

Mathematics

Curriculum Principles

By the end of Year 6, a student of mathematics at Dixons Manningham Primary will:

- know the fundamental skills in mathematics which allow them to understand how to use this knowledge in secondary school and beyond.
- recognise the beauty in sophisticated mathematical methods; be aware of naturally occurring mathematical structures; be analytical thinkers and have a thirst for mathematical reasoning.
- have developed fluency in procedures and be keen problem solvers.

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

- Our approach uses White Rose Maths as its spine. Adopting the best of a 'mastery' and 'spiral' curricula, topic areas are investigated in depth over time to allow pupils to master it as well as revisited and extended on a regular basis. This sequence of learning promotes a deeper understanding of the mathematical concepts being taught, whilst also minimises the potential of forgetting due to material being covered with more regularity.
- Within the classroom, the idea that memory of new information is lost without spaced learning and interleaving is addressed in several ways: lessons often begin with a "Do Now" that promotes recall of integral knowledge; staff use targeted retrieval questions that are timed to minimise the likelihood of degrading schemas; interventions are also used to support children that did not fully commit new learning to their long term memory by providing children with more opportunities for applied practice from previous units of work.
- Deliveries follow our learning policy and are designed flexibly to support the varied needs of learners in each class. This ranges from whole class, to split or no introductions. Each Maths lesson, then moves on to a teacher modelling worked examples using 'I do, we do, you do,' which involves gradually reducing the level of scaffold. This reduction supports practical independence of learners but also their perception of themselves as a capable, independent learner.
- Conceptual development consists of four stages: Fluency, Varied Fluency, Reasoning and Problem Solving. Teachers adapt the weighting of each stage to provide the most relevant 'diet' for our children whilst addressing the balance that will best serve them in later life. Learning is monitored through aggressive monitoring, listening to pupil talk and observing recorded work. This sequence aligns with the White Rose Maths scheme, allowing each student to work towards mastery and removing the ceiling from their learning.
- We teach to the top with scaffolding and support for those who need it to allow all students to achieve and experience the absolute best of what has been thought and spoken. The mathematics curriculum addresses social disadvantage by addressing gaps in students' knowledge and skills whilst teaching to age-related expectations.
- Times Table Rockstars (KS2) and weekly arithmetic quizzes support the learning of install recall facts and core learning.

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

- Students in need of intervention are targeted by close teacher observation and ongoing formative assessment. With a particular focus of students performing below age related expectations, daily Direct Instruction interventions occur in small groups with a teacher. These ensure gaps are closed as swiftly as possible.
- oracy skills have been proven to be instrumental to a child's future success. Regrettably, students from disadvantaged backgrounds, a significantly high percentage of the cohort we serve, do not always receive the same opportunities to develop this skill. The mathematics curriculum aims to challenge this through the exploration of functional questions. Emphasis is given to explaining mathematical reasoning, initially through scaffold, using stem sentences and key vocabulary until these are embedded and the student can explain mathematical reasoning independently.
- Times Table Rockstars and weekly arithmetic quizzes encourage the drill like practice to embed learning.

Curriculum Overview

	Cycle 1	Cycle 2	Cycle 3
Nursery	Weeks 1 – 6 Matching and categorising. - Identify colours. - Categorise objects by shape, size, colour. - Match items based on properties. - Use blocks to create simple structures and arrangements. - Fit shapes in inset puzzles and jigsaws. - Begin to use language of size. Week 7 – 9 Place value in 1 and 2. - Subitise and count within 2. - Select a small number of objects. - Know that a group of things changes when something is added or taken away. - Begin to use fingers to show 1 or 2. - Recite numbers in order to 5. Weeks 10 – 12 – Pattern. - Explore AB patterns. - Explore AB Patterns outdoors. - Movement patterns - Extend AB patterns. Week 13 Consolidation.	Week 1 – 8 Place value within 6 (W1-2 (3), W3-4 (4), W5-6 (5), W7-8 (6). - Recite numbers past 5. - Realise that not only objects but anything can be counted. - Say one number name for each item 1-5, in order. - Recognise and order digits 1-5 (1-4) - Represent 5 using fingers and objects. - Match some numerals and quantities correctly. - Say who has fewer. - Fast recognition of up to 3 objects (without counting). - Use fingers for counting. - Recognise the sides of a shape. Week 9 – 12 Measurement and capacity. - Begin to compare length, weight and capacity. - Begin to sequence events. - Talk about and begin to describe shapes used in construction. - Select shapes appropriately for tasks. - Combine shapes to make new ones. - Fill and empty containers. Week 13 Consolidation.	Week 1 – 3 Place value. - Compare two groups of objects saying when they have the same. - Say who has fewer. - Say who has more. - Link numeral and amounts. - Understand final number is the total in the set. - Recite numbers 1-10. - Begin to solve maths problems within 5. Week 4 – 5 Shape. - Select a particular named shape (2D). - Explore 2D and 3D shapes. - Revisit pattern using shape. - Discuss the properties of a shape. Week 6 – 7 Place value. - More than/fewer than. - One more and one less. - Number composition 1 – 5. Week 8 – 9 Night and day. - Order and sequence familiar events. - Anticipate time based events - Understand 'soon' or 'later' Week 10 – 11 Positional language. - Use some positional language - Discuss routes and locations, using words like 'in front of', and 'behind' Week 12 – 13 Consolidation
Reception	Week 1 – 3 Getting to know you. - Play and get to know. Week 4 – 6 Just like me! - Match and sort. - Compare amounts. - Compare size, mass, and capacity. - Exploring pattern. Week 7 – 9 It's me 1, 2, 3! - Representing 1, 2 and 3. - Comparing 1, 2 and 3. - Composition of 1, 2 and 3. - Circles and triangles. - Positional language. Week 10 – 12 – Light and dark. - Representing numbers to 5. - One more or less. - Shapes with 4 sides. - Time. Week 13 – Consolidation.	Week 1 – 3 Alive in 5! - Introducing zero. - Comparing numbers to 5. - Composition of 4 and 5. - Comparing mass. - Compare capacity. Week 4 – 6 6, 7, 8. 6, 7, and 8. - Combining two amounts. - Making pairs. - Length and height. - Time. Week 7 – 9 – Building 9 and 10. - Counting 9 and 10. - Comparing numbers to 10. - Bonds to 10. 3-D shapes. - Spatial awareness. - Patterns. Week 10 – 13 – Consolidation.	Week 1 – 3 20 and beyond. - Build numbers beyond 10. - Count patterns beyond 10. - Spatial reasoning 1. - Match, rotate, manipulate. Week 4 – 6 First, then, now. - Adding more. - Taking away. - Spatial reasoning 2. - Compose and decompose. Week 7 – 9 Find my pattern. - Doubling. - Sharing and grouping. - Even and odd. - Spatial reasoning 3. - Visualize and build. Week 10 – 12 On the move. - Deepening understanding. - Patterns and relationships. - Spatial mapping.

			Week 13 – Consolidation.
YEAR 1	Week 1 - 5 Number: Place value (within 10). - Sort, count and represent objects. - Recognise numbers as words. - Identify one more or one less. - Count on from any number and count backwards from 10. - Recognise numbers as words. - Compare groups by matching. - Identify and represent numbers using objects and use the language of fewer, more, same, less than, greater than, and equal to. - Compare numbers, order numbers and objects. - The number line. Week 6 - 11 Number: Addition and subtraction (within 10). This includes assessment week in week 9. - Introduce parts and wholes – part-whole model. - Write number sentences. - Addition fact families. - Number bonds within and to 10. - Addition (together and more, addition problems) - Find a part. - Subtraction (take away/cross out) on a number line. - Add or subtract 1 or 2. Week 12 Geometry: Shape. - Recognise, name and sort 3-D shapes. - Recognise, name and sort 2-D shapes. - Patterns with 2-D and 3-D shapes. Week 13 Number: Place value (within 20). - Count within twenty, forwards and backwards, from any given number using numbers and words. - Understand values from 10-20.	Week 1 - 2 Number: Place value (within 20) continued. - Identify one more and one less. - Use and estimate on a number line to 20. - Compare and order numbers to 20. Week 3 - 5 Number: Addition and subtraction (within 20). - Add by counting on within 20. - Add ones using number bonds. - Find and make number bonds to 20. - Doubles and near doubles. - Subtraction – number bonds, counting back, finding the difference and related facts. - Solve one step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$. Week 6 - 7 Number: Place value (within 50). - Count from 20-50, forwards and backwards, using numerals and words and by making groups of tens. - Groups of tens and ones. - Partition into tens and ones. - The number line to 50, including estimating. 1 more, 1 less. Week 8 - 10 Measurement: Length and height. This includes assessment week in week 9. - Compare, describe, and solve practical problems for: lengths and heights. - Measure lengths in blocks and in centimetres. Week 11 - 12 Measurement: Mass and volume. - Distinguish heavier, lighter, full, and empty. - Measure and compare mass, capacity, and volume. - Compare, describe, and solve practical problems for mass, capacity, and volume. Week 13 Number: Multiplication and division. - Count in twos, fives, and tens.	Week 1 – 2 Number: Multiplication and division. - Recognise and count in equal groups. - Make arrays, doubles, and equal groups. - Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects and pictorial representations. Week 3 - 4 Number: Fractions. - Recognise, find, and name a half as one of two equal parts of an object, shape, or quantity. - Recognise, find, and name a quarter as one of four equal parts, as one of two equal parts of an object, shape, or quantity. Week 5 Geometry: Position and direction. - Describe position, direction, and movement, including whole, half, quarter, and three-quarter turns. - Use positional language of left and right, forwards, and backwards, above, and below. Week 6 - 7 Number: Place value (within 100). - Count to hundreds, forwards and backwards using numerals and words. - Count in tens to 100, and partition numbers into tens and ones - Identify one more or one less. - Identify and represent numbers using objects a, and use the language of equal to, more than, less than (fewer), most, least. - Compare numbers. Week 8 Measurement: Money. - Unitising and counting in coins. - Recognise and know the value of different denominations of coins and notes. Week 9 - 11 Measurement: Time. This includes assessment week in week 9. - Recognise and use language relating to dates, including days of the week, weeks, months, and years. - Tell the time to the hour and half past the hour and draw the hands on a clock face. - Know the relationship between seconds, minutes, and hours. Week 12 - 13 Consolidation.

Week 1 - 4 Number: Place value.

- Sort, count and represent objects.
- Recognise numbers as words.
- Count on from any number and count backwards within 10.
- Know 1 more and 1 less.
- Compare groups and numbers using the language of fewer/more/same and less than/greater than and equal to.
- Compare and order objects and numbers, using a number line where necessary.

Week 5 - 10 Number: Addition and subtraction. This includes an assessment week in week 9.

- Using the part-whole model, introduce parts and wholes.
- Write number sentences and know fact families and number bonds within and to 10.
- Add numbers, using concrete objects, pictorial representations and mentally, within 10.
- Subtract numbers, using concrete objects, pictorial representations and mentally, within 10.
- Subtraction by finding a part, by taking away and on a number line.
- Add and subtract 1 or 2.
- Recognise and use the inverse relationship between addition and subtraction, and show that addition has a commutative property, but subtraction does not.

Week 11 - 13 Geometry: Properties of shape.

- Recognise, sort, and make patterns with 2D and 3D shapes.
- Identify, describe, and compare the properties of 2-D shapes, including the number of sides, vertices, and line symmetry in a vertical line.
- Use lines of symmetry to complete shapes.
- Identify, describe, and compare the properties of 3-D shapes, including the number of edges, vertices, and faces.
- Identify 2-D shapes on the surface of 3-D shapes, (for example, a circle on a cylinder and a triangle on a pyramid).

Week 1 - 2 Measurement: Money.

- Count money (pence, pounds, pence, and pounds).
- Choose notes and coins.
- Make the same amount of money (find different combinations of coins that equal the same amounts of money), compare amounts of money.
- Calculate with money, make a pound, and find change.
- Recognise and use symbols for pounds (£) and pence (p).
- Solve simple two-step problems in a practical context involving addition and subtraction of money of the same unit, including giving change.

Week 3 - 7 Number: Multiplication and division.

- Recognise, add, and make equal groups.
- Introduce the multiplication symbol and understand multiplication sentences.
- Use arrays.
- Make equal groups (grouping and sharing)
- Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers.
- Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication ($\times$), division ($\div$) and equals (=) signs
- Show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot.

Week 6 - 7 Number: Place value (within 50).

- Count from 20-50, forwards and backwards, using numerals and words and by making groups of tens.
- Groups of tens and ones.
- Partition into tens and ones.
- The number line to 50, including estimating.
- 1 more, 1 less.

Week 8 - 10 Measurement: Length and height. This includes an assessment week in week 9.

- Choose and use appropriate standard units to estimate and measure length/height in cm and m to the nearest appropriate unit.
- Compare and order lengths and heights and record the results using $>$, $<$ and $=$.
- Solve problems using the four operations and length and height.

Week 1 - 3 Number: Fractions.

- Recognise parts, wholes, equal and unequal parts.
- Recognise, find, name, and write fractions $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity.
- Understand unit and non-unit fractions.
- Write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.

Week 4 - 6 Measurement: Time.

- Understand the language of O'clock, quarter past/to and half past.
- Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.
- Know the number of minutes in an hour and the number of hours in a day.
- Compare and sequence intervals of time.

Week 7 - 8 Statistics.

- Draw and interpret simple pictograms, tally charts, block diagrams and simple tables.
- Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity (1-1, then 2, 5 and 10).
- Ask and answer questions about totaling and comparing categorical data.

Week 9 - 11 Geometry: Position and direction. This includes an assessment week in week 9.

- Use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half, and three-quarter turns (clockwise and anti-clockwise).
- Order and arrange combinations of mathematical objects in patterns and sequences.

Week 12 - 13 Consolidation.

	•	Week 11 - 13 Measurement: Mass, capacity, and temperature. • Compare mass, volume, and capacity. • Measure in grams and kilograms, millilitres, and litres. • Four operations with mass. • Four operations with capacity and volume. • Temperature – use appropriate standard units (°C) to estimate and measure.	
YEAR 3	Week 1 - 3 Number: Place value. • Represent and partition (standard and flexibly) numbers to 100, with/without a number line. • Counting in 100s • Represent and partition (standard and flexibly) numbers to 100, with/without a number line. • Recognise the place value of hundreds, tens, and ones. • Find 1, 10 or 100 more or less. • Count and estimate to 1000 on a number line. • Compare and order numbers up to 1,000, reading and writing numbers. • Solve number problems and practical problems. • Count in 50s. Week 4 – 9 Number: Addition and subtraction. This includes an assessment week in week 9. • Add and subtract numbers mentally, applying their knowledge of bonds within 10. • Add and subtract 1s, 10s and 100s and spot any patterns/connections. • Add and subtract 1s across a 10 and 10 across 100 and spot any patterns/connections. • After leading with a mental strategy, add and subtract numbers with up to 3 digits, using formal written methods of columnar addition and subtraction (no exchange, across 10, across 100) • Estimate the answer to a calculation and use inverse operations to check answers. • Solve problems, including missing number problems. • Know common complements to 100. Week 10 – 13 Number: Multiplication and addition. • Use equal groups and arrays to understand multiplication and sharing and grouping for division. • Know the multiples of 2, 5 and 10. • Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. • Write and calculate mathematical statements for multiplication and	Week 1 – 3 Number: Multiplication and division (continued). • Multiples of 10, related calculations and reasoning about multiplication. • Multiply a 2-digit number by a 1-digit number (with and without exchange). • Link multiplication and division. • Divide a 2-digit number by a 1-digit number (no exchange, flexible partitioning and with remainders) • Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m object. Week 4 – 6 Measurement: Length and perimeter. • Measure in millimetres, centimetres, and metres • Identify equivalence (m and cm, mm, and cm) • Compare, add, and subtract lengths. • Understand, measure, and calculate perimeter. Week 7 – 10 Number: Fractions. This includes an assessment week in week 9. • Understand the denominators of unit fractions, the numerators of non-unit fractions and what constitutes a whole. • Compare and order non-unit fractions. • Fractions and scales. • Count in fractions on a number line. • Equivalent fractions on a number line and as bar models. Week 11 – 13 Measurement: Mass and capacity. • Use scales. • Measure mass in g and kg and identify their equivalence. • Compare, add, and subtract mass. • Measure capacity and volume in millimetres and litres • Identify equivalence in capacity and volume; compare, add, and subtract.	Week 1- 2 Number: Fractions. • Recognise and show, using diagrams, equivalent fractions with small denominators. • Partition whole amounts. • Compare and order unit fractions, and fractions with the same denominators, of a set of objects. • Add and subtract fractions with the same denominator within one whole [for example, $\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$]. • Solve problems and reason with fractions of an amount. Week 3 – 4 Measurement: Money. • Understand the relationship between pounds and pence and convert the measures. • Add/subtract pounds and pence and find change from the amount given in relation to money spent. Weeks 5 – 7 Measurement: Time. • Read and write the time from an analogue and digital clock, including using Roman numerals from I to XII and 12-hour and 24-hour clocks. • Estimate and read time with increasing accuracy to the nearest minute. • Record and compare time in terms of seconds, minutes, and hours. Use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon, and midnight. • Know the number of seconds in a minute and the number of days in each month, year, and leap year. • Compare durations of events [for example to calculate the time taken by particular events or tasks] and solve problems with time. Week 8 – 10 Geometry: Properties of shape. This includes an assessment week in week 9. • Recognise angles as a property of shape or a description of a turn. • Identify right angles, recognise that two right angles make a half-turn, three make three quarters of

	division using the multiplication tables that they know.		a turn and four a complete turn; identify whether angles are greater than or less than a right angle. - Identify horizontal, vertical, perpendicular, and parallel lines. - Recognise, draw, and describe 2-D and 3-D shapes and make 3-D shapes using modelling materials. Week 11 – 12 Statistics. - Interpret and present data using bar charts, pictograms, and tables. - Interpret two-way tables. - Solve one-step and two-step questions [for example, ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts, pictograms, and tables. Week 13 Consolidation.
YEAR 4	Week 1 - 4 Number: Place value. - Thousands: represent and partition numbers to 1,000. - Ten thousand: represent and partition (flexible and non-flexible) numbers to 10,000. - Recognise the place value of each digit up to a 5-digit number. - Find 1, 10, 100, 1000 more or less than a given number. - Identify and estimate values on a number line from 1,000 – 10,000. - Compare and order numbers to 10,000. - Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of 0 and place value. - Round any number to the nearest 10, 100 or 1,000. - Solve number and practical problems. Week 5 – 7 Number: Addition and subtraction. - Add/Subtract 1s, 10s, 100s and 1000s. - Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. Leading with mental strategies and progressing from no exchange to one exchange and more than one exchange. - Estimate and use inverse operations to check answers to a calculation. - Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why (efficiency). Week 8 Measurement: Area. - Find the area of rectilinear shapes by counting squares.	Week 1 - 2 Number: Multiplication and division (continued). - Divide by 10 and 100. - Recall and use multiplication and division facts for multiplication tables up to 12×12. - Use place value to identify related facts and perform mental calculations (informal methods). - Recognise and use factor pairs and commutativity in mental calculations. - Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. - Divide one-, two- and three-digit numbers by a one-digit number. - Solve problems involving harder correspondence problems, such as n objects are connected to m objects, and efficient methods of multiplication. Week 3 – 4 Measurement: Length and perimeter. - Measure in Km and m and identify equivalence. - Calculate perimeter: on a grid, of rectilinear shapes and of shapes with missing lengths). - Perimeter of regular and irregular polygons. Week 5 - 8 Number: Fractions. - Understanding a whole as 1, and beyond. - Mixed numbers: Partition, on number lines and compare and order. - Understand improper fractions, convert mixed numbers to improper fractions and vice versa. - Equivalence: as fractions on a number line and fraction families	Week 1 Number: Decimals (continued). - Compare numbers with the same number of decimal places up to two decimal places. - Round decimals with one decimal place to the nearest whole number. - Recognise and write decimal equivalents to $\frac{1}{4}$, $\frac{1}{2}$ and $\frac{3}{4}$. Week 2 - 3 Measurement: Money. - Write money with decimals and convert between pounds and pence. - Compare, estimate, and calculate with money. - Solve simple measure and money problems involving fractions and decimals to two decimal places. Week 4 - 5 Measurement: Time. - Know years, months, weeks, days, hours, minutes, and seconds. - Read, write, and convert time between analogue and digital 12- and 24-hour clocks. - Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. Week 6 – 7 Geometry: Properties of shape. - Understand angles as turns. - Identify acute and obtuse angles and compare and order angles. - Compare and classify geometric shapes (quadrilaterals, triangles, and polygons), based on their properties and size. - Identify lines of symmetry in 2-D shapes presented in different orientations and complete a

	- Make shapes and compare areas. Week 9 - 13 Number: Multiplication and division. This includes an assessment week in week 9. - Recall multiplication and division facts for multiplication tables up to 12×12 - Use and apply the distributive and commutative properties of multiplication. - Count in multiples of 3, 6, 7, 9, 11 and 12. - Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1; dividing by 1 and the number itself; multiplying together 3 numbers. - Identifying and using factor pairs. - Multiplying by 10 and 100.	- Add two or more fractions, and fractions and mixed numbers. - Subtract fractions: two fractions, from whole amounts and from mixed numbers. Week 9 - 12 Number: Decimals. This includes an assessment week in week 9. - Recognise and write decimal equivalents of any number of tenths or hundredths, e.g., as fractions, on a place value chart and number line. - Find the effect of dividing a one- or two-digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths, and hundredths. - Solve simple measure and money problems involving fractions and decimals to two decimal places. Week 13 Number: Decimals. - Make a whole with tenths and hundredths. - Standard and non-standard partitioning of decimals.	symmetric figure from a specific line of symmetry. Week 8 Statistics. - Interpret and present discrete and continuous data using appropriate graphical methods. - Solve comparison, sum, and difference problems using information presented in bar charts, pictograms, tables, and other graphs, e.g., line graphs. Week 9 - 11 Geometry: Position and direction. This includes an assessment week in week 9. - Describe positions on a 2-D grid as coordinates in the first quadrant. - Plot specified points and draw sides to complete a given polygon. - Translate on a grid and describe movements between positions as translations of a given unit to the left/right and up/down and by how many squares. Week 12 - 13 Consolidation.
YEAR 5	Week 1 - 3 Number: Place value. - Read Roman numerals to 1,000 (M) and recognise years written in them. - Explore numbers to 10,000, 100,000 and 1,000,000. - Read, write, order, and compare numbers to at least 1,000,000 and determine the value of each digit. - Use a number line to 1,000,000 and partition to 1,000,000. - Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000. - Find more or less (10, 100, 1,000, 10,000, 100,000). - Round any number up to 1,000,000 to the nearest 10, 100, and 1,000. - Solve number problems and practical problems that involve all the above. Week 4 - 5 Number: Addition and subtraction. - Mentally, add and subtract whole numbers. - Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). Use rounding to estimate answers and check with inverse. - Solve addition and subtraction multi-step problems. - Compare calculations and solve missing number problems.	Week 1 - 3 Number: Multiplication and division. - Multiply and divide numbers mentally drawing upon known facts. - Multiply numbers up to 4 digits by a one- or two-digit number using the area model and formal written method. - Divide numbers up to 4 digits by a 1-digit number using the formal written method of short division and interpret remainders appropriately for the context. - Solve problems involving multiplication and division, leading with efficient strategies. Week 4 - 5 Number: Fractions. - Multiply unit and non-unit fractions and mixed numbers by whole numbers, supported by materials and diagrams. - Calculate fraction of a quantity, of an amount and as/out of a whole - Solve problems involving fractions as operators. Week 6 - 8 Number: Decimals and percentages. - Recognise decimals up to two decimal places, progressing to ordering and comparing any decimals with up to 3 decimal places. - Equivalent fractions and decimals as tenths and hundredths. - State thousandths and fractions as decimals and identify them on a place value chart.	Week 1 - 3 Geometry: Properties of shape. - Know angles are measured in degrees: classify, compare, and estimate acute, obtuse, and reflex angles. - Draw given lines and angles and measure them in degrees. Identify: angles at a point and one whole turn (total 360°), angles at a point on a straight line and $\frac{1}{2}$ a turn (total 180°) other multiple of 90°. - Identify 3-D shapes, including cubes and other cuboids, from 2-D representations. - Use the properties of rectangles to deduce related facts and find missing lengths and angles. - Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. Week 4 - 5 Geometry: Position and direction. - Read, plot and problem solve with coordinates. - Identify, describe, and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed. - Know lines of symmetry and reflect in horizontal and vertical lines.

Week 6 – 8 Number: Multiplication and division. - Identify multiples and factors, including finding all factor pairs of a number, and common factors and multiples of two numbers. - Multiply and divide numbers mentally, drawing upon known facts. - Multiply and divide whole numbers by 10, 100 and 1,000. - Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3), also prime numbers. - Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares, and cubes. - Know and use the vocabulary of prime numbers, prime factors, and composite (non-prime) numbers. - Establish whether a number up to 100 is prime and recall prime numbers up to 19. Week 9 - 13 Number: Fractions. This includes an assessment week in week 9. - Identify, name, and write equivalent fractions of a unit and non-unit fraction, represented visually including tenths and hundredths. - Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number [for example $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = \frac{11}{5}$]. - Compare and order fractions, whose denominators are multiples of the same number, less than and greater than 1. - Add and subtract fractions with the same denominator. - Add fractions within 1, that total greater than 1 and to a mixed number - Add and subtract two mixed numbers. - Subtract fractions from fractions and mixed numbers.	- Round to the nearest whole number and to 1 decimal place. - Recognise the percent symbol (%) and understand that per cent relates to ‘number of parts per hundred’; write percentages as a fraction with denominator 100, and as a decimal. - Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{2}{5}$, $\frac{4}{5}$ and those fractions with a denominator of a multiple of 10 or 25. Week 9 - 11 Measurement: Perimeter and area. This includes an assessment week in week 9. - Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres, and of polygons. - Calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm^2) and square metres (m^2) and compound shapes, and estimate the area of irregular shapes. Week 12 – 13 Statistics. - Draw, read and interpret line graphs. - Read and interpret tables, two-way tables about more than one variable and timetables.	Week 6 – 8 Number: Decimals. - Use known facts to add and subtract decimals within 1 and know all complements to 1. - Add and subtract decimals across 1, with the same number of decimal places and using efficient strategies. - Complete various decimal sequences - Find the effect of dividing a one- or two-digit number by 10, 100 or 1,000 identifying the value of the digits in the answer as ones, tenths, hundredths, and thousandths. - Multiply and divide decimals with missing values. - Solve simple measure and money problems involving fractions and decimals to two decimal places. Week 9 - 10 Number: Negative numbers. This includes an assessment week in week 9. - Understanding negative numbers. - Count through zeros in 1s and in multiples. - Compare and order negative numbers. - Find the difference between two negative numbers/a negative and positive. Week 11 - 12 Measurement: Converting units. - Know kilograms, kilometres, millimetres, and millilitres. - Understand and use approximate equivalences/convert between metric units and common imperial units such as inches, pounds, and points. - Solve problems involving converting between units of time and length, including calculating with timetables. Week 13 Measurement: Volume. - Use cubes to understand volume as cubic centimetres. - Compare and estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] - Estimate capacity. - Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling for example, using water].
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Week 1 - 2 Number: Place value.

- Read, write, order, and compare numbers up to 10,000,000 and determine the value of each digit.
- Understand powers of 10.
- Use a number line to represent numbers up to 10,000,000, and to compare/order the values as integers.
- Round any whole number to a required degree of accuracy.
- Use negative numbers in context and calculate intervals across 0.
- Solve number and practical problems that involve all the above.

Week 3 - 7 Number: Addition, subtraction, multiplication, and division.

- Add and subtract integers.
- Identify common factors, common multiples, and prime numbers.
- Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3), also prime numbers.
- Use the rules of divisibility and recall prime numbers up to 100.
- Multiply up to 4 digits by a two-digit whole number using the formal written method of long multiplication.
- Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division or short division, and interpret remainders as whole number - remainders, fractions, or by rounding, as appropriate.
- Perform mental calculations and estimation, including with mixed operations and large numbers.
- Use their knowledge of the order of operations to conduct calculations involving the 4 operations.
- Solve multi-step problems involving addition, subtraction, multiplication, and division.
- Use estimation to check answers to calculations and reason from known facts.

Week 8 - 12 Number: Fractions. This includes an assessment week in week 9.

- Use common factors for equivalent fractions and to simplify fractions; use common multiples to express fractions in the same denomination.
- Identify equivalence on a number line.
- Compare and order fractions, including fractions >1 .
- Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
- Use the above to solve multi-step problems.
- Multiply fractions by integers and simple pairs of proper fractions,

Week 1 – 2 Number: Ratio.

- To know whether to add or multiply, using the language of ratio.
- Link ratios and fractions.
- Use scale drawings to identify scale factors.
- Use similar drawings to increase/decrease by a scale factor.
- Solve problems involving the relative sizes of two quantities where missing values can be found.
- Use ratios practically, e.g., in recipes.

Week 3 – 4 Number: Algebra.

- 1- and 2-step function machines.
- Use simple formulae, form expression and substitution.
- Generate and describe linear number sequences.
- Form 1-step and 2-step equations.
- Find pairs of values and solve problems involving two unknowns.
- Identify combinations of two variables.

Weeks 5 - 6 Number: Decimals.

- Place value within 1.
- Up to 3dp, identify the value of each digit, round and add and subtract.
- Multiply and divide numbers by 10, 100 and 1,000 giving answers up to 3 decimal places.
- Multiply and divide decimals by integers.
- Solve problems which require answers to be rounded to specified degrees of accuracy and for decimals to be interpreted in context.

Week 7 – 9 Number: Fractions, decimals, and percentages. This includes an assessment week in week 9.

- Fractions as division.
- Understand decimal and fraction equivalences, then equivalence with percentages.
- Order fractions, decimals, and percentages.
- Solve problems involving the calculation of percentages [for example, of measures and such as 15% of 360] and the use of percentages for comparison, with one-step, multi-step and missing value problems included.

Overview to be preceded by gaps informed by assessment.**Week 10 - 11 Measurement: Area, perimeter, and volume.**

- Recognise that shapes with the same areas can have different perimeters and vice versa.

Week 1 – 4 Consolidation/Revision up to SATs**Week 5 – SATs (this may change depending upon confirmed dates).****Week 6 - 7 Geometry: Property of shape.**

- Measure, classify and calculate angles.
- Understand vertically opposite angles as equal.
- Angles in triangles, quadrilaterals, and polygons.
- Properties and angles of a circle
- Drawing shapes and interpreting nets of 3D shapes.

Week 8 Geometry: Position and direction.

- Read and plot coordinates in all quadrants, in the first quadrant in the first instance.
- Solve problems with coordinates, translations, and reflections.

Week 9 - 10 Statistics.

- Interpret and construct line graphs, bar (dual) charts and pie charts.
- Interpret pie charts with percentages.
- Calculate the mean as an average.

Week 11 - 13 Consolidation of core areas and ensuring Y7 readiness.

writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$]. • Divide proper fractions by whole numbers. • Associate a fraction with division and calculate decimal fraction equivalents for a simple fraction. • Find fractions of an amount – unit and non-unit values. Week 13 Measurement: Converting units. • Identify metric and imperial measures. • Convert between, and calculate with, metric measures, miles and kilometres and imperial measures. • Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. • Use, read, write, and convert between standard units, converting measurements of length, mass, volume, and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to 3dp.	• Recognise when it is possible to use formulae for area and volume of shapes, and that it is more efficient than counting squares. • Calculate the area of parallelograms and different types of triangles. • Calculate, estimate, and compare volume of cuboids using standard units, including cm^3, m^3 and extending to other units (mm^3, km^3). Initially, by counting squares before progressing on to formal methods. Week 12 - 13 Consolidation/Revision.	
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