trigonometric graphs, transformations including enlargement by negative and fractional scale factors

		Knowledge, skills and understanding to be gained at each stage*		
		Cycle 1	**Cycle 2**	**Cycle 3**
YEAR 9 Application and extension	**New learning**	**Unit 2: Algebraic Expressions** Arithmetic and geometric sequences nth term, algebraic fractions, transposing formulae involving factorisation, bionmials, polynomials, factorising quadratics to solve them, difference of two squares, form and solve inequalities	**Unit 4: Algebra - Graphs** Solve linear functions graphically, form and solve inequalities graphically, simultaneous equations, simultaneous equations graphically, quadratic/cubic/reciprocal/ exponential graphs	**Unit 6: Probability and Statistics** Probability of combined events, AND/OR rules in probability, theoretical/experimental probabilities and expected frequency. grouped data, compare data sets, compound measures, SDT graphs
	CEAIG	Careers in land surveyence (Unit 1: scales) and computer game design (Unit 2: sequences)	Careers in network coverage (Unit 1: loci) and meteorology (Unit 4: construct and solve inequalities)	Careers in surveyance and cartography (Unit 5: Pythagoras) and medicine (Unit 6: probability)
YEAR 10 Application and extension	**New learning**	**Unit 1: Algebra - Graphs** Lengths of line segments, equation of a straight line not from a graph, parallel/perpendicular lines, sketching quadratic functions, area under curves, gradient of curves **Unit 2: 3D Geometry and Limits** Estimate complex calculations including roots and in context, error intervals, plans and elevations, 3D shapes surface area and volume, cones and spheres, limits of accuracy, upper/lower bounds, percentage error	**Unit 3: Statistics and Probability** Product rule for counting, sampling methods, capture re-capture, bias, probability from Venn diagrams, combined and conditional probability, cumulative frequency, interquartile range, box plots **Unit 4: Number** Comples index laws including equations, calculating with standard form, simple and compound interest, growth/decay, estimating roots, surds, ratio problems, converting recurring decimals and fractions	**Unit 5: Algebra** Solving harder quadratic equations through factorising and the quadratic formula, complex algebraic fractions, non-linear simultaneous equations including graphically, function notation **Unit 6: 2D Geometry** Loci problems, bearings, similarity and scale factors, column vectors, vector geometry, 3D trigonometry, exact trigonometric values, sine and cosine rules, sine rule for area **Bespoke revision LTP for Foundation path**
	CEAIG	Careers in politics (Unit 2: algebraic argument) and graphic design (Unit 2: 3D shapes)	Careers in and market research (Unit 3: sampling) and banking (Unit 4: growth and decay)	Careers in scientific research (Unit 5: complex graphs) and nautical navigation (Unit 6: bearings)
YEAR 11 Application and extension	**Application and extension of key knowledge**	**Number and Algebra:** Itteration and recursion, graphing proportion, circle theorems including proof, algebraic and geometric proof, circle functions and tangents, quadratic nth term, transformation of functions, quadratic inequalities **Bespoke revision LTP for each class**	**Bespoke revision LTP for each class**	

*A powerful, knowledge-rich curriculum teaches both **substantive knowledge** (facts; knowing that something is the case; what we think about) and non-declarative or **procedural knowledge** (skills and processes; knowing how to do something; what we think with). There are no skills without bodies of knowledge to underpin them. In some subjects, a further distinction can be made between substantive knowledge (the domain specific knowledge accrued e.g. knowledge of the past) and disciplinary knowledge (how the knowledge is accrued e.g. historical reasoning). Please refer to the DAT Curriculum Principles, published on our website, for further information about how we have designed our all-through curriculum.

Year 1 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	**Induction** Unit 1 Numbers within 10. Shape: 2D	Unit 1 Numbers within 10. Number: One more / less	Unit 1 Numbers within 10. Unit 1/2 Keep up	Unit 2 Adding and subtracting within 10. Money: coins 1-10	Unit 2 Adding and subtracting within 10. Time: Using the clock	Unit 6 Time. Time: Using the clock	Unit 6 Time. Unit 3 Shape and pattern. Shape: 3D	Unit 3 Shape and pattern. Number: Counting in 2s	Unit 4 Numbers within 20 Unit 4 Keep up	**Planning days** Unit 4 Numbers within 20 Number: Counting in 10s	**Y8 expedition** Unit 4 Numbers within 20 Unit 4/5 Keep up	Unit 5 Adding and subtracting within 20 Number: 'between 'greater / less	Unit 5 Adding and subtracting within 20 Measure: heavier/ lighter
Cycle 2	Unit 5 Adding and subtracting within 20 Unit 7 Keep up	Unit 7 Exploring calculation strategies within 20 Money: 1-50p	Unit 7 Exploring calculation strategies within 20 Number: Swap to Dienes, counting in 10s and 1s	Unit 8 Numbers to 50	Unit 8 Numbers to 50 Unit 8 Keep up	Unit 9 Addition and subtraction within 20 Number: Counting in 5s	**Cycle assessment weeks** Unit 9 Addition and subtraction within 20 Number: 'Before' backwards 0-50	Unit 9 Addition and subtraction within 20 Unit 10 Keep up	**Data input** Unit 10 Fractions Measure: Capacity half /full / empty	Unit 10 Fractions Money: £1 and £2 coins / notes	**Y7 expedition** Data day Unit 11 Length and mass Unit 11 Keep up	Unit 11 Length and mass Number: 'between' longer shorter / est	Unit 12 Numbers 50 to 100 and beyond Number: 'Before' backwards 0-100
Cycle 3	Unit 12 Numbers 50 to 100 and beyond Shape: Positional language, turns	Unit 13 Addition and subtraction within 100 Number: Balancing equations	Unit 13 Addition and subtraction within 100 Number: Missing number in balanced equations	Unit 13 Addition and subtraction within 100 Unit 14 Money	Unit 14 Money Money: First/then now adding	Unit 14 Money Number: 3 part equations	**Cycle assessment weeks** Unit 15 Multiplication and division Unit 15 Keep up	Unit 15 Multiplication and division Number: Writing digits	Unit 15 Multiplication and division Measure: Using a ruler	Unit 16 Capacity and volume Unit 16 Keep up	**Y9 expedition** Unit 16 Capacity and volume Unit 16 Keep up		**Recognition**

Note: Cycle 2 Week 12/13 also shows "Unit 12 Numbers 50 to 100 and beyond" continuing, with Unit 12 Keep up in Week 13.

Year 2 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	**Induction** Unit 1 Numbers within 100 Place value Counting on & back in 1s (crossing 10s)	Unit 1 Numbers within 100 Place value Writing 2 digit numbers (numerals)	Unit 1 Numbers within 100 Number bonds to 10 Time (hour and half past)	Unit 1 Numbers within 100 Unit 2 Adding and subtracting 2 digit numbers Number bonds within 10 3D shapes	Unit 2 Adding and subtracting 2 digit numbers Number bonds within 10 Unit 1/2 Keep up	Unit 2 Adding and subtracting 2 digit numbers Partitioning numbers Interpreting data (tables/ block diagrams)	Unit 3 Addition and subtraction word problems Partitioning numbers Counting on and back in 10s (from any number)	Unit 3 Addition and subtraction word problems Partitioning numbers Unit 3 Keep up	Unit 7 Time Number bonds within 20 2D shapes	**Planning days** Data day Unit 7 Time Number bonds within 20 Measuring using cm	**Y8 expedition** Unit 5 Graphs Partitioning numbers Unit 7/5 Keep up	Unit 5 Graphs Unit 6 Multiplication & division Partitioning numbers Whole/half turns	Unit 6 Multiplication & division Number bonds within 20 Counting in 2s (number line)
Cycle 2	Unit 6 Multiplication & division 10x tables Unit 6 Keep up	Unit 6 Multiplication & division Unit 8 Fractions 10x tables Counting in 5s (number line)	Unit 8 Fractions 10x tables writing numbers (words)	Revisit Previous Learning Fractions Unit 4 Keep up/8	Unit 4 Measuring length Fractions Fact families (multiplication & division) Money: total amounts	Unit 9 Add & subtract 2 digit numbers (exchanging) 2x tables Money: total amounts	**Cycle assessment weeks** Unit 9 Add & subtract 2 digit numbers (exchanging) 2x tables Unit 9 Keep up	Unit 9 Add & subtract 2 digit numbers (exchanging) 2x tables Coin recognition (coins & notes)	**Data input** Unit 10 Money 5x tables Using the inverse to solve +/- equations	Data day Unit 10 Money 5x tables Unit 10 Keep up	**Y7 expedition** Unit 11: Faces, shapes & patterns + - (regrouping) Reading scales (divisions of 1s, 2s, 5s & 10s)	Unit 11: Faces, shapes & patterns money Reading temperature on a thermometer	Unit 11: Faces, shapes & patterns money Unit 11 Keep up
Cycle 3	Unit 13: Measuring capacity and volume + - (regrouping) Money: different coins, same amount.	Unit 13: Measuring capacity and volume + - (regrouping) Unit 12 Keep up	Unit 14: Mass Fractions Time: to nearest 5 minutes	SATS TAF evidence collection Time: calculating durations	SATS TAF evidence collection	SATS TAF evidence collection	SATS TAF evidence collection Reading scales: estimating points	Unit 12 Numbers within 1000 Consolidate place value knowledge Unit 14 Keep up	**Cycle assessment weeks** Unit 15: Exploring calculation strategies Consolidate place value knowledge Unit 12 Keep up	Unit 15: Exploring calculation strategies Consolidate place value knowledge Unit 15 Keep up	**Y9 expedition** Unit 16: Multiplication & division 3x and 4x Consolidate place value knowledge Unit 16 Keep up	Unit 16: Multiplication & division 3x and 4x Consolidate place value knowledge	**Recognition**

Year 3 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	**Induction**	Unit 1 Number sense and exploring calculation strategies Number: Mental addition and subtraction 2d	Unit 1 Number sense and exploring calculation strategies Number: Represent numbers to 1,000	Unit 1 Number sense and exploring calculation strategies Number: Place value of digits in numbers up to 3 d	Unit 1 Number sense and exploring calculation strategies Number: Derive multiplication and division equations using arrays (multiples of 2, 5 & 10)	Unit 1 Number sense and exploring calculation strategies Number: Skip count in intervals of 2, 3, 4, 5 and 10 Unit 1 Keep up	Unit 2 Place Value. Number: Represent multiplication and division calculations with bead string, part-whole model and array representations	Unit 2 Place Value Number: Recognise, find and write fractions of lengths, shapes and quantities	Unit 2 Place Value. Number: Choose calculation strategies for 3-digit addition and subtraction	**Planning days** Unit 2 Place Value. Number: Derive facts from known facts 'If I know…, what else do I know?' (number bonds)	**Y8 expedition** Unit 3 Graphs Number: Doubles and halves Unit 2: Keep up	Unit 4 Addition and subtraction Shape and Pattern: Name and describe 2-D and 3-D shapes according to properties	Unit 4 Addition and subtraction Shape and Pattern: Describe position, direction and movement (straight line movements and rotations including angles)
Cycle 2	Unit 4 Addition and subtraction Unit 3/4 Keep up	Unit 4 Addition and subtraction Measure: Read scales with intervals of 2, 5, 10 and 100 (comparing to increments of 1)	Unit 5 Length and perimeter Measure: Use standard units of measure and know their abbreviations Read temperature on a thermometer	Unit 6 Multiplication and division Time: Tell the time to the nearest five minutes	Unit 6 Multiplication and division Money: Coin recognition of all coins and notes (£5, £10, £20)	Unit 6 Multiplication and division Number: Recognise that two halves/three thirds/four quarters are equal to one whole Count in halves, thirds and quarters within 10	**Cycle assessment weeks** Unit 6 Multiplication and division Unit 6 Keep up Number: Derive facts from known facts (multiplication / division and addition / subtraction)	Unit 7 Deriving multiplication and division facts Number: Doubles & halves	**Data input** Unit 7 Deriving multiplication and division facts Number: Choose and justify efficient calculation strategies for age-appropriate calculations	Unit 7 Deriving multiplication and division facts Unit 7 Keep up Number: Multiply by 10 and 100 recognising the importance of place value	**Y7 expedition** Unit 8 Time Data: Read scales in steps of 2, 3, 4, 5 and 10	Unit 8 Time Unit 8: Keep up Number: Introduce counting in tenths	Unit 9 Fractions Shape and measure: Identify right angles and that two right angles make a half turn
Cycle 3	Unit 9 Fractions Shape and Measure: Calculate the perimeter of simple 2-D shapes	Unit 9 Fractions Time: Tell the time to the nearest minute	Unit 9 Fractions Unit 9 Keep up Time: Tell the time from an analogue clock using Roman numbers I to XII	Unit 10 Angles and shape Number: Recognise equivalent fractions using a fraction wall	Unit 10 Angles and shape Number: Count in halves, thirds, quarters and tenths	Unit 10 Angles and shape Unit 10 Keep up Number: Find fractions	Unit 11 Measures Number: Multiplication and division by 10 and 100	Unit 11 Measures Number: Derive new facts from known number facts	**Cycle assessment weeks** Unit 11 Measures Unit 11 Keep up Data: Read scales Interpret tallies, tables, bar charts and pictograms	Unit 12 Securing multiplication and division Measures: Read scales with intervals of	**Y9 expedition** Unit 13 Exploring calculation strategies and place value perpendicular and parallel lines	Unit 13 Exploring calculation strategies and place value Money:	**Recognition**

Year 4 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
	Induction									Planning days	Y8 expedition		
Cycle 1		Unit 1: Reasoning with 4 Digit Numbers	Unit 1: Reasoning with 4 Digit Numbers	Unit 2: Addition and Subtraction	Unit 2: Addition and Subtraction	Unit 2: Addition and Subtraction	Unit 3: Multiplication and Division	Unit 3: Multiplication and Division	Unit 3: Multiplication and Division	Unit 3: Multiplication and Division	Unit 4: Interpreting and Presenting Data	Unit 4: Interpreting and Presenting Data	Unit 4: Interpreting and Presenting Data
							Cycle assessment weeks		Data input		Y7 expedition		
Cycle 2	Revision Unit 5: Securing Multiplication Facts	Unit 5: Securing Multiplication Facts	Unit 5: Securing Multiplication Facts	Unit 6: Fractions	Unit 6: Fractions	Unit 6: Fractions	Unit 6: Fractions	Unit 7: Time	Unit 7: Time	Unit 8: Decimals	Unit 8: Decimals	Unit 8: Decimals	Unit 9: Area and Perimeter
									Cycle assessment weeks		Y9 expedition		Recognition
Cycle 3	Unit 9: Area and Perimeter	Unit 10: Solving Measure and Money Problems	Unit 10: Solving Measure and Money Problems	Unit 10: Solving Measure and Money Problems	Unit 11: 2-D Shape and Symmetry	Unit 11: 2-D Shape and Symmetry	Unit 11: 2-D Shape and Symmetry	Unit 12: Position and Direction	Unit 12: Position and Direction	Unit 13: Reasoning with Patterns and Sequences	Unit 13: Reasoning with Patterns and Sequences	Unit 14: 3-D Shapes	

Year 7 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
	Induction									Planning days	Y8 expedition		
Cycle 1		**Baseline** **Unit 1 Algebra** Algebraic notation	**Unit 1 Algebra** Substitution	**Unit 1 Algebra** Simplifying	**Unit 1 Algebra** Simplifying	**Unit 1 Algebra** Solving	**Unit 1 Algebra** Solving	**Unit 1 Algebra** Sequences	**Unit 2 Number** Place value, inequalities and ordering	**Unit 2 Number** Four operations inc. decimals	**Unit 2 Number** Four operations inc. decimals	**Unit 2 Number** Factors and multiples	**Unit 2 Number** Factors and multiples
							Cycle assessment weeks		Data input		Y7 expedition		
Cycle 2	**Unit 2 Number** Rounding and estimation	**Unit 2 Number** Application	**Unit 2 Number** Application	**Unit 3 Geometry** Unit conversion	**Unit 3 Geometry** Angle types, estimating, draw and measure	**Unit 3 Geometry** Angle types, estimating, draw and measure	**Unit 3 Geometry** Angle facts	**Assessments** **Unit 3 Geometry** Mixed angle facts	**Unit 4 Fractions** Fractions of amounts	**Unit 4 Fractions** Fraction equivalence	**Expedition**	**Unit 4 Fractions** Four operations with fractions	**Unit 4 Fractions** Compare and order fractions
									Cycle assessment weeks		Y9 expedition		Recognition
Cycle 3	**Unit 4 Fractions** Worded fraction problems	**Unit 5 Percentages** FDP conversions and Ordering FDP	**Unit 5 Percentages** Percentages of amounts non-calculator	**Unit 5 Percentages** Percentage increase and decrease non-calculator	**Unit 5 Percentages** Percentages of amounts and percentage increase and decrease non-calculator	**Unit 5 Percentages** Expressing as a percentage and percentage change	**Unit 6 Probability and Statistics** Probability scales and simple probability	**Unit 6 Probability and Statistics** Probability NOT and from listing outcomes and frequency trees	**Unit 6 Probability and Statistics** Calculating MMMR	**Revision and Assessments**	**Unit 6 Probability and Statistics** Simple statistical diagrams	**Unit 6 Probability and Statistics** Pie charts	**Dream Team**

Year 8 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	Induction	**Unit 1 Percentages** FDP conversions and Ordering FDP	**Unit 1 Percentages** Percentages of amounts non-calculator and calculator	**Unit 1 Percentages** Percentage increase and decrease non-calculator and calculator	**Unit 1 Percentages** Expressing as a percentage and percentage change	**Unit 2 Probability and Statistics** Probability scales and simple probability	**Unit 2 Probability and Statistics** Probability NOT and from listing outcomes and frequency trees	**Unit 2 Probability and Statistics** Calculating MMMR	**Unit 2 Probability and Statistics** Simple statistical diagrams	Planning days **Unit 2 Probability and Statistics** Pie charts	Y8 expedition **Expedition**	**Unit 3 Number** Index laws	**Unit 3 Number** Calculating with powers and roots, inc. Pythagoras
Cycle 2	**Unit 3 Number** Standard form	**Unit 3 Number** Prime factorisation, HCF and LCM	**Unit 3 Number** Sets and Venn diagrams	**Unit 4 Algebra** Inequalities	**Unit 4 Algebra** Complex manipulation	**Unit 4 Algebra** Formulae	Cycle assessment weeks **Unit 4 Algebra** Forming and Solving	**Assessment** **Unit 4 Algebra** Forming and Solving	Data input **Unit 4 Algebra** Sequences	**Unit 5 2D Geometry** Constructions	Y7 expedition **Unit 5 2D Geometry** Angles in parallel lines	**Unit 5 2D Geometry** Unit conversions	**Unit 5 2D Geometry** Area of trapezia and compound shapes
Cycle 3	**Unit 5 2D Geometry** Circles	**Unit 6 Proportional Reasoning** Percentage increase/decrease inc. simple and compound interest	**Unit 6 Proportional Reasoning** Repeated percentage change and reverse percentages	**Unit 6 Proportional Reasoning** Ratio	**Unit 6 Proportional Reasoning** Compound measures	**Unit 7 3D Geometry** Solids' properties, nets, plans, elevations	**Unit 7 3D Geometry** Volume of prisms and cylinders	**Unit 7 3D Geometry** Volume of cones, pyramids and composite prisms	Cycle assessment weeks **Unit 7 3D Geometry** Surface area	**Revision and Assessments**	Y9 expedition **Unit 8 Statistics** Collecting and organising data	**Unit 8 Statistics** Interpreting and comparing data sets	Recognition **Dream Team**

Year 9 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
	Induction									Planning days	Y8 expedition		
Cycle 1		Complete 2D Geometry (Y8) Area	Unit 1 3D Geometry Solids' properties, nets, plans, elevations	Unit 1 3D Geometry Volume of prisms	Unit 1 3D Geometry Volume of composites	Unit 1 3D Geometry Volume of pyramids and cones	Unit 1 3D Geometry Surface area	Unit 2 Graphs and Proportion Coordinates and mid-points	Unit 2 Graphs and Proportion Linear functions	Unit 2 Graphs and Proportion Direct proportion	Unit 2 Graphs and Proportion Inverse proportion	Unit 2 Graphs and Proportion Scale	Unit 3 Algebraic Expressions Sequences
							Cycle assessment weeks		Data input		Y7 expedition		
Cycle 2	Unit 3 Algebraic Expressions Expanding	Unit 3 Algebraic Expressions Factorising	Unit 3 Algebraic Expressions Solving	Unit 3 Algebraic Expressions Transposing Formulae	Unit 4 Geometry Angles Constructions and Loci	Unit 4 Geometry Angles Angles in polygons	Unit 4 Geometry Angles Congruency	Assessments Unit 4 Geometry Angles Similarity	Unit 4 Geometry Angles Arcs and sectors	Unit 5 Algebra Graphs Form and solve inequalities	Unit 5 Algebra Graphs Graphing inequalities and identifying regions	Unit 5 Algebra Graphs Simultaneous equations	Unit 5 Algebra Graphs Simultaneous equations
								Cycle assessment weeks		Y9 expedition			Recognition
Cycle 3	Unit 5 Algebra Graphs Quadratic graphs	Unit 5 Algebra Graphs Other algebraic graphs	Unit 6 Triangles and Transformations Pythagoras' theorem inc. 3D	Unit 6 Triangles and Transformations Trigonometry	Unit 6 Triangles and Transformations Reflection, translation and rotation	Unit 6 Triangles and Transformations Enlargement, inc. negative and fractional	Unit 6 Triangles and Transformations Mixed transformations	Unit 7 Probability and Statistics Probability of combined events and 'And/Or' rule	Unit 7 Probability and Statistics Relative and expected frequency	Revision and Assessments	Expedition Probability and Statistics Averages from grouped data and comparing data sets	Unit 7 Probability and Statistics D-T and V-T graphs	Dream Team

Year 10 Long Term Plan

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13
Cycle 1	Induction	Complete Graphs and Proportion (Y9)	Unit 1 Geometry Angles Constructions and Loci	Unit 1 Geometry Angles Angles in polygons	Unit 1 Geometry Angles Congruency	Unit 1 Geometry Angles Similarity	Unit 1 Geometry Angles Similarity	**Assessments** Unit 1 Geometry Angles Arcs and sectors	Unit 2 Algebra Graphs Form and solve inequalities	**Planning days** Unit 2 Algebra Graphs Graphing inequalities and identifying regions	**Y8 expedition** Unit 2 Algebra Graphs Simultaneous equations	Unit 2 Algebra Graphs Simultaneous equations	Unit 2 Algebra Graphs Quadratic graphs
Cycle 2	Unit 2 Algebra Graphs Other algebraic graphs	Unit 3 Triangles and Transformations Pythagoras' theorem inc. 3D	Unit 3 Triangles and Transformations Trigonometry	Unit 3 Triangles and Transformations Reflection, translation and rotation	Unit 3 Triangles and Transformations Enlargement, inc. negative and fractional	Unit 3 Triangles and Transformations Mixed transformations	**Cycle assessment weeks** Unit 4 Probability and Statistics Probability of combined events and 'And/Or' rule	**Assessments**	**Data input** Unit 4 Probability and Statistics Averages from grouped data and comparing data sets	Unit 4 Probability and Statistics D-T and V-T graphs	**Y7 expedition** Unit 5 Algebra Graphs Line segments	Unit 5 Algebra Graphs Equation of a line from coordinates	Unit 5 Algebra Graphs Parallel and perpendicular lines
Cycle 3	Unit 5 Algebra Graphs Sketching quadratics	Unit 5 Algebra Graphs Area under and gradient of curves	Unit 6 Geometry and Limits Estimation	Unit 6 Geometry and Limits Rounding and truncation, inc. error intervals	Unit 6 Geometry and Limits Surface area	Unit 6 Geometry and Limits Volume	Unit 6 Geometry and Limits Plans and elevations	Unit 7 Statistics and Probability Sampling and bias	**Cycle assessment weeks** Unit 7 Statistics and Probability Probability trees for mutually exclusive and conditional events	**Revision and Assessments**	**Y9 expedition** Unit 7 Statistics and Probability Venn diagrams and probability	Unit 7 Statistics and Probability Cumulative frequency	**Recognition** Dream Team Unit 7 Statistics and Probability Product rule