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|  | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| Duration of term | 7 weeks 3 days | 7 weeks | 7 weeks | 6 weeks | 3 weeks 4 days | 8 weeks |
| Unit(s) taught | Place value (4 weeks)Addition and subtraction (3 weeks 3 days)Geometry – property of shapes (1 weeks) | Multiplication and division (4 weeks)Test week (2 days)Perimeter / area | Fraction, decimals and percentages (4 weeks)Measurement (2 weeks)Statistics (1 week)  | Test week (2 days)Picture this (annotating images) developing bar model responses (2 weeks)Fraction rules (2 weeks)Know it, apply it! (1 week)Area / perimeter / volume / squared / cubed (1 week) | Revision of previous learningSATs week wc 13.5.19 |  |
| Essential prior knowledge | Place value understanding to millions, including tenths and hundredthsAddition and subtraction methods including numbers involving above valuesUnderstanding of regular and irregular. Can recognise 2D and 3D shapes and explain their properties | Use of all four calculation methods, including long multiplication and long divisionFluent and rapid recall of all multiplication facts including use of related number factsUnderstand formula for area and perimeterAble to measure length of lines from given point to nearest millimetre | Counting up in decimals including 0.1s and 0.05s Conversion between all measures such as kg to g, ml to litres etc | Recall of all key fractions, decimal and percentage equivalences | Revision of all prior knowledge |  |
| Key facts non negotiables | Children fully understand the order of operations i.e. BODMASUnderstand all angles rules including opposite angles being equalKnow that diameter is double the length of a circle’s radiusCan label the radius, diameter and circumference of a circle | Knows all formulae for area, volume and perimeter | Recall of all key fractions, decimal and percentage equivalencesKnows the process for calculating mean as an average | Recall of process for calculating area of rectangles, parallelograms, squares and trianglesCan calculate volume of 3D shapesRecall of all key fractions, decimal and percentage equivalences | Revision of all prior knowledge |  |
| KPIs | * Rounds any whole number to a required degree of accuracy.
* Uses negative numbers in context and calculates intervals across zero.
* Solves addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
* Uses estimation to check answers to calculations and determines, in the context of a problem, an appropriate degree of accuracy.
* Compares and classifies geometric shapes based on their properties and sizes and finds unknown angles in any triangles, quadrilaterals and regular polygons.
 | * When ready, multiplies multi-digit numbers up to four digits by a two-digit whole number using the formal written method of long multiplication.
* When ready, divides numbers up to four digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.
* Uses written division methods in cases where the answer has up to two decimal places.
* Uses estimation to check answers to calculations and determines, in the context of a problem, an appropriate degree of accuracy.
 | * Uses written division methods in cases where the answer has up to two decimal places.
* Solves problems which require answers to be rounded to specified degrees of accuracy.
* Recalls and uses equivalences between simple fractions, decimals and percentages, including in different context.
* Solves problems involving he calculation of percentages; eg, of measures and calculations such as 15% of 360 and the use of percentages for comparison.
* Solves problems involving unequal sharing and grouping using knowledge of fractions and multiples.
* Uses, reads, writes and converts 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 three decimal places
* Calculates and interprets the mean as an average.
* Interprets pie charts and line graphs and uses these to solve problems.
 | * Uses simple formulae.

Unit to also focus on reasoning using KPIs covered in previous units | * Revision of previous objectives with particular focus on place value, calculations and fractions
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| Additional objectives | * read, write, order and compare numbers up to 10 000 000 and determine the value of each digit
* solve number and practical problems that involve all of the above.
* perform mental calculations, including with mixed operations and large numbers
* solve problems involving addition, subtraction, multiplication and division
* draw 2-D shapes using given dimensions and angles
* recognise, describe and build simple 3-D shapes, including making nets
* illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
* recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
 | * identify common factors, common multiples and prime numbers
* use their knowledge of the order of operations to carry out calculations involving the four operations
* perform mental calculations, including with mixed operations and large numbers
* solve problems involving addition, subtraction, multiplication and division

• 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 [for example, mm3 and km3]. | * use common factors to simplify fractions; use common multiples to express fractions in the same denomination
* compare and order fractions, including fractions > 1
* add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
* multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, ¼ × ½ = 1/8]
* divide proper fractions by whole numbers [for example, 1/3 ÷ 2 = 1/6]
* associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8]
* identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places
* multiply one-digit numbers with up to two decimal places by whole numbers
* use written division methods in cases where the answer has up to two decimal places
* solve problems which require answers to be rounded to specified degrees of accuracy
* recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
* 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 three decimal places
* convert between miles and kilometres
* 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 [for example, mm3 and km3].
* interpret and construct pie charts and line graphs and use these to solve problems
* (apply mean to this if possible as well)
 | Know it, apply it!* compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
* recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.
* Pupils describe the properties of shapes and explain how unknown angles and lengths can be derived from known measurements.
* 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 three decimal places
* convert between miles and kilometres
* Area, perimeter, volume, squared, cubed
* 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.
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| Explicit teaching of problem solving | Act it outTrial and error | PatternSimplify | Working backwards | Algebra – use of SATs questions using pictorial representations generate and describe linear number sequencesexpress missing number problems algebraicallyfind pairs of numbers that satisfy an equation with two unknownsenumerate possibilities of combinations of two variables. | List or table | Trial by improvement |
| Vocabulary | Numbers to tenMillionOrder ofoperationsVerticallyopposite(angles)Circumference,radius,diameter | Order ofoperationsCommonfactors, commonmultiples | Degree of accuracySimplifyMeanPie chartConstruct | Four quadrants(for coordinates)Linear number sequence Substitute Variables Symbol Known values | Revision of key vocabulary and vital facts linked to these |  |