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| Weeks | Strand and progression focus | KPI’s | Key Vocabulary | Core skill |
| **Year 6, Autumn Term 1** | **NPV**Number and place value; **MMD**Mental multiplication and division; **DPE**Decimals, percentages and their equivalence to fractions; **FRP**Fractions, ratio and proportion | Read, write and compare 6-digit numbers and know what each digit represents; read, write and compare 1-, 2- and 3-place decimal numbers; multiply and divide by 10, 100 and 1000; round decimals to nearest tenth and whole number and place on a number line; convert decimals (up to 3 places) to fractions and vice-versa. | Tenths, hundredths;  2-decimal places;  round(ing)  Nearest tenth and whole number  Inequality  Greater  More than/less than | Understand the value of each digit  Scaling  Understand that fractions, decimals and percentages make a whole  Use place value to 3 decimal places.  Make fractions as part of 100.  Make equivalent fractions Using a fraction wall/strip.  Be able to move decimals across a pv grid - 1 place, 2 places or 3 to multiply/divide by 10, 100 and 1000.  Use times table knowledge to divide. |
|  | **MAS**Mental addition and subtraction; **NPV**Number and place value; **WAS**Written addition and subtraction; **DPE**Decimals, percentages and their equivalence to fractions; **PRA**Problem solving, reasoning and algebra  **Place value; addition**  Weeks 1 and 2 focus on establishing a robust understanding of place value in relation to whole numbers and decimals, which is then used in written methods and mental strategies in addition. | Use mental addition strategies to solve additions including decimal numbers; use column addition to add 5-digit numbers, decimal numbers and amounts of money; solve problems involving number up to 3 decimal places, choose an appropriate method to solve decimal addition. | Synonyms for addition and subtraction  Efficient method  Rounding  Number facts | Partitioning using place value.  Counting up/back to the nearest 10, 100, 1000.  Round and adjust |
|  | **PRA**Problem solving, reasoning and algebra; **MAS**Mental addition and subtraction  **Algebra**  Week 3 focuses on algebra – developing the use of trial and improvement methods, knowledge of the order of operations including brackets, and the manipulation of sentences containing unknowns. | Express missing number problems algebraically and find pairs of numbers that satisfy equations involving two unknowns; find missing lengths and angles; understand how brackets can be used in calculation problems; use knowledge of the order of operations to carry out calculations involving the four operations, solve addition and subtraction multi-step problems using knowledge of the order of operations. | Acute/obtuse/reflex Equation/operation BIDMAS Degrees  Properties Equilateral/  Isosceles/scalene  right-angled triangles angles  180° | Use knowledge that the angles of a triangle sum to 180 degrees.  Use opposite angles are equal rule in an isosceles triangle.  Use regular rule for an equilateral triangle - sides and angles all equal.  Use knowledge that a right angle is 90 degrees.  Be able to calculate the value of each interval on a scale.  Use place value to multiply/divide by 1000.  Know the order of operations: BIDMAS |

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| 4 | **MEA**Measurement; **PRA**Problem solving, reasoning and algebra; **NPV**Number and place value  **Measures**  Week 4 focuses on measurement in and conversion of SI and imperial units; it also covers the use of 24-hour clock and calculation of time intervals. | Convert between grams and kilograms, millilitres and litres, millimetres and centimetres, centimetres and metres, metres and kilometres, and miles and kilometres; revise reading the 24-hour clock and convert 12-hour times to 24-hour; read and write Roman numerals; find time intervals using the 24-hour clock. | Scales Nearest half interval Convert Nearest half division  Litres/ millilitres  Grams/ kilograms  Weight  Capacity | Be able to calculate the value of each interval on a scale.  Use a number line to calculate time intervals.  Make minutes up to the next hour.  Know 1000ml in 1L and 1000g in 1kg. |
| **5** | **MAS**Mental addition and subtraction; **WAS**Written addition and subtraction; **NPV**Number and place value; **PRA**Problem solving, reasoning and algebra  **Subtraction**  Week 5 focuses on mental strategies and written methods in subtracting and the appropriate use of both with whole and decimal numbers, including money. | Use mental addition, column subtraction and Counting up to solve subtractions of amounts of money and word problems; use mathematical reasoning to investigate. | Synonyms for addition and subtraction Partitioning  Strategy  Adjust | Partitioning using place value.  Counting up/back to the nearest 10, 100, 1000.  Column subtraction |

## Year 6, Autumn Term 2

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| Week | Strand and progression focus | KPI’s | Key Vocabulary | Core skills |
| 6 | **MMD**Mental multiplication and division; **WMD**Written multiplication and division; **MAS**Mental addition and subtraction; **PRA**Problem solving, reasoning and algebra; **NPV**Number and place value  **Multiplication**  Week 6 focuses on mental strategies and written methods in multiplying; both long and short multiplication are rehearsed, alongside a range of mental tactics. | Use mental multiplication strategies to multiply by numbers such as 4, 8, 5, 25, 19, 29 and 99; revise using short multiplication to multiply 4-digit numbers by 1-digit numbers and use this to multiply amounts of money; solve word problems involving multiplication including two-step problems and finding change; use long multiplication to multiply 3-digit and 4-digit numbers by teens numbers. | Multiple  Factors  Remainders  Approximation | Be able to move digits across a pv grid - 1 place, 2 places or 3 to multiply/divide by 10, 100 and 1000.  Use times table knowledge to divide. |
| 7 | **NPV**Number and place value; **PRA**Problem solving, reasoning and algebra; **FRP**Fractions, ratio and proportion  **Negative numbers; fractions**  Week 7 focuses on positive and negative whole numbers, and then comparing, ordering, adding and subtracting fractions, including mixed numbers. | Understand negative numbers; calculate small differences between negative numbers and negative and positive numbers; add and subtract negative numbers; compare fractions with unlike, but related, denominators; correctly use the terms fraction, denominator and numerator; understand what improper fractions and mixed numbers are and add fractions with the same denominator, writing the answer as a mixed number | Negative numbers mixed number fractions improper and proper fractions conversion equivalent fractions  Reduce/simplest form/simplify  Inequality  Lowest Common Multiple | Addition and subtraction of negative numbers.  Understand the process of adding positive and negative numbers:  The same symbol = +  The opposite symbol= -  Understand that fractions make a whole.  Know that when adding fractions with the same denominator, you are adding fractions with the same amount of equal parts.  Use multiplication and division to convert proper and improver fractions.  Know to convert an improper fraction into a proper (mixed number fraction). |
| 8 | **MEA**Measurement; **GPS**Geometry: properties of shapes  **Shape, and measurement in relation to shape**  Week 8 focuses on 2D shapes, their properties, areas, and perimeters, and 3D shapes, their nets, volumes and properties. | Calculate the perimeter, area and volume of shapes, and know their units of measurement; understand that shapes can have the same perimeters but different areas and vice versa; calculate the area of a triangle using the formula A = 1/2 b × h; find the area of parallelograms using the formula A = b × h ; name and describe properties of 3D shapes; systematically find and compare nets for different 3D shapes. | Line of enquiry  Estimate  Regular and irregular shapes Compound shapes Unknown lengths  Vertices  Edges  Faces  Formula | Times tables.  Be able to double lengths mentally.  Be able to break composite shapes into rectangles and use rectangle facts to derive lengths.  Know the formula A = 1/2 b × h for finding the area of a triangle. |
| 9 | **MMD**Mental multiplication and division; **FRP**Fractions, ratio and proportion; **WMD**Written multiplication and division; **PRA**Problem solving, reasoning and algebra  **Division; fractions and percentages**  Weeks 9, 10 and 11 focus on division and fractions; children rehearse mental strategies and short division, giving remainders as fractions; fractions are added, subtracted, multiplied and divided; finding percentages is also covered. | Use mental strategies to divide by 2, 4, 8, 5, 20 and 25; find non-unit fractions of amounts; use short division to divide 3- and 4-digit numbers by 1-digit numbers, including those which leave a remainder; express a remainder as a fraction, simplifying where possible. | Proper fractions  Improper fractions Unit fractions/non-unit fractions  Short multiplication  Remainder  Function  Divisor | Fractions of amounts  Multiply and divide amounts  Use times table knowledge to calculate unit fractions via division.  Use times table knowledge to calculate the non-unit fraction.  Use column multiplication method. |
| 10 | **FRP**Fractions, ratio and proportion; **PRA**Problem solving, reasoning and algebra; **DPE**Decimals, percentages and their equivalence to fractions  **Division; fractions and percentages**  Weeks 9, 10 and 11 focus on division and fractions; children rehearse mental strategies and short division, giving remainders as fractions; fractions are added, subtracted, multiplied and divided; finding percentages is also covered. | Add and subtract unit fractions with different denominators including mixed numbers; use mental strategies to find simple percentages of amounts, including money | Proper fractions  Improper fractions unit fractions/ non-unit fractions  percentages  numerator/denominator synonyms for addition and subtraction  Equivalent | Divide by 10  Use short multiplication and division.  Know that when adding fractions with different denominators, then the fraction does not have the same amount of equal parts.  Know that you find equivalent fractions when adding or subtracting fractions with different denominators.  Find the lowest common multiple.  Know how to represent fractions as remainders. |
| 11 | **FRP**Fractions, ratio and proportion  **Division; fractions and percentages**  Weeks 9, 10 and 11 focus on division and fractions; children rehearse mental strategies and short division, giving remainders as fractions; fractions are added, subtracted, multiplied and divided; finding percentages is also covered. | Multiply fractions less than 1 by whole numbers, converting improper fractions to whole numbers; use commutativity to efficiently multiply fractions by whole numbers; divide unit and non-unit fractions by whole numbers; solve word problems involving fractions. | Mixed numbers  Improper fractions  Proper fractions  Convert  Short multiplication  Long multiplication  Integer  Divisor | Times table + related division facts.  Know how to represent 1 whole as a fraction.  Know that when multiplying a fraction by an integer (whole number) then multiply the numerator by the whole number, whilst the denominator stays the same.  To divide a fraction by a whole number, know to use the inverse and multiply the denominator by the whole number. |

## Year 6, Spring Term 1

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| Week | Strand and progression focus | KPI’s | Key Vocabulary | Core skills |
| 12 | **NPV**Number and place value; **WAS**Written addition and subtraction  **Place value; subtraction**  Week 12 focuses on a robust understanding of place value in large numbers, which underpins the subtraction work that follows. | Read and write numbers with up to 7-digits, understanding what each digit represents; work systematically to find out how many numbers round to 5000000; solve subtraction of 5- and 6-digit numbers using written column method (decomposition). | Place value  Decimal numbers  Tenths & hundredths  Nearest tenth and whole number  Compare  Round | Understand the value of each digit  Scaling  Understand that fractions, decimals and percentages make a whole  Use place value to 3 decimal places.  Make fractions as part of 100.  Make equivalent fractions Using a fraction wall/strip.  Use times table knowledge to divide. |
| 13 | **DPE**Decimals, percentages and their equivalence to fractions; **FRP**Fractions, ratio and proportion  **Multiplication of decimals and fractions**  Weeks 13 and 14 focus on understanding decimal and proper fractions and their equivalences; calculations including multiplication of these numbers are rehearsed. | Multiply and divide by 10, 100 and 1000; compare and order numbers with up to three decimal places; know common fraction / decimal equivalents; multiply pairs of unit fractions and multiply unit fractions by non-unit fractions | Mixed numbers  Improper fractions  Proper fractions  Multiply  Convert  Short multiplication  Long multiplication  Recurring | Be able to move digits across a pv grid - 1 place, 2 places or 3 to multiply/divide by 10, 100 and 1000.  Times table + related division facts.  Know how to represent 1 whole as a fraction.  Know to multiply the numerators and then the denominators. |
| 14 | **MMD**Mental multiplication and division; **WMD**Written multiplication and division; **PRA**Problem solving, reasoning and algebra; **NPV**Number and place value  **Multiplication of decimals and fractions**  Weeks 13 and 14 focus on understanding decimal and proper fractions and their equivalences; calculations including multiplication of these numbers are rehearsed. | Use partitioning to mentally multiply 2-digit numbers with one decimal place by whole 1-digit numbers; multiply numbers with two decimal places; use short multiplication to multiply amounts of money; use estimation to check answers to calculations; use long multiplication to multiply 3-digit and 4-digit numbers by numbers between 10 and 30. | Short multiplication  long multiplication  inverse operations  Product  Trade  Estimate | Times table + related division facts.  Know how to represent 1 whole as a fraction. |
| 15 | **GPS**Geometry: properties of shapes; **PRA**Problem solving, reasoning and algebra  **2D shapes; angles**  Week 15 focuses on 2D shapes, particularly quadrilaterals, in relation to their diagonals and interior angles; circles are also taught, along with relevant terminology. | Name, classify and identify properties of quadrilaterals; explore how diagonal lines can bisect quadrilaterals; understand what an angle is and that it is measured in degrees; know what the angles of triangles, quadrilaterals, pentagons, hexagons and octagons add to and use these facts and mathematical reasoning to calculate missing angles; recognise and identify the properties of circles and name their parts; draw circles using pairs of compasses; draw polygons using a ruler and a protractor | Properties of shapes Parallel  perpendicular  Circumference  Diameter  Radius | Check for parallel sides.  Check for opposite sides/angles equal.  Recognise perpendicular lines at different orientations.  Use knowledge that 90 degrees is a right angle, 180 degrees a straight line and 360 degrees a complete turn. |
| 16 | **MAS**Mental addition and subtraction; **NPV**Number and place value; **WAS**Written addition and subtraction; **PRA**Problem solving, reasoning and algebra  **Addition and subtraction**  Week 16 focuses on mental and written addition and subtraction methods, including solving word problems. | Add and subtract numbers using mental strategies; solve addition of 4- to 7-digit numbers using written column addition; identify patterns in the number of steps required to generate palindromic numbers; solve subtraction of 5-, 6- and 7-digit numbers using written column method (decomposition); solve additions and subtractions choosing mental strategies or written procedures as appropriate; read, understand and solve word problems | Place value;  synonyms of addition and subtraction  Decomposition  Reverse  Palindrome  Difference  Strategy  Rounding | Partitioning using place value.  Counting up/back to the nearest 10, 100, 1000.  Column addition and subtraction |
| 17 | **WMD**Written multiplication and division; **NPV**Number and place value; **PRA**Problem solving, reasoning and algebra  **Multiplication and division**  Week 17 focuses on number patterns involving factors and multiples, and on long division. | Identity common factors and common multiples; understand that a prime number has exactly two factors and find prime numbers less than 100; understand what a composite (non-prime) number is; use long division to divide 3- and 4-digit numbers by 2-digit numbers, giving remainders as a fraction, simplifying where possible | Factors/multiples  prime number composite number  Simplify  Divisor  Remainder | Use a short written division method.  Use a long written division method.  Reverse the signs in a number statement to apply the inverse operation. |

## Year 6, Spring Term 2

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| Week | Strand and progression focus | KPIs | Key Vocabulary | Core skills |
| 18 | **MAS**Mental addition and subtraction; **WAS**Written addition and subtraction; **PRA**Problem solving, reasoning and algebra  **Addition and subtraction**  Week 18 focuses on solving addition and subtraction problems involving money and decimals. | Solve addition and subtraction multi-step problems in shopping contexts, and add and subtract money using column addition and counting up; add and subtract decimal numbers choosing an appropriate strategy, and add decimal numbers with different numbers of places using column addition; use mathematical reasoning to investigate and solve problems, and solve subtractions of decimal numbers with different numbers of places (2-places) using counting up | Multi-step  Synonyms for addition and subtraction  Two-decimal places  Mental  Partitioning | Partitioning using place value.  Counting up/back to the nearest 10, 100, 1000.  Round and adjust |
| 19 | **STA**Statistics; **DPE**Decimals, percentages and their equivalence to fractions  **Statistics and data**  Week 19 focuses on data representation and manipulation, including line graphs, pie charts and the use and calculation of averages. | Calculate and understand the mean average; construct and interpret distance/time line graphs where intermediate points have meaning, including conversion line graphs; understand pie charts are a way of representing data using percentages, interpret and construct pie charts | Mean  average  Line graphs  Percentage  Pie chart  Data set | Understand how and why we find the average.  Interpret information in many forms. |
| 20 | **GPD**Geometry: position and direction; **NPV**Number and place value; **PRA**Problem solving, reasoning and algebra; **GPS**Geometry: properties of shapes  **Coordinate geometry; angles**  Week 20 focuses on position on a 4-quadrant coordinate grid, with polygons being plotted, translated and reflected; the week concludes with angle theorems. | Read and plot coordinates in all four quadrants, draw and translate simple polygons using coordinates and find missing coordinates for a vertex on a polygon; draw and reflect simple polygons in both the x-axis and y-axis using coordinates; find unknown angles around a point, on a line, in a triangle or vertically opposite and in polygons where diagonals intersect | Quadrants  Translation  Reflection  Grid  Coordinate  Axis  Graph  Polygon  Negative  Diagonal  Adjacent  Vertices | Understand the fourth quadrant.  Know to read the ‘x’ axis first, followed by the ‘y’.  Know the properties of shapes.  Use knowledge that a right angle is 90 degrees.  Use knowledge that a straight line is 180 degrees.  Use knowledge of quadrilaterals are 360 degrees.  Use knowledge that angles around a point total 360 degrees.  Be able to calculate the value of each interval on a scale. |
| 21 | **WMD**Written multiplication and division; **PRA**Problem solving, reasoning and algebra  **Multiplication and division**  Week 21 focuses on the use of written algorithms in multiplying and dividing large numbers; both long and short versions of these methods are taught. | Multiply 4-digit numbers including those with two decimal places by 1-digit numbers; use long multiplication to multiply 4-digit numbers by numbers between 10 and 30, including those with two decimal places; revise using short division to divide 4-digit by 1-digit and 2-digit numbers including those which leave a remainder, and divide the remainder by the divisor to give a fraction, simplifying where possible, and make approximations; use long division to divide 4-digit by 2-digit numbers, and use a systematic approach to solve problems | Long multiplication  Synonyms for multiply and divide  Remainder as decimal  Remainder as fraction  Long division  Divisor  Remainder  Multiple  Simplify | Use column method for multiplication.  Use a short division method.  Know to divide the remainder to give a fraction.  Use knowledge of simplifying. |
| 22 | **PRA**Problem solving, reasoning and algebra; **FRP**Fractions, ratio and proportion  **Algebra; ratio**  Week 22 focuses on the use of generalisations and simple formula, including to find the nth term in a sequence; then moves on to ratio. | Generalise a relationship between pairs of numbers, express simple formulae in words, then using letters; describe and continue sequences, generalise to predict the tenth term, begin to generalise a term in a sequence using n to stand for the number of the term in a sequence; describe ratio and use ratio to solve problems; find fractions and simplify ratios | Formulae  Sequence  Generalise  Relative size  Scale factor  Proportion  Ratio as a:b  Equation  Unknown variable  Constant  Algebraic(ally) | Know relationships between numbers, linking to number bonds.  Recognise patterns.  Use understanding of scaling for ratio. |

## Year 6, Summer Term 1

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| Week | Strand and progression focus | KPIs | Key Vocabulary | Core Skills |
| 23 | **NPV**Number and place value; **DPE**Decimals, percentages and their equivalence to fractions  **Revision: place value and decimals**  Week 23 focuses on revision of place value in large numbers and in decimal fractions. | Revise reading, writing, comparing and ordering numbers with up to seven digits and decimal numbers with up to three decimal places; revise rounding decimal numbers to the nearest tenth and whole number; revise rounding big numbers to the nearest thousand, ten thousand, hundred thousand and million; revise locating a number on a number line marking numbers it lies between; revise comparing and ordering negative numbers including calculating differences between negative numbers and positive and negative numbers | Digit  Compare  Represent  Negative number  Difference  Celsius | Same as Week 1  Understand that if 5 or greater then round up, >5, round down.  Know to identify the value of the interval. |
| 24 | **NPV**Number and place value; **MAS**Mental addition and subtraction; **WAS**Written addition and subtraction; **DPE**Decimals, percentages and their equivalence to fractions; **FRP**Fractions, ratio and proportion; **PRA**Problem solving, reasoning and algebra; **GPS**Geometry: properties of shapes  **Revision**  Week 24 focuses on revision of: mental and written strategies in addition and subtraction; finding percentages; order of operations; and finding unknowns in equations. | Revise adding and subtracting whole numbers and decimal numbers using mental and written methods; revise finding percentages of numbers, converting fractions, decimals and percentages and making comparisons using percentages; revise how brackets can be used in calculation problems, revise the order of operations for calculations involving the four operations; revise solving missing number problems using inverse operations; revise using trial and improvement to solve equations involving one or two unknowns, and find missing lengths and angles | Rounding  Partitioning  Equation  Inverse operation  Order of operations- BIDMAS  Algebra- missing values | Know that fractions, decimals and percentages are part of a whole.  Know that fractions and percentages are out of 100.  Understand the procedures of BIDMAS.  Know that you can check your answer by using the inverse.  Same as week 20. |
| 25 | **MAS**Mental addition and subtraction; **FRP**Fractions, ratio and proportion; **WMD**Written multiplication and division; **MMD**Mental multiplication and division; **PRA**Problem solving, reasoning and algebra; **NPV**Number and place value  **Revision: multiplication and division**  Weeks 25 and 26 focus on revision of: written algorithms for multiplication and division and mental strategies including the use of factors; finding fractions of amounts; and calculating mean average. | Revise scaling, using mental strategies for multiplying and dividing; revise solving problems involving rate; revise multiplying pairs of 2-digit numbers and finding factors of 2-digit numbers; multiply 3-digit and 4-digit numbers including decimals by whole 1-digit numbers and solve word problems involving multiplication of money and measures; use a systematic approach to solve problems involving multiplication and division, including long multiplication of 3-digit and 4-digit numbers and decimals | Scale  Measurement  Rate  Factor  Multiple  Common factor  Common multiple  Systematic approach | See week 21  Children make connections across key concepts in Maths and draw on prior learning. |
| 26 | **WMD**Written multiplication and division; **PRA**Problem solving, reasoning and algebra; **NPV**Number and place value; **STA**Statistics; **GPD**Geometry: position and direction  **Revision: multiplication and division**  Weeks 25 and 26 focus on revision of: written algorithms for multiplication and division and mental strategies including the use of factors; finding fractions of amounts; and calculating mean average. | Revise using short division to find unit fractions of amounts, including decimals, and round answers to money problems according to the context; revise using long division to divide 4-digit by 2-digit numbers, giving remainders as a fraction, simplifying where possible; revise using long division to divide 3-digit and 4-digit numbers by numbers between 10 and 30, writing the fractional part of the answer as a decimal where equivalents are known; revise calculating the mean average; revise reading and marking coordinates in all four quadrants, draw simple polygons and find missing coordinates on a polygon or line | Mean  Average  Quadrants  Translation  Long multiplication  Synonyms for multiply and divide  Remainder as decimal  Remainder as fraction  Long division | Know to convert remainders to fractions and reduce to simplest form.  Same as week 20 and 21 |

## Year 6, Summer Term 2

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| Week | Strand and progression focus | KPIs | Key Vocabulary | Core Skills |
| 27 | **NPV**Number and place value; **FRP**Fractions, ratio and proportion; **MEA**Measurement  **Revision: fractions; ratio**  Week 27 focuses on revision of: equivalence in fractions; and using this to add, subtract, multiply and divide fractions; and solving ratio problems. | Revise equivalence simplifying fractions and changing improper fractions into mixed numbers and vice versa; revise adding and subtracting fractions with different denominators, including those which give answers greater than 1; revise multiplying pairs of fractions and multiplying and dividing fractions by whole numbers; solving problems involving ratios; read intermediate points off scales | Ratio  Equivalent  Simplify  Proper and improper fraction  Scale  Represent | Same as week 10  Same as week 11  Same as week 20 |
| 28 | **GPS**Geometry: properties of shapes; **MEA**Measurement; **STA**Statistics  **Revision**  Week 28 focuses on revision of: properties of 2D shapes; angle types and theorems; perimeter, area and volume; 24-hour clock time intervals; and tables, graphs and charts. | Revise properties and classification of 2D shapes, drawing 2D shapes using ruler, protractor and compasses, parts of a circle and angles in polygons; revise calculating missing angles by knowing angle facts; use a protractor to measure and draw angles in degrees; identify and name acute, right, obtuse and reflex angles; understand perimeter, area and volume; find the perimeter of rectangles, find the area of rectangles, parallelograms and triangles, and find the volumes of cubes and cuboids; revise reading and interpreting different types of data display | Diameter;  Radius;  Perimeter;  Area;  Formula;  interval | Same as week 8  Same as week 15 |
| 29 | **NPV**Number and place value; **PRA**Problem solving, reasoning and algebra; **GPD**Geometry: position and direction; **WMD**Written multiplication and division  **Further mathematical ideas**  Weeks 29 and 30 focus on exploration of a variety of interesting mathematical concepts and processes, including binary numbers and Napier’s bones; playing with numbers, discovering patterns and solving mathematical puzzles. | Use mathematical reasoning to investigate and solve problems, and to estimate and predict; solve problems using doubling, solve calculations with enormous numbers; find out about famous mathematicians including Brahmagupta and John Napier and use their different methods to multiply; use lattice multiplication to solve multiplications of 2-, 3- and 4-digit numbers; begin to compare historical multiplication methods | Sequence  Tessellation  Regular  Semi-regular  Angles  Degrees  Vertices  Polygon  Brahmagupta  Napiers Bones  Algorithm | Use knowledge of geometry to make tessellating patterns  Estimate and predict using mathematical knowledge  Use square and cube numbers, numbers up to 10 000 000 and rounding any whole number to a required degree of accuracy. |
| 30 | **NPV**Number and place value; **PRA**Problem solving, reasoning and algebra; **GPS**Geometry: properties of shapes  **Further mathematical ideas**  Weeks 29 and 30 focus on exploration of a variety of interesting mathematical concepts and processes, including binary numbers and Napier’s bones; playing with numbers, discovering patterns and solving mathematical puzzles. | Explore binary numbers; solve mathematical puzzles; including using multiplication facts, find digital roots and look for patterns; explore Fibonacci sequences and Pythagoras' theorem | Pythagoras' theorem  Fibonacci  Consecutive  Non-consecutive  Rule  Pattern  Digital root  Binary | Know to identify patterns, devise and test rules and use them to make predictions.  Use the notation for squared and cubed.  Understand and apply the Pythagoras theorem (lengths of sides in a right-angled triangle). |