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

Harnser Maths MTP 2023-24

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 **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	**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** Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then…'
	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 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 **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** Subitise Link the number symbol (numeral) with its cardinal number value Automatically recall number bonds for numbers 0–5 and some to 10

Harnser Maths MTP 2023-24

	1st half-term	2nd half-term
Summer	**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** Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'	**Number** Count objects, actions and sounds 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 **Numerical Patterns** Count beyond ten Understand the 'one more than/one less than' relationship between consecutive numbers Explore the composition of numbers to 10

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 **(to 10)** Count in multiples of <u>twos</u>, fives and <u>tens</u> **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** **Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs** Represent and use number bonds and related subtraction facts within 20 **Add and subtract one digit and two digit numbers to 20, including**	**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 (**to 20**) Count in multiples of <u>twos</u>, fives and <u>tens</u> **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 in words **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

Harnser Maths MTP 2023-24

<table>
<tr>
<td></td>
<td>
0.
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- 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
</td>
<td>
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.
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.

Measures- Money
Recognise and know the value of different denominations of coins and notes
</td>
</tr>
<tr>
<td></td>
<td align="center">1st half-term</td>
<td align="center">2nd half-term</td>
</tr>
<tr>
<td>Spring</td>
<td>
Addition and Subtraction
Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs
Add and subtract one digit and two digit numbers to 20, including 0.
Represent and use number bonds and related subtraction facts within 20, including zero
Add and 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

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
</td>
<td>
Measures- Capacity
Compare, describe and solve practical problems for:
  - Capacity and volume
Measure and begin to record the following:
  – capacity and volume

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 <mark>(in words to 20)</mark>
<u>Count in multiples of twos, fives and tens</u>
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 <mark>(to the point where the child is at, e.g. 10/20/50)</mark>
Read and write numbers from 1 to 20 in numerals and in words
</td>
</tr>
</table>

Harnser Maths MTP 2023-24

	1st half-term	2nd half-term

Summer	**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
	
	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.
	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.
	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
		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 in words
		
		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 Geometry

Specific focus

Harnser Maths MTP 2023-24

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:
	   o using concrete objects and pictorial representations, including those involving numbers, quantities and measures
	   o 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:
	   o **a two-digit number and ones**
	   o **a two-digit number and tens**
	   o **two two-digit number**
	   o **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

Harnser Maths MTP 2023-24

| | | Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change

Measurement- Time
Compare and sequence intervals of time
Solve simple problems
Tell / write time to five minutes
Know number of minutes in an hour/ number of hours in a day. |
|---|---|---|
| | **1ˢᵗ half-term** | **2ⁿᵈ half-term** |
| **Spring** | <u>**Addition and subtraction**</u>
Solve problems with addition and subtraction:
   o using concrete objects and pictorial representations, including those involving numbers, quantities and measures
   o 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
   o 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:
   o a two-digit number and ones
   o a two-digit number and tens
   o two two-digit numbers
   o 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 | <u>**Measurement- Length, Mass, Volume and Capacity**</u>
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 =

<u>**Geometry- Properties of Shape**</u>
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

<u>**Statistics**</u>
Interpret and construct simple pictograms, tally charts, block diagrams and simple tables |

Harnser Maths MTP 2023-24

<table>
<tr>
<td colspan="2">

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

Fractions
Recognise, find, name and write fractions 1/3, **¼, 2/4** and **¾ of a length, shape, set of objects or quantity**
Write simple fractions ½ of 6=3

</td>
<td>

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

</td>
</tr>
<tr>
<td></td>
<td style="text-align:center">**1ˢᵗ half-term**</td>
<td style="text-align:center">**2ⁿᵈ half-term**</td>
</tr>
<tr>
<td>Summer</td>
<td>

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

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

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

</td>
<td>

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

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

</td>
</tr>
</table>

		angles for quarter, half and three-quarter turns (clockwise and anticlockwise) **Consolidation of all four operations and problem solving strategies.**

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

Harnser Maths MTP 2023-24

Spring	**Addition and Subtraction** Add and subtract numbers mentally, including: - a three-digit number and ones - a three-digit number and tens - a three-digit number and hundreds Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction 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 **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		**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 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 **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
	1st half-term		**2nd half-term**
Summer	**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		**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

Harnser Maths MTP 2023-24

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

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

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

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

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

Consolidation of all four operations and problem solving strategies

Harnser Maths MTP 2023-24

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) **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	**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. **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 **Money** Solve simple measure and money problems involving fractions and decimals to 2d.p, including formal column method where appropriate.
	1st half-term	**2nd half-term**
Spring	**Addition and Subtraction**	**Solving problems with measures**

Harnser Maths MTP 2023-24

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)

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.

Fractions
recognise and show, using diagrams, families of common equivalent fractions
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
add and subtract fractions with the same denominator
recognise and write decimal equivalents of any number of tenths or hundreds
recognise and write decimal equivalents to 1/4 , 1/2 , 3/4

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

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.

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.
Identify lines of symmetry in 2D shapes including in different orientations
Complete a simple symmetric figure with respect to a specific line of symmetry.

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.

	Order and compare numbers beyond 100, including up to 2 decimal places. 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.	
	1st half-term	**2nd half-term**
Summer	**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. **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. 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. **Time** Read, write and convert time between analogue and digital clocks (12 hour and 24 hour)	**Transformations** Describe movements between positions as translations of a given unit to the left/right and up/down **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 **Application / problem solving Revisions /Addressing specific Weaknesses**

Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days	

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.	**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.

		1st half-term	2nd half-term
		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. **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)	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. **Time** Solve problems converting between units of time **Solving problems with measures** Use all four operations to solve problems involving measure (length, mass, volume, money) using decimal notation including scaling.
Spring		**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. **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	**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) **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.

Harnser Maths MTP 2023-24

	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	Identify 3d shapes including cubes and other cuboids, from 2d representation. **Perimeter** Measure and calculate perimeter of composite rectilinear shapes in centimetres and metres. **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. **Area** 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 **Statistics** Complete, read and interpret info from tables, including timetables. Solve comparison, sum and difference problems using information presented in a line graph.	
	1st half-term	**2nd half-term**
Summer	**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.	**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 .

Harnser Maths MTP 2023-24

	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. **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 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. **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. **Application / problem solving Revisions /Addressing specific Weaknesses**

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 **Time** Solve problems converting between units of time	

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** 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**	**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) 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

Harnser Maths MTP 2023-24

		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.	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 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	**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 **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

Harnser Maths MTP 2023-24

		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	
		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 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	**Review of areas which have been identified as AOW in preparation for transition to High School .** **Themed projects consolidation and problem solving (White Rose)**

Harnser Maths MTP 2023-24

	Review of areas which have been identified as AOW in preparation for transition to High School . **Themed projects consolidation and problem solving (White Rose)**	