# Preston Primary School Long Term Maths Framework

**Intent**

**At Preston Primary School, we aim to give the pupils a progressive, thoughtfully sequenced mathematics learning experience that enables them to:**

- **become confident, numerate citizens**
- **talk confidently and reason about maths**
- **apply their learning to real-life, everyday contexts**
- **gain a passion for maths which will remain with them for life**

## Year One

| | Autumn | Spring | Summer |
|---|---|---|---|
| 1<br>2<br>3 | • count to and across 30, forwards and backwards, beginning with 0 or 1, or from any given number<br>• count, read and write numbers to 30 in numerals;<br>• given a number, identify one more and one less<br>• identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least<br>• compare, describe and solve practical problems for:<br>  ○ lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]<br>• measure and begin to record the following:<br>  ○ lengths and heights | • count to and across 60, forwards and backwards, beginning with 0 or 1, or from any given number<br>• count, read and write numbers to 60 in numerals;<br>• **recap**: given a number, identify one more and one less<br>• **recap**: identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least<br>• **recap**: compare, describe and solve practical problems for:<br>  ○ lengths and heights [for example, long/short, longer/shorter, tall/short, double/half] – and also:<br>  ○ mass/weight [for example, heavy/light, heavier than, lighter than]<br>• **recap**: measure and begin to record the following:<br>  ○ lengths & heights, and also:<br>  ○ mass & weight | • count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number<br>• count, read and write numbers to 100 in numerals;<br>• **recap**: given a number, identify one more and one less<br>• **recap**: identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least<br>• **recap:** compare, describe and solve practical problems for:<br>  ○ lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]<br>  ○ mass/weight [for example, heavy/light, heavier than, lighter than]<br>  ○ capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]<br>• **recap**: measure and begin to record the following:<br>  ○ lengths and heights<br>  ○ mass/weight – and also:<br>  ○ capacity and volume |
| 4<br>5 | • read, write and interpret mathematical statements involving addition (+) and equals (=) signs<br>• represent and use number bonds within 10 (**revision of Rec**) then 20<br>• add one-digit and two-digit numbers to 20, including zero<br>• solve one-step problems that involve addition using concrete objects and pictorial representations, and missing number problems | • recognise and use language relating to dates, including days of the week, weeks, months and years<br>• tell the time to the hour and half past the hour and draw the hands on a clock face to show these times. | • describe position, direction and movement, including whole, half, quarter and three quarter turns linked to time |
| 6<br>7 | • read, write and interpret mathematical statements involving subtraction (–) and equals (=) signs<br>• represent and use number bonds and related subtraction facts within 20<br>• subtract one-digit and two-digit numbers to 20, including zero<br>• solve one-step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = – 9. | • recognise, find and name a quarter as one of four equal parts of an object, shape or quantity. | • Recognise and know the value of different denominations of coins up to £1 introduce notes.<br>• count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens link to addition and subtraction |
| 8 | • recognise, find and name a half as one of two equal parts of an object, shape or quantity<br>• Recognise and name common 2-D shapes, including: for example, rectangles (including squares), circles and triangles | • tell the time to the hour and half past the hour and draw the hands on a clock face to show these times (and quarter linking to fractions above) | |
| 9 | | • recognise and know the value of different denominations of coins and notes up to 50p linked to arrays<br>• count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens linked to addition and subtraction | Recap week<br>• recognise and name common 2-D and 3-D shapes, including:<br>• 2-D shapes [for example, rectangles (including squares), circles and triangles]<br>• 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]. |
| 10 | • recognise and know the value of different denominations of coins up to 20p | | • solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher linked to fractions. |
| 11 | • compare, describe and solve practical problems for: mass/weight [for example, heavy/light, heavier than, lighter than]<br>• measure and begin to record the following: mass/weight | | |

| | | | |
|---|---|---|---|
| 12 | • Recognise and name common 3-D shapes, including: for example, cuboids (including cubes), pyramids and spheres<br>• **Recap** 2D shapes | • compare, describe and solve practical problems for: capacity and volume [for example, full/empty, more than, less than, half, half full, quarter]<br>• measure and begin to record the following: capacity and volume linked to addition and subtraction | |

New Vocabulary to be taught:

numbers zero-hundred number bonds one digit two digit ten ones subtract multiples fraction quarter half and full turn earlier later length height mass/weight measure capacity/volume whole, half, quarter three quarter turns months of the year pounds pence sphere pyramid cylinder hexagon pentagon arrays share divide

# Year Two

| | Autumn | Spring | Summer |
|---|---|---|---|
| 1<br>2 | • count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward<br>• recognise the place value of each digit in a two-digit number (tens, ones)<br>• identify, represent and estimate numbers using different representations, including the number line<br>• compare and order numbers from 0 up to 100; use < > and = signs<br>• read and write numbers to at least 100 in numerals and in words<br>• use place value and number facts to solve problems. add and subtract numbers using concrete objects, pictorial representations, and mentally, including:<br>o adding three one-digit numbers<br>o a two-digit number and ones<br>o a two-digit number and tens | • **recap**: count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward<br>• **recap**: recognise the place value of each digit in a two-digit no.s (tens, ones)<br>• **recap**: compare and order numbers from 0 up to 100; use < > and = signs<br>• Partition two digit numbers in different combinations up to 100<br>• Revisit adding two, two digit numbers moving away from apparatus and including problem solving<br>(GD use reasoning about numbers and relationships to solve more complex problems and explain thinking) | • **recap**: recognise, find, name and write fractions 1/3 , ¼ , 2/4 and introduce ¾ of a length, shape, set of objects or quantity<br>• solve problems involving division, using materials, arrays, repeated subtraction, mental methods, and multiplication and division facts, including problems in contexts |
| 3 | | • tell and write the time introducing to five minutes, including quarter past, half past, to the hour and draw the hands on a clock face to show these times, clockwise and anti clockwise<br>• know the number of minutes in an hour and the number of hours in a day. | • compare and sequence intervals of time<br>• 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<br>• know the number of minutes in an hour and the number of hours in a day |
| 4 | • show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot | • solve problems with subtraction:<br>o using concrete objects and pictorial representations, including those involving numbers, quantities and measures<br>o applying their increasing knowledge of mental and written methods<br>o recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100<br>• subtract numbers using concrete objects, pictorial representations, and mentally, including:<br>o a two-digit number and ones<br>o a two-digit number and tens<br>o two two-digit numbers<br>• recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.<br>Subtraction of numbers using empty number line linked to difference and counting forward | |
| 5 | • add numbers using concrete objects, pictorial representations, and mentally, including:<br>o a two-digit number and tens | | SATS |
| 6 | • add numbers using concrete objects, pictorial representations, and mentally, including:<br>o two two-digit numbers including bridging | | |
| 7 | | • choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) and mass (kg/g) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels<br>• compare and order lengths, mass, volume/capacity and record the results using >, < and =<br>• interpret and construct simple block diagrams<br>• ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity | • recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.<br>• Solve problems with addition and subtraction:<br>• show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot |
| 8 | • Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value<br>• find different combinations of coins that equal the same amounts of money | | |
| 9 | • recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers<br>• interpret and construct simple pictograms<br>• ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity | • solve problems involving multiplication using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.<br>(GD including making deductions outside known multiplication facts and solving word problems that involve more than one step) | Introduction of numbers to 1000 (multiples of 100)<br>• choose and use appropriate standard units to estimate and measure<br>o capacity (litres/ml)<br>o temperature (°C)<br>to the nearest appropriate unit, using scales and measuring vessels |
| 10 | • ask and answer questions about totalling and comparing categorical data. | • identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line<br>• identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces<br>• identify 2-D shapes on the surface of 3-D shapes, [for example, a circle on a cylinder and a triangle on a pyramid]<br>• compare and sort common 2-D and 3-D shapes and everyday objects.<br>(GD including similarities and differences) | |
| 11 | • recognise, find, name and write fractions ¼ (including ¼ to and ¼ past) , 1/3, ½ of a length, shape, set of objects or quantity<br>• write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of 2/4 and ½ including all parts need to make a whole | | • **recap**: interpret and construct tally charts, block diagrams and simple tables<br>• ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity<br>• ask and answer questions about totalling and comparing categorical data. |
| 12 | | • **recap**: recognise, find, name and write fractions 1/3 , ¼ , 2/4 and introduce ¾ of a length, shape, set of objects or quantity | • **recap:** write simple fractions for example, ½ of 6 = 3 and recognise the equivalence of 2/4 and ½ |

New Vocabulary to be taught:
< smaller than > greater than = equals inverse partition combinations difference multiplication division multiply divide odd even pictogram block diagram tally clockwise anti clockwise estimate measure scales

thermometers centimetres metres kilograms grams millilitres litres Celsius temperature commutative equivalence three quarters third symmetry vertical horizontal straight line triangular prism edges vertices vertex faces right angles orientation analogue minutes

# Year Three

| | Autumn | Spring | Summer |
|---|---|---|---|
| 1 | Read and write numbers up to 999 in numerals and in words | Count, recognize the place value and compare numbers to 999<br>solve number problems and practical problems involving these ideas | **Recap** of read and write and compare numbers to 1000 including understanding the place value of each digit<br>Number bonds to 1000 (using multiples of 50 and 100) ie. 650 + 350 |
| 2 | Recognise the place value of each digit in a three-digit number (H, T, Ones) compare and order numbers up to 999 | | |
| 3 | Apply partitioning relating to place value (ie: 146 = 100 + 40 and 6; 146 = 130 + 16)<br>Identify and represent these numbers using different representations. | Teach the children the formal written method for addition with up to three digits **NOT PAST 999** using the Dienes method from Y2 as a starting point to introduce carrying. Ensure estimation is used first | **Recap** of count up and down in 1/10. Recognise and show using diagrams equivalent fractions.<br><br>Introduce non-unit fractions after revisiting unit fractions and ordering these.<br><br>Solve fraction related problems |
| 4 | Find 10 or 100 more or less than a given number | | |
| 5 | Count from 0 in multiples of 4, 8, 50 and 100<br>Introduce 4 x table and associated division – link to x2 tables<br>Recap x5 and x10 and links between them | Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction – inc. adding and subtracting amounts of money to give change using £ and p in practical contexts<br>use inverses to check answers | |
| 6 | Add and subtract numbers **mentally** including:<br>• 3 digit number and ones<br>• 3 digit number and tens<br>• 3 digit number and hundreds<br><br>Including missing number problems<br>Counting in 50 and 100s and finding 10 more / less or 100 more / less | Teach the children the formal written method for subtraction with up to three digits **NOT PAST 999** using the Dienes method from Y2 as a starting point to introduce carrying.<br>Ensure estimation is used first. Link to checking inverse to check answers. | Introduce that an angle is a description of a turn or a property of a shape.<br><br>Identify right angles, recognise two right angles make a half turn and three make ¾ and 4 make a complete turn.<br><br>Identify if angles are greater or less than a right angle |
| 7 | | | |
| 8 | measure and compare, add/subtract lengths, mass, volume and capacity using the partitioning method from Y2 and perimeter of 2d shapes. | Introduce 8 x table and link to 4x table and associated division.<br>Write and calculate statements for multiplication and division using the tables that they know mentally progressing to formal written methods | Draw 2D and make 3D shapes using modelling materials, recognize 3D shapes in different orientations and describe them. Use terminology perpendicular and parallel lines |
| 9 | | | |
| 10 | count using multiples of 2,3,4 & 5 and use associated division (use these in graphs).recap 5 and 10 times tables<br>interpret and present data using bar charts (including horizontal and vertical axis) and pictograms and tables | count up and down in 1/10 understanding that $10^{th}$ arise that 10ths arise by dividing objects into 10 equal parts and dividing one digit no.s or quantities by 10.<br>recognise and find fractions of sets of objects<br><br>add and subtract fractions with the same denominator within one whole | |
| 11 | solve one and two step questions associated with these. | compare and order unit fractions and fractions with the same denominator.<br>begin to solve fraction problems | problem solving with addition and subtraction including missing number and more complex problems |
| 12 | | tell the time to nearest 5 minutes (Y3 obj)<br>read time with increasing accuracy to the nearest minute | 6 x table – link to x3 tables and doubling/halving<br>tell the time on the analogue clock (this has been an ongoing objective throughout the year and the roman numeral clock).<br>solve problems involving time, seconds in a minute, days in a month and days in a year and leap year with the required vocabulary |

New Vocabulary to be taught

3 digits carry exchange tenths carry exchange denominator numerator Roman numerals perpendicular parallel lines leap year angles angles right angle non unit fractions unit fractions polygon degrees bar charts sum am pm noon afternoon midnight millimetres kilometre century pentagonal hexagonal octagonal quadrilateral horizontal diagonal vertical compass points –North, East, South West

# Year Four

| | Autumn | Spring | Summer |
|---|---|---|---|
| 1 | Recognise the place of value in a 4 digit number,<br>Order and compare numbers beyond 1000 up to 9999,<br>Count in 1000's and find 1000 more or less than a given number.<br>identify represent and estimate numbers using different representations | **Recap** place of value in a 4 digit number, ordering and comparing numbers beyond 1000 up to 9999<br>Count in 1000's and find 1000 more or less than a given number **(recap 100 more/less)** | Identify lines of symmetry in 2D shapes presented in different orientations.<br>Complete a simple symmetric figure with respect to specific line of symmetry |
| 2 | | | |
| 3 | Round numbers to 9999 to the nearest 10,100<br>Recall multiplication facts in all known tables and the corresponding division facts introducing 9x table linked to 3x | **Recap** rounding numbers to 9999 to the nearest 10, 100 – but then also 1000.<br>Solving numbers and practical problems including estimating, comparing and calculating different measures | **Recap**: Rounding to the nearest 10, 100 *and now also 1000.*<br>**Recap**: Round decimals with one decimal place to the nearest whole number<br>Solve numbers and practical problems in numbers up to 9999 using |
| 4 | Know the effect of multiplying and dividing by 10, 100 or 1000 specifically – identifying the value of the digits – and linked to converting measures km – m and mm to cm (& vice versa) | **Recap** of formal methods with addition and subtraction using estimating and checking with inverse | |
| 5 | | Solve 2 step problems including involving money and other measures in contexts deciding which operation to use and why | **Recap**: finding the effect of dividing a one or two digit number by 10 or 100 identifying the values of the digits as 1s 1/10ths and 1/100<br>Recognise and write decimal equivalents of any number of 10ths or 100ths.<br>Recognise and write decimal equivalents to ¼, ½, 3/4<br>Solve simple measure and money problems involving fractions and decimals to two decimal places. |
| 6 | Count up and down in 100ths and understand that this arises when dividing an object by 100 and dividing 10ths by 10.<br>Compare decimals with the same number of decimal places and round decimals to nearest whole number – linking to £ and measures (to 2 dec.places) | Multiply two-digit and three-digit numbers by a one-digit number using formal written layout<br>Solve problems involving multiplying, including using the distributive law (ie. $39 \times 7 = 30 \times 7 + 9 \times 7$ and associative law $(2 \times 3) \times 4 = 2 \times (3 \times 4)$ .<br>use factor pairs where appropriate | |
| 7 | | | Find the area of rectilinear shapes by counting squares<br>Measure and calculate the perimeter of a rectilinear figure |
| 8 | Solve simple money problems involving decimals to two decimal places. | Add and subtract fractions with the same denominator.<br>Recognise, using diagrams, families of common equivalent fractions.<br>Solve problems involving harder fractions to calculate quantities and fractions to divide quantities including non-unit fractions where the answer is a whole number. | Read, write, convert time, between analogue and digital 24 (and **recap** 12 hour) clock.<br>**Recap**: Solve problems converting from hours to minutes, mins to seconds, years to months, weeks to days |
| 9 | Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate– also using estimating and checking with inverse<br>Solve two step problems in contexts deciding which operation to use and why | | Interpret and present discrete and continuous data using appropriate graphical methods including bar charts and time graphs.<br>Solve, compare sum and difference problems using the information presented in these using the formal addition and subtraction methods |
| 10 | | Read, write, convert time, between analogue and digital 12 hour clocks.<br>Solve problems converting from hours to minutes, mins to seconds, years to months, weeks to days | |
| 11 | | | |
| 12 | Describe positions on a 2d grid as coordinates in the first quadrant.<br>Plotting specified points and drawing sides to complete a given polygon<br>Describe movements between positions as translations of a given unit to the left/right and up/down | Compare and classify geometric shapes including quadrilaterals and triangles based on their properties and sizes including acute and obtuse angles<br>Compare and order angles up to 2 right angles by size | Read Roman numerals to 100 (I toC) and know this system changed over time |

New Vocabulary to be taught
4 digit numbers decimals hundredths co-ordinates first quadrant heptagon nonagon decagon quadrilaterals -parallelogram, rhombus, trapezium isosceles equilateral and scalene triangles acute obtuse tetrahedron polyhedron digital analogue round negative numbers minus positive area perimeter time graphs rectilinear squared milenium

# Year 5

| | Autumn | Spring | Summer |
|---|---|---|---|
| 1 | Read, write, order and compare numbers to at least 100 000 and determine the value of each digit including related problem solving | interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero<br>solve comparison, sum and difference problems using information presented in a line graph<br>complete, read and interpret information in tables, including timetables. | read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit including related problem solving |
| 2 | count forwards or backwards in steps of powers of 10 for any given number up to 100000<br>round any number up to 100 000 to the nearest 10, 100, 1000, 10 000 including related problem solving | | count forwards or backwards in steps of powers of 10 for any given number up to 1000000<br>round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 including related problem solving ( 2 weeks) |
| 3 | | | **Recap**: add and subtract whole numbers with at least 4 digits, including using formal written methods including related multi- step problem solving in context checking using rounding (columnar addition and subtraction) |
| 4 | add and subtract whole numbers with 4 digits, including using formal written methods (columnar addition and subtraction)<br>solve related multi- step problems in context and check using rounding | multiply and divide whole numbers **but now also those involving decimals** by 10, 100 **and 1000** and convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre) | **Recap**: multiply and divide whole numbers and those **involving decimals** by 10, 100 and 1000 convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) |
| 5 | | | |
| 6 | multiply and divide whole numbers by 10, 100 and convert between different units of metric measure (eg; centimetre and metre; centimetre and millimetre, £ and pence) | recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents<br>recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal<br>read and write decimal numbers as fractions [for example, 0.71 = 100 71 ] ( add % too) | 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, 5 2 + 5 4 = 5 6 = 1 5 1 ]<br>multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams |
| 7 | identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers<br>identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths | | |
| 8 | add and subtract fractions with the same denominator and denominators that are multiples of the same number<br>compare and order fractions whose denominators are all multiples of the same number<br>know and use the vocabulary of prime numbers, prime factors and composite (nonprime) numbers<br>establish whether a number up to 100 is prime and recall prime numbers up to 19 | round decimals with two decimal places to the nearest whole number and to one decimal place<br>read, write, order and compare numbers with up to three decimal places<br>solve problems involving number up to three decimal places<br>solve problems which require knowing percentage and decimal equivalents of ½ , ¼ 1/5 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25 | use the properties of rectangles to deduce related facts and find missing lengths and angles<br>**Recap**: distinguish between regular and irregular polygons based on reasoning about equal sides and angles.<br>calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2 ) and square metres (m2 ) and estimate the area of irregular shapes |
| 9 | | | |
| 10 | Multiply numbers up to 4 digits by a one digit number using a formal written method, and introduce using a long multiplication for four digit by 2 digit - estimate answers | **Recap:** multiply numbers up to 4 digits by a one-digit number using a formal written method, including long multiplication for two-digit numbers<br>Introduce 3 digit x 2 digit | **Reacap**: divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context |
| 11 | measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres | know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles<br>draw given angles, and measure them in degrees (o )<br>identify:<br>angles at a point and one whole turn (total 360o )<br>angles at a point on a straight line and 2 1 a turn (total 180o )<br>other multiples of 90o<br>distinguish between regular and irregular polygons based on reasoning about equal sides and angles. | |
| 12 | | | understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints |
| 13 | calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2 ) and square metres (m2 ) and estimate the area of irregular shapes<br>divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context | estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]<br>recognise and use square numbers and cube numbers, and the notation for squared ( 2 ) and cubed (3 ) | **Reacp**: 3 digit x 2 digit - leading to 4 digit x 2 digit |
| Ongoing objectives | solve problems involving converting between units of time<br>use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.<br>solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes<br>solve problems involving addition, subtraction, multiplication and division and a combination of these (inc. using = sign at different points of number sentences)<br>solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates. | | |

New Vocabulary to be taught

Ten thousand, hundred thousand, million, prime numbers  prime factors  composite numbers  proper/ improper fractions mixed numbers composite rectilinear shapes  remainders  reflex angles  metric  imperial units  inches pounds pints  gallons regular and irregular polygons  squared and cubed numbers  percentage  degrees protractor  square centimetres  square metres  x axis y axis

# Year Six

| | Autumn | Spring | Summer |
|---|---|---|---|
| 1 | Read, write, order and compare numbers up to 1,000,000 and determine the value of each digit | Divide numbers up to 4 digits by 1 and then 2-digit whole numbers using formal long division and, where appropriate, short division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context | *3-4 week block, covering weaknesses and misconceptions, identified through ongoing AfL* |
| 2 | Identify the value of each digit [and order] up to 3 decimal places and multiply numbers by 10, 100, and 1000 giving answers up to 3 decimal places | Solve problems (including multi-step problems) involving deciding which operations and methods to use and why and use estimation to check answers to calculations | |
| 3 | Use week 2 work to: read, write and convert between standard units, converting measurements of length, mass, volume from a smaller unit of measure to a larger unit, and vice versa, using decimal notation up to 3 decimal places | Generate and describe linear number sequences *including* using negative numbers in context and calculate intervals across zero | |
| 4 | Round any number (up to hundredths) to a required degree of accuracy solve related problems (link to £ and measures) | Recognize that shapes with the same areas can have different perimeters *and* recognize where it is possible to use formulae for area of shapes *and* calculate the area of parallelograms and triangles *and* use simple formulae | |
| 5 | | | SATS WEEK |
| 6 | Multiply numbers with up to 2 decimal places by whole numbers<br>identify common factors, common multiples and prime numbers | Find pairs of numbers that satisfy an equation with 2 unknowns *and* express missing number problems algebraically | Describe positions on the full coordinate grid (0.5 week)<br>draw 2-D shapes using given dimensions and angles.(0.5 week) |
| 7 | Use common factors to simplify fractions; use common multiples to express fractions in the same denomination *and* compare and order fractions, including fractions > 1 *with different denominators* | Multiply simple pairs of proper fractions, writing the answer in its simplest form.<br>Divide proper fractions by whole numbers (ie 1/3 ÷ 2 = 1/6) | Draw and translate simple shapes on the coordinate plane and reflect them in the axes |
| 8 | Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions | Use written division methods where the answer has up to 2 decimal places | Recognize and describe and build simple 3D shapes – including making nets<br>3f – calculate and estimate volume of cubes and cuboids using standard units (ie.cm3) |
| 9 | Recall and use equivalences between simple fractions, decimals and percentages *and* associate a fraction with division and calculate decimal-fraction equivalences | Interpret and construct pie charts and line graphs and use these to solve problems | Convert between miles and km. |
| 10 | Solve problems involving the calculation of percentages and the use of percentages for comparison | Calculate and interpret the mean as an average – link to charts/graphs | Solve problems involving the relative sizes of 2 quantities where missing values can be found using integer multiplication and division facts. |
| 11 | Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals and regular polygons<br>Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius;<br>Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles | Use knowledge of the order of operations to carry out calculations involving the four operations<br>Solve problems, including multi-step problems, involving 4 rules, including problems which require answers to be rounded | Solve problems involving similar shapes where the scale factor is known |
| 12 | | | Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples |

| New Vocabulary to be taught |
|---|
| Radius, diameter, circumference , algebra, formulae, line graph, nets, translate, miles, mean average, axis, four quadrants |