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| **Happiness Responsibility Friendship Respect Courage** |
| **Maths – Year 6** |
| **AUTUMN TERM** |
| **Place Value** 8 lessons | **Starter focus** | **Planning and teaching sequence** | **Arithmetic weekly assessment**  | **National Curriculum End of Year expectation** |
| **Flashback 4** – daily**Mental strategies** (2 starters): Mental partitioning (Y5)Adding and subtracting powers of 10 (Y5)**Revisit:**Written method – additionCommon factors (Y5) | Numbers 1,000,000 | My Mini Maths arithmetic practice paper (30 papers in total)[Free KS2 SATs Papers - Practice Arithmetic Papers (myminimaths.co.uk)](https://myminimaths.co.uk/year-6-arithmetic-practice-papers/) | To read, write, (order and compare) numbers up to 10 000 000 and determine the value of each digit.Round any whole number to a required degree of accuracy.Use negative numbers in context, and calculate intervals across zero.Solve number and practical problems that involve all of the above. |
| Numbers to 10,000,000 |
| Read and write numbers to 10,000,000 |
| Powers of 10 |
| **Flashback 4** – daily**Mental strategies** (2 starters): Adjustment to add and subtract and multiply (Y5)Multiply by 10, 100, 1000 (Y5)**Revisit:**Written method – subtraction Common multiples/prime numbers (Y5) | Number line to 10,000,000 |
| Compare and order any integers |
| Round any integer |
| Negative numbers |
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| **Addition, Subtraction, Multiplication and Division** 17 lessons | **Flashback 4** – daily**Mental strategies** (2 starters): Finding fractions of amounts (Y5)Add fractions with the same and different denominators (Y5)**Revisit:**Written method – multiplicationDivide by 1 / Multiply by zero / Round any integer. | Add and subtract integers. | My Mini Maths arithmetic practice paper  | Perform mental calculations, including with mixed operations and large numbers.Use their knowledge of the order of operations to carry out calculations involving the four operations.Solve addition and subtraction multistep problems in contexts, deciding which operations and methods to use and why.Identify common factors, common multiples and prime numbers. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.Multiply multi-digit numbers 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, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.Perform mental calculations, including with mixed operations and large numbers.Solve problems involving addition, subtraction, multiplication and division.Use their knowledge of the order of operations to carry out calculations involving the four operations. |
| Common factors |
| Common multiples |
| Rules of divisibility |
| **Flashback 4** – daily**Mental strategies** (2 starters): Subtraction from a multiple of 1000 (Y5)Missing number addition (Y5)**Revisit:**Written method – divisionConverting improper fractions to mixed numbers (Y5) andFinding equivalent fractions (Y5) | Primes to 100 |
| Square and cube numbers |
| Multiply up to a 4-digit number by a 2-digit number. |
| Solve problems with multiplication. |
| **Flashback 4** – daily**Mental strategies** (2 starters): Add to a mixed number and two mixed numbers (Y5)Subtract fractions with different denominators (Y5)**Revisit:**Written method – subtractionPerimeter and area of rectilinear and compound shapes. (Y5) | Short division |
| Division using factors. |
| Introduction to long division |
| Long division with remainders |
| **Flashback 4** – daily**Mental strategies** (2 starters): Balanced equations (Y5)Efficient division using known facts and place value knowledge (Y5)**Revisit:**Written method – long divisionStatistics – line graphs (Y5) | Solve problems with division. |
| Solve multi-step problems. |
| Order of operations BODMAS |
| Mental calculations and estimation |
| **Flashback 4** – daily**Mental strategies** (2 starters): Subtract from a mixed number. (Y5)Subtract from a mixed number – with exchange. (Y5)**Revisit:**Written method – long divisionAngles – around a point/on a straight line (Y5) | Reason from known facts |
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| **Fractions** 9 lessons |  | Equivalent fractions and simplifying | My Mini Maths arithmetic practice paper  | Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.Compare and order fractions, including fractions > 1Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.  |
| Equivalent fractions on a number line |
| Compare and order (denominator) |
| **Flashback 4** – daily**Mental strategies** (2 starters): Whole number subtract a fraction. (Y5)Multiply a non-unit fraction by an integer. (Y5)**Revisit:**Written method -mixedShape & Angles – finding missing lengths and angles (Y5) | Compare and order (numerator) |
| Add and subtract simple fractions. |
| Add and subtract any two fractions. |
| Add mixed numbers |
| **Flashback 4** – daily**Mental strategies** (2 starters): Efficient division with flexible partitioning (Y5)Add decimals with a different number of decimal places (Y5)**Revisit:**Written method – mixedTranslation with coordinates (first quadrant) (Y5) | Subtract mixed numbers |
| Multi-step problems |
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| **Fractions B**  7 lessons |  | Multiply fractions by integers. | My mini maths/SATs arithmetic practice paper  | Multiply simple pairs of proper fractions, writing the answer in its simplest form. Divide proper fractions by whole numbers  |
| Multiply fractions by fractions. |
| **Flashback 4** – daily**Mental strategies** (2 starters): Subtract decimals with a different number of decimal places (Y5)Multiply decimals by 10, 100, 1000 (Y5)**Revisit:**Written method – mixedReflection in horizontal and vertical lines (Y5) | Divide a fraction by an integer. |
| Divide any fraction by an integer. |
| Mixed questions with fractions |
| Fraction of an amount |
| **Flashback 4** – daily**Mental strategies** (2 starters): Divide decimals by 10,100, 1000 (Y5)Subtract a decimal from a whole number (Y5)**Revisit:**Written method – mixedNegative numbers – interpreting in context. | Fraction of an amount – find the whole. |
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| **Measurement – converting** 5 lessons |  | Metric measures | My Mini Maths/SATs arithmetic practice paper  | Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 d.p. 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 3 d.p. Convert between miles and kilometres. |
| Convert metric measures. |
| Calculate with metric measures. |
| **Flashback 4** – daily**Mental strategies** (2 starters): Squared numbers and cube numbers.Dividing fractions by a whole number.**Revisit:**Written method – mixedConversion of units (weight)– problem solving in context  | Miles and kilometres |
| Imperial measures |
| **SPRING TERM** |
| **Ratio** 5 lessons |  | Add or multiply? | My Mini Maths/SATs arithmetic practice paper  | Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.Solve problems involving the calculation/use of percentages for comparison.Solve problems involving similar shapes where the scale factor is known or can be found.Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples |
| Use ratio language. |
| **Flashback 4** – daily**Mental strategies** (2 starters): Multiply a mixed number by an integer.Multiply a fraction by a whole number.**Revisit:**Written method - mixedConversion of units (length)– problem solving in context | Introduction to the ratio symbol |
| Ratio and fractions |
| Scale drawing |
| Use scale factors |
| **Flashback 4** – daily**Mental strategies** (2 starters): Multiply a mixed number by an integer.Multiply a fraction by a whole number.**Revisit:**Written method – mixedTimetables – problem solving in context. | Similar shapes |
| Ratio problems |
| Proportion problems |
| Recipes |
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| **Algebra** 10 lessons | **Flashback 4** – daily**Mental strategies** (2 starters): Place value knowledge to 7 digits.Add 1000 to a 5-digit number.**Revisit:**Written method – mixedVolume – problem solving in context. | 1-step function machines | My Mini Maths/SATs arithmetic practice paper  | Use simple formula.Generate and describe linear number sequence.Express missing number problems algebraically.Find pairs of numbers that satisfy an equation with two unknowns.Enumerate possibilities of combinations of two variables |
| 2-step function machines |
| Form expressions |
| Substitution |
| **Flashback 4** – daily**Mental strategies** (2 starters): Divide millions by 100 and 1000.Divide decimals by 100 and 1000.**Revisit:**Written method – mixedRatio – problem solving in context. | Formulae |
| Form equations |
| Solve 1-step equations. |
| Solve 2-step equations. |
| **Flashback 4** – daily**Mental strategies** (2 starters): Subtraction using place value knowledge.Missing number multiplication using place value knowledge.**Revisit:**Written method - mixedProportion – problem solving in context. | Find pairs of values |
| Solve problems with two unknowns |
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| **Decimals**  9 lessons |  | Place value within 1 | My Mini Maths/SATs arithmetic practice paper  | Identify the value of each digit in numbers given to three decimal place. |
| Place value – integers and decimals |
| **Flashback 4** – daily**Mental strategies** (2 starters): Missing number using written methods and inverse.Dividing fractions by a whole number**Revisit:**Written method – mixedConversion of metric measures– problem solving in context  | Round decimals |
| Add and subtract decimals. |
| Multiply by 10, 100 and 1,000. |
| Divide by 10, 100 and 1,000. |
| **Flashback 4** – daily**Mental strategies** (2 starters): Multiplying 2 fractionsBODMAS**Revisit:**Written method - mixed | Multiply decimals by integers. |
| Divide decimals by integers. |
| Multiply and divide decimals in context |
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| **Fractions, Decimals and Percentages** 9 lessons |  | Decimal and fraction equivalents | My Mini Maths/SATs arithmetic practice paper  | Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, " ( ] Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. |
| **Flashback 4** – daily**Mental strategies** (2 starters): Adjustment to add and subtract and multiply. Multiply whole numbers and decimals by 10, 100, 1000 **Revisit:**Written method - mixed | Fractions as division |
| Understand percentages. |
| Fractions to percentages |
| Equivalent fractions, decimals and percentages |
| **Flashback 4** – daily**Mental strategies** (2 starters): Finding fractions of amountsAdd to a mixed number and two mixed numbers.**Revisit:**Written method - mixed | Order fractions, decimals and percentages |
| Percentage of an amount – one step |
| Percentage of an amount – multi-step |
| Percentages – missing values |
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| **Area, Perimeter and Volume** 8 lessons | **Flashback 4** – daily**Mental strategies** (2 starters): Efficient division using known facts and place value knowledge (Y5)Subtract from a mixed number – with and without exchange.**Revisit:**Written method – mixedFinding percentage of an amount 1 step | Shapes – same area | My Mini Maths/SATs arithmetic practice paper  | Recognise that shapes with the same areas can have different perimeters and vice versa.Recognise when it is possible to use formulae for area and volume of shapes.Calculate the area of parallelograms and triangles.Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units. |
| Area and perimeter |
| Area of a triangle – counting squares |
| Area of a right-angled triangle |
| **Flashback 4** – daily**Mental strategies** (2 starters): Place value knowledge to 7 digitsMultiply by zero/divide by 1**Revisit:**Written method – mixedFinding percentage of an amount 2 step | Area of any triangle |
| Area of a parallelogram |
| Volume – counting cubes |
| Volume of a cuboid |
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| **Statistics** 6 lessons | **Flashback 4** – daily**Mental strategies** (2 starters): Multiply a non-unit fraction by an integer.Add decimals with a different number of decimal places.**Revisit:**Written method – mixedFinding percentage of an amount – missing values | Line graphs | My Mini Maths/SATs arithmetic practice paper  | Interpret and construct pie charts and line graphs and use these to solve problems.Calculate and interpret the mean as an average. |
| Dual bar charts |
| Read and interpret pie charts |
| Pie charts with percentages |
| **Flashback 4** – daily**Mental strategies** (2 starters): Multiply a non-unit fraction by an integer.Add decimals with a different number of decimal places.**Revisit:**Written method – mixedShape – problem solving in context | Draw pie charts. |
| The mean |
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| **SUMMER TERM** |
| **Shape** 8 lessons | **Flashback 4** – daily**Mental strategies** (2 starters): Multiply decimals by 10, 100, 1000.Missing number using written methods and inverse.**Revisit:**Written method – mixedTranslation with coordinates (all 4 quadrants)  |  Measure and classify angles. | My Mini Maths/SATs arithmetic practice paper  | Draw 2-D shapes using given dimensions and angles.Compare and classify geometric shapes based on their properties and sizes.Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius.Recognise, describe and build simple 3-D shapes, including making nets.Find unknown angles in any triangles, quadrilaterals, and regular polygons.Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. |
| Calculate angles. |
| Vertically opposite angles |
| Angles in a triangle |
| **Flashback 4** – daily**Mental strategies** (2 starters): Multiply decimals by 10, 100, 1000.Missing number using written methods and inverse.**Revisit:**Written method – mixedAlgebra – problem solving | Angles in a triangle – special cases |
| Angles in a triangle – missing angles |
| Angles in a quadrilateral |
| Angles in polygons |
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| **Geometry – Position and Direction** 5 lessons | **Flashback 4** – daily**Mental strategies** (2 starters): Dividing fractions by a whole numberMultiplying 2 fractionsBODMAS**Revisit:**Written method – mixedTime – problem solving in context. | The first quadrant | My Mini Maths/SATs arithmetic practice paper  | Describe positions on the full coordinate grid (all four quadrants).Draw and translate simple shapes on the coordinate plane, and reflect them in the axes. |
| Read and plot points in four quadrants. |
| Solve problems with coordinates. |
| Translations |
| Reflection |
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| Remainder of Summer TermThemed projects, consolidation and problem solving (see White Rose resources). |