Marston Thorold Mathematics Medium Term Plan Y5 / Y6

WEEK	WEEK BEGINNING	AUTUMN TERM		YEAR 5	YEAR 6
1		**Number** Number and Place Value		- read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit - solve number problems and practical problems that involve all of the above	- read, write, order and compare numbers up to 10 000 000 and determine the value of each digit - solve number and practical problems that involve all of the above
2		**Number** Addition and Subtraction **Algebra**		- add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) - add and subtract numbers mentally with increasingly large numbers - solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	- perform mental calculations, including with mixed operations and large numbers - use their knowledge of the order of operations to carry out calculations involving the four operations - solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, - use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. - generate and describe linear number sequences - express missing number problems algebraically - find pairs of numbers that satisfy an equation with two unknowns - enumerate possibilities of combinations of two variables.
3		**Number** Addition and Subtraction **Algebra**			
4		**Number** Multiplication and Division **Algebra / Ratio and Proportion**		- identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers - know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers - establish whether a number up to 100 is prime and recall prime numbers up to 19 - 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, - solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign - multiply and divide whole numbers and those involving decimals by 10, 100 and 1000	- divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context - divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context - identify common factors, common multiples and prime numbers - use their knowledge of the order of operations to carry out calculations involving the four operations -solve problems involving addition, subtraction, multiplication and division - use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. - generate and describe linear number sequences - express missing number problems algebraically - find pairs of numbers that satisfy an equation with two unknowns - enumerate possibilities of combinations of two variables.
5		**Number** Number and Place Value	**Number** Multiplication and Division **Algebra / Ratio and Proportion**		
6		**Number** Fractions **Ratio and Proportion**		- compare and order fractions whose denominators are all multiples of the same number - identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths - add and subtract fractions with the same denominator and denominators that are multiples of the same number - 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	-use common factors to simplify fractions; use common multiples to express fractions in the same denomination - compare and order fractions, including fractions > 1 - add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions - associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 83] - identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places - generate and describe linear number sequences - express missing number problems algebraically - find pairs of numbers that satisfy an equation with two unknowns - enumerate possibilities of combinations of two variables.
7		**Number** Fractions **Ratio and Proportion**			
8		**Number** Number and Place Value		- read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit - solve number problems and practical problems that involve all of the above - round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000	- read, write, order and compare numbers up to 10 000 000 and determine the value of each digit - solve number and practical problems that involve all of the above -round any whole number to a required degree of accuracy
9		**Number** Number and Place Value	**Number** Multiplication and Division	- 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 - multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 - recognise and use square numbers and the notation for squared (2) - solve problems involving multiplication and division including using their knowledge of factors and multiples, and squares - solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign - solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication - divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context - divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context - use their knowledge of the order of operations to carry out calculations involving the four operations - use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. -solve problems involving addition, subtraction, multiplication and division

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					- generate and describe linear number sequences - express missing number problems algebraically - find pairs of numbers that satisfy an equation with two unknowns - enumerate possibilities of combinations of two variables. - solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts - solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
10			**Measurement** **Algebra / Ratio and Proportion**	- convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) - use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	- solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate - use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places
11			**Measurement** **Algebra / Ratio and Proportion**	- solve problems involving converting between units of time	- generate and describe linear number sequences - express missing number problems algebraically - find pairs of numbers that satisfy an equation with two unknowns - enumerate possibilities of combinations of two variables.
12			**Number** Fractions **Ratio and Proportion**	- read and write decimal numbers as fractions [for example, 0.71 = 10071] - recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents - round decimals with two decimal places to the nearest whole number and to one decimal place - read, write, order and compare numbers with up to three decimal places - solve problems involving number up to three decimal places	- associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 83] - identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places - solve problems which require answers to be rounded to specified degrees of accuracy - recall and use equivalences between simple fractions, decimals - generate and describe linear number sequences - express missing number problems algebraically - find pairs of numbers that satisfy an equation with two unknowns - enumerate possibilities of combinations of two variables. - solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
13			**Statistics**	- complete, read and interpret information in tables, including timetables.	- interpret and construct pie charts and use these to solve problems - calculate and interpret the mean as an average.
14			**Geometry** Properties of Shape	- identify 3-D shapes, including cubes and other cuboids, from 2-D representations - use the 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.	- draw 2-D shapes using given dimensions and angles - recognise, describe and build simple 3-D 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
15			**Geometry** Position and Direction	- identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	- describe positions on the full coordinate grid (all four quadrants) - draw and translate simple shapes on the coordinate plane, and reflect them in the axes.

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WEEK	WEEK BEGINNING	SPRING TERM		YEAR 5	YEAR 6
1	[	**Number** Number and Place Value		- read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit - interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero - read Roman numerals to 1000 (M) and recognise years written in Roman numerals. - solve number problems and practical problems that involve all of the above	- read, write, order and compare numbers up to 10 000 000 and determine the value of each digit - use negative numbers in context, and calculate intervals across zero - solve number and practical problems that involve all of the above
2	[	**Number** Number and Place Value		- read Roman numerals to 1000 (M) and recognise years written in Roman numerals. - count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 - solve number problems and practical problems that involve all of the above	
3	[	**Number** Number and Place Value	**Number** Number and Place Value **Number** Addition and Subtraction **Algebra**	- read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit (focus on decimal place value) - add and subtract numbers **mentally** with increasingly large numbers - 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 contexts, deciding which operations and methods to use and why.	- read, write, order and compare numbers up to 10 000 000 and determine the value of each digit digit (focus on decimal place value) - perform **mental calculations**, including with mixed operations and large numbers - use their knowledge of the order of operations to carry out calculations involving the four operations - solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, - use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. - generate and describe linear number sequences - express missing number problems algebraically - find pairs of numbers that satisfy an equation with two unknowns - enumerate possibilities of combinations of two variables.
4	[	**Statistics**		- solve comparison, sum and difference problems using information presented in a line graph	- interpret and construct line graphs and use these to solve problems
5	[	**Number** Fractions **Ratio and Proportion**		- 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, 2/5 + 4/5 = 6/5 = 1 1/5] - multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams - 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 - solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.	- multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 41 × 21 = 81] - divide proper fractions by whole numbers [for example, 31 ÷ 2 = 61] - solve problems which require answers to be rounded to specified degrees of accuracy - recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. - generate and describe linear number sequences - express missing number problems algebraically - find pairs of numbers that satisfy an equation with two unknowns - enumerate possibilities of combinations of two variables. - solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison - solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
6	[	**Number** Fractions **Ratio and Proportion**			
7	[	**Number** Multiplication and Division **Algebra / Ratio and Proportion**		- 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 - multiply and divide numbers mentally drawing upon known facts - 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 - recognise and use cube numbers, and the notation for cubed (3) - 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 meaning of the equals sign - solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication - divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context - divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context - perform mental calculations, including with mixed operations and large numbers - use their knowledge of the order of operations to carry out calculations involving the four operations - solve problems involving addition, subtraction, multiplication and division - use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. - generate and describe linear number sequences - express missing number problems algebraically - find pairs of numbers that satisfy an equation with two unknowns - enumerate possibilities of combinations of two variables.
8	[	**Number** Multiplication and Division **Algebra / Ratio and Proportion**			

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					- solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts - solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
9			**Measurement** **Algebra / Ratio and Proportion**	- measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres - 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 - estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water] -understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints - use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	- convert between miles and kilometres - recognise that shapes with the same areas can have different perimeters and vice versa - recognise when it is possible to use formulae for area and volume of shapes - calculate the area of parallelograms and triangles - calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3]. - use simple formulae - generate and describe linear number sequences - express missing number problems algebraically - find pairs of numbers that satisfy an equation with two unknowns - enumerate possibilities of combinations of two variables.
10			**Measurement** **Algebra / Ratio and Proportion**		
11			**Number** Four operations **Algebra / Ratio and Proportion**	- add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) - add and subtract numbers mentally with increasingly large numbers - 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 contexts, deciding which operations and methods to use and why. - 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 - multiply and divide numbers mentally drawing upon known facts - 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 meaning of the equals sign - solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication - divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context - divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context - perform mental calculations, including with mixed operations and large numbers - identify common factors, common multiples and prime numbers - use their knowledge of the order of operations to carry out calculations involving the four operations- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division - use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. - generate and describe linear number sequences - express missing number problems algebraically - find pairs of numbers that satisfy an equation with two unknowns - enumerate possibilities of combinations of two variables. - solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts - solve problems involving unequal sharing and grouping using knowledge of fractions and multiples.
12			**Number** Four operations **Algebra / Ratio and Proportion**		

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WEEK	WEEK BEGINNING	SUMMER TERM		YEAR 5	YEAR 6
1		**Number** Number and Place Value	**Geometry** Properties of Shape	- 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°) angles at a point on a straight line and 21 a turn (total 180°) other multiples of 90° - use the 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.	- 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 - solve problems involving similar shapes where the scale factor is known or can be found
2					**Revision & Targeting Needs**
3			**Number** Addition and Subtraction	- add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) - add and subtract numbers mentally with increasingly large numbers - 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 contexts, deciding which operations and methods to use and why.	
4					**KS2 Assessment Week**
5			**Geometry** Position and Direction	- identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	- describe positions on the full coordinate grid (all four quadrants) - draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
6		**Number** Number and Place Value	**Number** Multiplication and Division **Algebra / Ratio and Proportion**	- identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers - know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers - establish whether a number up to 100 is prime and recall prime numbers up to 19 - 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 - multiply and divide numbers mentally drawing upon known facts - 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 - multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 - recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3) - 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 meaning of the equals sign - solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication - divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context - divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context - perform mental calculations, including with mixed operations and large numbers - identify common factors, common multiples and prime numbers - use their knowledge of the order of operations to carry out calculations involving the four operations- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division - use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.
7			**Number** Multiplication and Division **Algebra / Ratio and Proportion**		
8			**Number** Fractions **Ratio and Proportion**	- compare and order fractions whose denominators are all multiples of the same number - identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths - 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, 2/5 +4/5 = 6/5 = 1 1/5] - 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 - read and write decimal numbers as fractions [for example, 0.71 = 1/0071] - recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents - round decimals with two decimal places to the nearest whole number and to one decimal place - read, write, order and compare numbers with up to three decimal places - solve problems involving number up to three decimal places - 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 - solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.	- use common factors to simplify fractions; use common multiples to express fractions in the same denomination - compare and order fractions, including fractions > 1 - add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions - multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, 41 × 21 = 81] - divide proper fractions by whole numbers [for example, 31 ÷ 2 = 61] - associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 83] - identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places multiply one-digit numbers with up to two decimal places by whole numbers - use written division methods in cases where the answer has up to two decimal places - solve problems which require answers to be rounded to specified degrees of accuracy - recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
9			**Number** Fractions **Ratio and Proportion**		
10			**Statistics**	- solve comparison, sum and difference problems using information presented in a line graph - complete, read and interpret information in tables, including timetables.	- interpret and construct pie charts and line graphs and use these to solve problems - calculate and interpret the mean as an average.
11			**Measurement** **Algebra / Ratio and Proportion**	- convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)	- solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate - use, read, write and convert between standard units, converting measurements of length, mass, volume and
12			**Measurement** **Algebra / Ratio and Proportion**		

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				- understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints - measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres - 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 - estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water] - solve problems involving converting between units of time - use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places - convert between miles and kilometres - recognise that shapes with the same areas can have different perimeters and vice versa - recognise when it is possible to use formulae for area and volume of shapes - calculate the area of parallelograms and triangles - calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3].