Harnser Maths MTP 2022-23

Curriculum Plan

Mathematics

'Spirituality is the bitter-sweet yearning for beauty, truth, love and wonder beyond ourselves. It is a longing we pursue together and a treasure we glimpse in ourselves and one another and seek beyond us into eternity. It is life in all its fullness.'

Nebula Spirituality Statement

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Year R	1st half-term	2nd half-term
Autumn	**Number** Count objects, actions and sounds Link the number symbol (numeral) with its cardinal number value **Measures** Compare length, weight and capacity Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...' **Numerical Patterns** Count beyond ten Compare numbers Understand the 'one more than/one less than' relationship between consecutive numbers Explore the composition of numbers to ten	**Number** Count objects, actions and sounds Link the number symbol (numeral) with its cardinal number value **Numerical Patterns** Count beyond ten Compare numbers Understand the 'one more than/one less than' relationship between consecutive numbers Explore the composition of numbers to ten **Measures** Compare length, weight and capacity Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...' **Shape and Space** Select, rotate and manipulate shapes to develop spatial reasoning skills Compose and decompose shapes so that children recognise a shape Can have other shapes *within* it, just as numbers can
	1st half-term	**2nd half-term**
Spring	**Number** Count objects, actions and sounds Subitise Link the number symbol (numeral) with its cardinal number value Automatically recall number bonds for numbers 0–5 and some to 10 **Numerical Patterns** Count beyond ten Compare numbers	**Numerical Patterns** Count beyond ten Compare numbers Understand the 'one more than/one less than' relationship between consecutive numbers **Measures** Compare length, weight and capacity **Number**

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	Understand the 'one more than/one less than' relationship between consecutive numbers Explore the composition of numbers to ten	Subitise Link the number symbol (numeral) with its cardinal number value Automatically recall number bonds for numbers 0–5 and some to 10 **Shape and Space** Select, rotate and manipulate shapes to develop spatial reasoning skills Compose and decompose shapes so that children recognise a shape Can have other shapes *within* it, just as numbers can
	1st half-term	**2nd half-term**
Summer	**Shape and Space** Select, rotate and manipulate shapes to develop spatial reasoning skills Compose and decompose shapes so that children recognise a shape Can have other shapes *within* it, just as numbers can **Number** Count objects, actions and sounds Automatically recall number bonds for numbers 0–5 and some to 10 **Numerical Patterns** Count beyond ten Compare numbers Understand the 'one more than/one less than' relationship between consecutive numbers Explore the composition of numbers to 10 **Measures** Compare length, weight and capacity	**Number** Count objects, actions and sounds Automatically recall number bonds for numbers 0–5 and some to 10 **Numerical Patterns** Count beyond ten Understand the 'one more than/one less than' relationship between consecutive numbers Explore the composition of numbers to 10 **Shape and Space** Select, rotate and manipulate shapes to develop spatial reasoning skills Compose and decompose shapes so that children recognise a shape Can have other shapes *within* it, just as numbers can **Measures** Compare length, weight and capacity

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Year 1	1st half-term	2nd half-term
Autumn	**Number and Place Value** Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number Count, read and write numbers to 100 in numerals Given a number, identify one more and one less 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 **Measures- Length** Compare, describe and solve practical problems for: - lengths and heights [for example, long / short, longer / shorter, tall / short, double / half] Measure and begin to record the following: – lengths and heights **Addition and Subtraction** Represent and use number bonds and related subtraction facts within 20 Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations **Measures- Time** Sequence events in chronological order using language [for example, before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening] Recognise and use language relating to dates, including days of the week, weeks, months and years.	**Number and Place Value** Count to and across 100, forwards and backwards, beginning with 0 Or 1, or from any given number Count, read and write numbers to 100 in numerals Count in multiples of twos, fives and tens Given a number, identify one more and one less 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 **Addition and Subtraction** Represent and use number bonds and related subtraction facts within 20 Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs Solve one-step problems that involve addition and subtraction, Using concrete objects and pictorial representations, and missing number problems such as such as 7 = □ –9 **Measures- Mass** Compare, describe and solve practical problems for: - mass or weight [for example, heavy / light, heavier than, lighter than] Measure and begin to record the following: – mass/ weight **Measures- Time** Compare, describe and solve practical problems for: - time [for example, quicker, slower, earlier, later] Recognise and use language relating to dates, including days of the week, weeks, months and years. **Geometry- Properties of Shapes** Recognise and name common 2-D and 3-D shapes, including: - 2-D shapes [for example, rectangles (including squares), circles and triangles]

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		- 3-D shapes [for example, cuboids (including cubes), pyramids and spheres]
	1st half-term	**2nd half-term**
Spring	**Number and Place Value** Count to and across 100, forwards and backwards, beginning with 0 Or 1, or from any given number Count, read and write numbers to 100 in numerals Count in multiples of twos, fives and tens Given a number, identify one more and one less 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 **Measures- Money** Recognise and know the value of different denominations of coins and notes **Multiplication and Division** 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	**Number and Place Value** Count to and across 100, forwards and backwards, beginning with 0 Or 1, or from any given number Count, read and write numbers to 100 in numerals Count in multiples of twos, fives and tens Given a number, identify one more and one less 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 **Measures- Capacity** Compare, describe and solve practical problems for: - Capacity and volume Measure and begin to record the following: – capacity and volume **Addition and Subtraction** Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs Represent and use number bonds and related subtraction facts within 20 Subtract one-digit and two-digit numbers to 20, including zero Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as such as 7 = □ –9 **Geometry** Recognise and name common 2-D and 3-D shapes, including: - 2-D shapes [for example, rectangles (including squares), circles and triangles]
	1st half-term	**2nd half-term**
Summer	**Geometry** Recognise and name common 2-D and 3-D shapes, including: - 2-D shapes [for example, rectangles (including squares), circles and triangles]	**Number and Place Value** Count to and across 100, forwards and backwards, beginning with 0 Or 1, or from any given number Count, read and write numbers to 100 in numerals

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	- 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] Describe position, direction and movement **Number and Place Value** Count to and across 100, forwards and backwards, beginning with 0 Or 1, or from any given number Count, read and write numbers to 100 in numerals Count in multiples of twos, fives and tens Given a number, identify one more and one less 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 Read and write numbers from 1 to 20 in numerals and words **Addition and Subtraction** Represent and use number bonds and related subtraction facts within 20 Add one-digit and two-digit numbers to 20, including zero Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □–9 **Measures- Time** Measure and begin to record time (hours, minutes, seconds) Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times **Measures- Money** Recognise and know the value of coins and notes	Count in multiples of twos, fives and tens **Multiplication and Division** 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 **Fractions** Recognise, find and name a half as one of two equal parts of an object, shape or quantity Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity **Geometry** Recognise and name common 3-D shapes, including: – 3-D shapes [for example, cuboids (including cubes), pyramids and spheres] Describe position, direction and movement, including whole, half, quarter and three-quarter turns

Ongoing throughout the half-term Specific focus

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Year 2	1st half-term	2nd half-term
Autumn	**Number and Place Value** Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward Recognise the place value of each digit in a two-digit number (tens, ones) Identify, represent and estimate numbers using different representations, including the number line Compare and order numbers from 0 up to 100; use <, > and = signs Read and write numbers to at least 100 in numerals and in words **Addition and Subtraction** Solve problems with addition and subtraction: ○ using concrete objects and pictorial representations, including those involving numbers, quantities and measures ○ applying their increasing knowledge of mental and written methods Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: ○ a two-digit number and ones ○ a two-digit number and tens ○ two two-digit number ○ adding three one-digit numbers Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot **Measurement- Length** Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) Compare and order lengths, and record the results using >, < and =	**Number and Place Value** Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward Recognise the place value of each digit in a two-digit number (tens, ones) Identify, represent and estimate numbers using different representations, including the number line Compare and order numbers from 0 up to 100; use <, > and = signs Read and write numbers to at least 100 in numerals and in words **Multiplication and Division** Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts **Measurement- Money** Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value Find different combinations of coins that equal the same amounts of money

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		Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change
	1st half-term	**2nd half-term**
Spring	**Addition and subtraction** Solve problems with addition and subtraction: ○ using concrete objects and pictorial representations, including those involving numbers, quantities and measures ○ applying their increasing knowledge of mental and written methods Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 ○ Partition two-digit numbers into different combinations of tens and ones. This may include using apparatus (e.g. 23 is the same as 2 tens and 3 ones which is the same as 1 ten and 13 ones) Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: ○ a two-digit number and ones ○ a two-digit number and tens ○ two two-digit numbers ○ adding three one-digit numbers Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot Recognise and use the inverse relationship between addition And subtraction and use this to check calculations and solve Missing number problems **Multiplication and Division** Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	**Measurement- Length, Mass, Volume and Capacity** Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels Compare and order lengths, mass, volume/capacity and record the results using >, < and = **Geometry- Properties of Shape** Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces Identify 2-D shapes on the surface of 3-D shapes [for example, a circle on a cylinder and a triangle on a pyramid Compare and sort common 2-D and 3-D shapes and everyday objects **Fractions** Recognise, find, name and write fractions 1/3, ¼, 2/4 and ¾ of a length, shape, set of objects or quantity

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	Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot **Statistics** Interpret and construct simple pictograms, tally charts, block diagrams and simple tables Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity Ask and answer questions about totalling and comparing categorical data	
	1st half-term	**2nd half-term**
Summer	**Fractions** Recognise, find, name and write fractions 1/3, 1/4, 2/4 and ¾ Of a length, shape, set of objects or quantity Write simple fractions for example, 1/2 of 6 = 3 and recognise the equivalence of 2/4 and ½ **Geometry- Position and Direction** Order and arrange combinations of mathematical objects in patterns and sequences Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise) **Measurement- Time** Compare and sequence intervals of time Tell and write the time to five minutes, including quarter past/ to the hour and draw the hands on a clock face to show these times Know the number of minutes in an hour and hours in a day	**Number and Place Value** Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward Recognise the place value of each digit in a two-digit number (tens, ones) Identify, represent and estimate numbers using different representations, including the number line Compare and order numbers from 0 up to 100; use <, > and = signs Read and write numbers to at least 100 in numerals and in words Use place value and number facts to solve problems **Multiplication and Division** Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods and multiplication and division facts, including problems in contexts **Consolidation of all four operations and problem solving strategies.**

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Year 3	1st half-term	2nd half-term
Autumn	**Number and Place Value** Count from 0 in multiples of 4, 8, 50 and 100; find 10 more or 100 more or less than a given number Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) Compare and order numbers up to 1000 Identify, represent and estimate numbers using different representations Read and write numbers up to 1000 in numerals and in words **Addition and Subtraction** Add and subtract numbers mentally, including: o a three-digit number and ones o a three-digit number and tens o a three-digit number and hundreds Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction **Measurement- Length** Measure, compare, add and subtract lengths (m, cm, mm)	**Number and Place Value** Count from 0 in multiples of 4, 8, 50 and 100; find 10 more or 100 more or less than a given number Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) Compare and order numbers up to 1000 Identify, represent and estimate numbers using different representations Read and write numbers up to 1000 in numerals and in words Solve number problems and practical problems involving these ideas **Multiplication and Division** Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods **Measurement- Money** Add and subtract amounts of money to give change, using both £ and p in practical contexts
	1st half-term	**2nd half-term**
Spring	**Addition and Subtraction** Add and subtract numbers mentally, including: o a three-digit number and ones o a three-digit number and tens o a three-digit number and hundreds Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction	**Measurement- Mass, Volume and Capacity** Measure, compare, add and subtract: mass (kg/g); volume/capacity (l/ml) **Geometry- Properties of Shapes** Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them

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	Estimate the answer to a calculation and use inverse operations to check answers Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction **Multiplication and Division** Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods **Statistics** Interpret and present data using bar charts, pictograms and tables Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables	Measure the perimeter of simple 2-D shapes Recognise angles as a property of shape or a description of a turn Identify right angles, recognise that two right angles make a half turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle Identify horizontal and vertical lines and pairs of perpendicular And parallel lines **Fractions** Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
	1st half-term	**2nd half-term**
Summer	**Fractions** Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators Recognise and show, using diagrams, equivalent fractions with small denominators Add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7] Compare and order unit fractions, and fractions with the same denominators Solve problems that involve all of the above	**Number and Place Value** Count from 0 in multiples of 4, 8, 50 and 100; find 10 more or 100 more or less than a given number Recognise the place value of each digit in a three-digit number (hundreds, tens, ones) Compare and order numbers up to 1000 Identify, represent and estimate numbers using different representations Read and write numbers up to 1000 in numerals and in words Solve number problems and practical problems involving these ideas **Multiplication and Division** Solve problems, including missing number problems, involving

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	Geometry Recognise angles as a property of shape or a description of a turn **Measurement- Time** Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, am/pm, morning, afternoon, noon and midnight Know the number of seconds in a minute and the number of days in each month, year and leap year Compare durations of events [for example, to calculate the time taken by particular events or tasks	multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects **Consolidation of all four operations and problem solving strategies**

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Year 4	1st half-term	2nd half-term
Autumn	**Place Value** Count in multiples of 6, 7, 9, 25 and 1000 Order and compare numbers beyond 1000 Find 1000 more or less than a given number Recognise the place value of each digit in a 4 digit number (Th, H, T, U) Identify, represent and estimate numbers using different representations Read Roman Numerals to 100 Round any number to the nearest 10, 100, 1000 Count backwards through 0 to include negative numbers Solve number and practical problems involving number, place value, estimation and rounding. **Addition and Subtraction** Add and subtract numbers with up to 4 digits using formal written methods Estimate and use inverse operations to check answers to a calculation Solve addition and subtraction 2 step problems in context (choose methods, explain why)	**Number Properties** Recall multiplication and division facts for tables up to 12 x 12 Use place value , known and derived facts to multiply and divide mentally (including x by 0 and 1; / by 1; multiply 3 numbers) Recognise and use factor pairs and commutativity in mental calculations **Multiplication and Division** Multiply 2 digit and 3 digit numbers by a 1 digit number using formal written method Divide 3 digit numbers by 1 digit using tables knowledge and bus stop (Non-statutory) solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. **Perimeter** Measure and calculate the perimeter of a rectilinear shape (including squares) in cm and m **Area** Find the area of rectilinear shapes by counting squares
	1st half-term	**2nd half-term**
Spring	**Properties of fractions and decimals** Count up and down in hundredths: recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten, including representing as a decimal. Round decimals with 1 d.p. to the nearest whole number Order and compare numbers beyond 100, including up to 2 decimal places.	**Angles** Identify acute and obtuse angles and compare and order angles up to 2 right angles by size. **Properties of Shape** Compare and classify geometric shapes including quadrilaterals and triangles based on their properties and sizes.

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	Compare numbers with the same number of decimal places up to 2 decimal places. Find the effect of dividing a 1 or 2 digit number by 10 and 100 identifying the value of digits in answer as ones, tenths, hundredths. **Fractions** Add and subtract fractions with the same denominator Recognise and write decimal equivalents to ¼, ½, ¾ Recognise and show, using diagrams, (e.g a fraction wall), common equivalent fractions. Can find fractions of a given quantity. Recognise and write decimal equivalents of any number of tenths and hundredths Solve problems involving increasingly harder fractions to calculate quantities and fractions to divide quantities including non-unit fractions where the answer is a whole number. Solve simple measure and money problems involving fractions and decimals to 2d.p, including formal column method where appropriate. **Time** Read, write and convert time between analogue and digital clocks (12 hour and 24 hour) Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	Identify lines of symmetry in 2D shapes including in different orientations Complete a simple symmetric figure with respect to a specific line of symmetry. **Co-ordinates** Describe positions on a 2D grid as coordinates in the first quadrant Plot specified points and draw sides to complete a given polygon
	1st half-term	**2nd half-term**
Summer	**Statistics** Interpret and present discrete and continuous data using bar charts and time graphs Solve comparison sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. **Transformations** Describe movements between positions as translations of a given unit	**Solving problems with measures** **Application / problem solving Revisions /Addressing specific Weaknesses**

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	to the left/right and up/down **Units of measure** Convert between different units of measure (for example km to m, hour to min.) Estimate, compare and calculate different measures, including money in pounds and pence. Build on understanding of place value and decimal notation to record metric measures, including money. Use multiplication to covert from larger to smaller units.	

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Year 5	1st half-term	2nd half-term
Autumn	**Place Value** Count forward or backward in powers of 10 for any number up to 1000000 Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit including up to 3 decimal places. Rounding any number up to 1000000 to the nearest 10, 100, 1000, 10000, 100,000 . Recognise and describe number sequences (including fractions and decimals) Identify term to term rule in the sequence (NUMBER AND PLACE VALUE) Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers , including through zero. Solve practical number problems involving the above Read Roman Numerals up to 1000 and recognise years written in Roman Numerals. **Addition and Subtraction** Add and subtract numbers mentally with increasingly large numbers. Add and subtract whole numbers with more than 4 digits, including formal written methods. Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy. Solve addition and subtraction multi-step problems in context, deciding which operations and methods to use and why.	**Number Properties** Know and use vocabulary of: Prime numbers, prime factors and composite numbers Recognise and use: Square numbers and cube numbers (including notation) Identify multiples and factors, including finding all factor pairs of a number and common factors of 2 numbers. Establish whether a number up to 100 is prime and recall prime numbers up to 19. Multiply and divide whole numbers and those involving decimals by 10, 100, 1000. **Multiplication and Division** Multiply and divide numbers mentally drawing upon know facts Multiply numbers up to 4 digits by a one or two digit number using a formal written method including long multiplication for two digit numbers. 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. Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes. Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the equals sign. Solve problems involving multiplication and division including scaling by simple fractions and problems involving simple rates. **Perimeter** Measure and calculate perimeter of composite rectilinear shapes in centimetres and metres. **Area**

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		Calculating 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
	1st half-term	**2nd half-term**
Spring	**Properties of fractions and decimals** Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. Round decimals with 2d.p. to nearest whole number and to one decimal place Read, write, order and compare numbers with up to 3 decimal places Read and write decimal numbers as fractions (0.71=71/100) Solve problems involving numbers up to 3 decimal places **Fractions** Compare and order fractions whose denominators are multiples of same number Identify and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths. Recognise mixed numbers and improper fractions and convert from one to the other and write mathematical statements >1 as a mixed number Add and subtract fractions with the same denominator and denominators that are multiples of the same number Multiply proper fractions and mixed numbers by whole numbers (supported by materials and diagrams) **Percentage** Recognise the % symbol and understand that percent relates to 'number of parts per hundred' and write percentages as a fraction with a denominator of 100 and as a decimal. Solve problem which require knowing percentage and decimal equivalents of ½, ¼, 1/5, 2/5, 4/5 and those fractions with denominators of a multiple of 10 or 25	**Angles** Know angles are measured in degrees Estimate and compare acute, obtuse and reflex angles. Draw given angles and measure them in degrees Identify: Angles at a point and one whole turn (total 360 degrees) Angles at a point on a straight line and ½ a turn (total 180 degrees) Identify other angles of 90 degrees. **Properties of Shape** Use properties of rectangles to deduce related facts and find missing lengths and angles. Distinguish between regular and irregular polygons based on reasoning about equal sides and angles. Identify 3d shapes including cubes and other cuboids, from 2d representation. **Transformations Co-ordinates** Identify, describe and represent the position of a shape following a reflections or a translation Use a 2 d grid and coordinates in the first quadrant.

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	1st half-term	2nd half-term
Summer	**Statistics** Complete, read and interpret info from tables, including timetables. Solve comparison, sum and difference problems using information presented in a line graph. **Units of measure** Convert between different metric units of metric measure (for example kilometre and metre, centimetre and metre, centimetre and millimetre, gram and kilogram, litre and millilitre.) Understand and use approx. equivalences between metric and common imperial units such as inches, pounds, pints Estimate volume (1cm3 blocks) and capacity (water) **Solving problems with measures** Use all four operations to solve problems involving measure (length, mass, volume, money) using decimal notation including scaling.	**Time** Solve problems converting between units of time **Application / problem solving Revisions /Addressing specific Weaknesses**

Year 6	1st half-term	2nd half-term
Autumn	**Place Value** Read, write, order and compare number up to 10,000,000 and determine the value of each digit. Round any whole number to required degree of accuracy Use negative numbers in context, calculate intervals across zero Solve number and practical problems involving place value, negative numbers and rounding. **Addition and Subtraction** Solve addition and subtraction multi-step problems in contexts (decide which operations/methods to use and why) **Number Properties**	**Multiplication and Division** Use their knowledge of the order of operations to carry out calculations involving the four operations. Solve problems involving addition, subtraction, multiplication and division **Fractions** Use common factors to simplify equivalent fractions; use common multiples to express fractions in the same denomination Compare and order fractions (including fractions >1)

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	Identify common factors, common multiples and prime numbers Perform mental calculations, including with mixed operations and large numbers using efficient strategies such as manipulating expressions using commutative and distributive properties to simplify the calculation. **Multiplication and Division** Multiply multi digit numbers up to 4 digits by a 2 digit number using the formal written method of long multiplication. Divide numbers up to 4 digits by a 2 digit number using the formal written method of short division, where appropriate interpret the remainders according to the context. Divide numbers up to 4 digits by a 2 digit whole number using the formal written method of long division, and interpret the remainders as whole number remainders, fractions or by rounding, as appropriate to the context. Use estimation to check calculations and determine, in the context of a problem, an appropriate degree of accuracy. Solve problems which require answers to be rounded to a specified degree of accuracy.	Add and subtract fractions with different denominators and mixed numbers (using concept of equivalent fractions) **Area and Volume** Recognise shapes with the same area can have different perimeters and vice versa Recognise when it is possible to use formulae for the 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 and cubic metres and extending to other units (for example cubic millimetres and cubic kilometre)
	1st half-term	**2nd half-term**
Spring	**Fractions, decimals and Percentages** Multiply simple pairs of proper fractions writing answer in simplest form (1/4 x ½ = 1/8) Divide proper fractions by whole numbers (1/3 / 2 = 6) Associate a fraction with division to calculate decimal fraction equivalents (0.375 = 3/8) Demonstrate an understanding of place value including decimals. Identify the value of each digit in numbers given to 3 decimal places and multiply and divide numbers by 10, 100 , 1000 giving answers up to 3 decimal places. . Multiply one digit numbers with up to 2 decimal places by whole numbers	**Angles and properties of shapes** Draw 2D shapes using given dimensions and angles Recognise, describe and build simple 3D shapes, including making nets 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

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	Use written division methods in cases where the answer has up to 2 decimal places. Solve problems which require answers to be rounded to a specified degree of accuracy. Recall and use equivalences between simple fractions, decimals and percentages including in different contexts **Algebra** Use simple formulae Express missing number problems algebraically Substitute values into simple formula to solve problems Find pairs of numbers that satisfy an equation with 2 unknowns Enumerate possibilities of combinations of 2 variables . **Ratio and Proportion** Solve problems involving the relative size of 2 quantities where missing values can be found by using integer multiplication and division facts Solve problems involving the calculation of percentages and the use of percentages for comparisons. Solve problems involving similar shapes where scale factor is known or can be found Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples	**Co-ordinates and transformations** Describe positions on full coordinate grid (all 4 quadrants) Draw and translate simple shapes on the coordinate plane, and reflect them in the axes
	1st half-term	**2nd half-term**
Summer	**Data Handling** Interpret and construct pie charts and line graphs and use these to solve problems Calculate and interpret the mean as an average **Solving problems with measures** Solve problems involving the calculation and conversion of units of measure, using decimal notation up to 3 decimal places where appropriate	**Review of areas which have been identified as AOW in preparation for transition to High School .** **Themed projects consolidation and problem solving (White Rose)**

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	Use read, write and convert between standard units converting measurements of length, mass, volume and time from smaller unit to larger and vice versa, using decimal notation up to 3d.p Convert between miles and km	