Ramsgate Free School – Maths Long Term Plan for 2015-2016

The following table shows what will be taught in each term for each year group at Ramsgate Free School. What we teach will be subject to change to meet the needs of the children in the class/year group as some skills or concepts may need to have more/less time spent on them.

Problem solving is an important part of mathematics. At Ramsgate Free School problem solving will be embedded in to the curriculum and will be taught regularly.

	TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
YEAR 1	Reading, writing and ordering numbers Estimating Counting in twos and tens	Addition and subtraction as counting on and back Money	Geometry Position and Direction	Place Value Fractions	Measures Multiplication and division	Time Money
YEAR 2	Reading and writing numbers Comparing, ordering and sorting numbers Place value Addition Subtraction Problem solving -	Number sequences Doubling Multiplication Halving Division Fractions of numbers Problem solving	Measurement Time Money Properties of shape Fractions (shape and number) Addition Subtraction Problem solving	Position and direction Statistics Multiplication Division Problem solving Money – MOS's	Addition Subtraction Position and direction Problem solving	Multiplication Division Problem solving Time Measurements
YEAR 3	Number and place value Addition Subtraction	Subtraction Multiplication Division Properties of shape	Fractions of numbers Addition Subtraction	Measures Multiplication Division	Addition Subtraction Statistics Angles and rotation	Multiplication Division Time
YEAR 4	Number and place value Addition Subtraction	Multiplication Division Fractions of numbers Decimals	Addition Subtraction Measurement Properties of shape	Position and direction Multiplication Division	Addition Subtraction Position and direction	Multiplication Division Statistics
YEAR 5	Number and place Value Addition Subtraction	Multiplying & dividing by 10, 100 and 1000 Multiplication Division Number and place value (IPC link – Roman Numerals)	Multiplication and Division Fractions Properties of Shape Measurement	Addition Subtraction Position and direction Time	Multiplication and Division Statistics Fractions and Decimals	Percentages, fractions and decimals 4 operations
YEAR 6	Partitioning, rounding and ordering numbers Properties of numbers Multiplication and division facts Mental calculations with decimals	Written methods of calculation including multiplication and division Application to problem solving. Fractions Percentages	Unit conversions Reading and using scales Recognising and describing properties of polygons Use of reflective and rotational symmetry Constructing polygons	Use coordinates in all 4 quadrants Translate and transform shapes Data Handling	Probability Ratio and proportion Fractions and Percentages Statistics – mean, median, mode and range	Problem solving Written and mental methods of calculation Statistics – mean, median, mode and range

IN YEARS 1-6 THROUGHOUT THE YEAR:

At the start of each lesson will be a mental and oral starter (MOS). This will be used to consolidate previous learning so that all skill and concepts are revisited regularly.
Problem solving (finding all possibilities, logic puzzles, diagram problems and visual puzzles and finding rules and describing patterns) will be taught in every term.
Children will be taught to apply the skills which they have been learning regularly (e.g. word problems, an application task).
Children will be expected to justify, reason and explain the mathematics which they have been learning.

Year R

The following tables show what will be taught in each term. What we teach will be subject to change to meet the needs of the children in the class/year group

Shape and Space	Counting	Reading and Writing Numbers	Calculation	Measures
Shows an interest in shape and space by playing with shapes or making arrangements with objects. Shows an awareness of similarities of shapes in the environment. Shows an interest in shape by sustained construction activity or by talking about shapes or arrangements. Uses shapes appropriately for tasks. Beginning to talk about the shape of everyday objects e.g. round or tall. Beginning to use mathematical names for flat shapes. Selects a particular named shape (2D). Uses mathematical terms to describe flat shapes. Beginning to use mathematical names for solid shapes. Selects a particular named shape (3D). Uses mathematical terms to describe a solid shape. Uses familiar objects and common shapes to create and recreate patterns and build models. Recognise, create and describe patterns. Uses positional language Can describe their relative position such as behind and next to.	Uses some number names and number language spontaneously. Uses some number names accurately in play. Realises that not only objects, but anything can be counted. Recites numbers in order to 10. Counts actions or objects which cannot be moved (when they have been arranged in a regular group for the child) Counts 3 or 4 objects saying one number name for each item Counts objects that can moved Counts objects to 10, begin to count beyond 10 Count out 6 objects from a larger group Estimate how many objects can see and check by counting (Exceeding – to 20). Count fixed objects in an irregular pattern. Recites numbers beyond 10. Count back from 10. Counts reliably with numbers 1 – 20 (* on and back). Counts on (and back) from any number within 20. Exceeding – Count in 10s, 2s and 5s. Exceeding – Solve practical problems that involve combining groups into 10s, 2s and 5s.	Shows an interest in numerals. Shows curiosity about numbers by offering comments or asking questions. Shows an interest in representing numbers Knows that numbers identify how many are in a set. Begins to represent numbers using fingers, marks on paper or pictures. Recognises some numbers of personal significance Sometimes matches numbers and quantity correctly. Recognises numbers 1 to 5. Select correct numeral to represent 1 to 5 objects. Orders consecutive numbers 1 to 5. Recognises numbers 6 to 10. Select correct numeral to represent 6 to 10 objects. Orders consecutive numbers 1 to 10. Recognises numbers 11 to 20. Orders numbers 1 to 20. Orders numbers 1 to 20 when there are missing numbers. Shows interest in number problems.	Separates a group of 3/4 objects in different ways, beginning to recognise that the total is still the same. Compares two groups of objects saying when they have the same number. Uses language more and fewer to compare two sets of objects. Finds the number that is one more up to 5. Finds one more up to 10. Finds the number that is one less up to 5. Finds one less up to 10. Says number that is one more than a given number. Says which number is one less than a given number. In practical activities and discussion begin to use the vocabulary of addition. Finds total number of items in two groups by counting them. In practical activities and discussion begin to use the vocabulary of subtraction. Can take away practically by removing objects and counting how many are left. Begins to identify own mathematical problems based on own interests and fascinations. Uses quantities and objects to add two single digit numbers. Doubles. Uses quantities and objects to subtract two single digit numbers. Add by counting on. Subtract by counting back. Share Half Solve problems (including money, measures etc) Solve practical problems that involved combining groups into 2s, 5s and 10s)	Orders and sequences familiar events. Uses everyday language related to time, including making comparisons. Measures short periods of time in simple ways. Orders 2/3 items by length and height and make comparisons based on length and height using everyday language. Uses everyday language to talk about and compare distance. Orders 2 items by weight and capacity using everyday language to make comparisons. Uses everyday language related to money and make comparisons. To solve problems to do with quantities and measures.

Ramsgate Free School – Maths Medium Term Plan for 2015-2016 - YEAR 1

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
NUMBER: 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 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:** 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 zero. Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ? – 9.	**GEOMETRY** Recognise and name common 2-D and 3-D shapes, including: 2-D shapes (e.g. rectangles (including squares), circles and triangles) 3-D shapes (e.g. cuboids (including cubes), pyramids and spheres) **POSITION AND DIRECTION** describe position, directions and movements, including half, quarter and three-quarter turns **PLACE VALUE** Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward	**PLACE VALUE** 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 **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.	**MULTIPLICATION AND DIVISION** Grouping and sharing small quantities. Doubling numbers and quantities. Finding simple fractions of objects, numbers and quantities. 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. **MEASURES** Compare, describe and solve practical problems for: lengths and heights (e.g. long/short, longer/shorter, tall/short, double/half); mass or weight (e.g. heavy/light, heavier than, lighter than); capacity/volume (full/empty, more than, less than, quarter); time (quicker, slower, earlier, later). Measure and begin to record the following: lengths and heights, mass/weight, capacity and volume, time (hours, minutes, seconds)	**TIME** sequence events in chronological order using language such as: 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 tell the time to the hour and half past the hour and draw the hands on a clock face to show these times **MONEY** recognise and know the value of different denominations of coins and notes solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.

Ramsgate Free School – Maths Medium Term Plan for 2015-2016 - YEAR 2

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
NUMBER AND PLACE VALUE: Reading and writing numbers Counting in different steps 2, 3, 5 and 10 Recognise the place value of each digit in a two/three digit number Order and compare numbers Sorting odd and even numbers to 100 Estimate numbers Solve number and practical problems that involve all of the above **ADDITION AND SUBTRACTION:** Rapid and fluent recall and use of facts up to 20 2 digit +/- 1 digit using number lines/ hundred squares/base ten equipment 2 digit +/- multiple of 10 using hundred square 2/3 digit +/- 2 digit using hundred square by partitioning second number Number bonds to 10/20 Multiples of 10 that add up to 100 Add three one digit numbers (looking for facts to help such as reordering to match numbers which total 10) Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot, using resources or a number line Finding the difference and how many to make them equal Addition is the inverse operations of subtraction – finding calculation families Solve addition and subtraction one/ two step problems in contexts, deciding which operations and methods to use and why. Problems related to real life problems and measures. **PROBLEM SOLVING focus:** Finding rules and describing patterns	**NUMBER SEQUENCES:** To be able to spot and carry on a number sequence Spot and carry on with a number pattern counting in 2's, 3's, 4's, 5's 10's from any 2 digit number **DOUBLING:** Quick recall of doubling numbers up to 10 Doubling multiples of 10 to 100 **MULTIPLICATION:** Use symbols to record number facts Use a variety of language for multiplication eg groups of, twice as many, times, multiplied by, rows and columns Link multiplying by 2 with doubling Explore 2, 5 and 10 times table in terms of repeated addition and arrays and scaling, eg making a group or tower 2x, 5x or 10x larger Explore the commutative law for 2x 5x and 10x eg 2 x 5 = 5 x 2, showing this with repeated addition, on a number line and as an array Counting in steps of multiple to multiply mentally Solve problems involving multiplying Solve problems eg find the total of numbers of objects when they are organised in groups of 2, 5 or10 **HALVING:** Understanding that halving is a way of undoing doubling and vice versa **DIVISION:** Use a variety of language for division, number of groups of, shared between. Link halving with dividing by 2 Division facts linked to the 2, 5, 10 times table in grouping and sharing contexts eg share 12 stickers between 6 children, or how many teams of 6 can you make with 12 children Solve division problems involving grouping or sharing **CHRISTMAS PROBLEM SOLVING focus:** Finding all possibilities	**MEASUREMENT:** To be able to read simple scales in divisions of 1s and 10s To be able to use standard units of length, mass and capacity To be able to read a thermometer Estimate, compare and calculate different measures, including money in pounds and pence Read o'clock, half past and quarter past Compare and sequence intervals of time **PROPERTIES OF SHAPE:** Describe shapes by their properties including numbers of edges, sides, faces and vertices. Recognise and name 2D and 3D shapes Compare and classify geometric shapes, including quadrilaterals and triangles based on their properties Identify right angles Identify lines of symmetry in 2D shapes presented in different orientations **FRACTIONS OF SHAPES:** To know ½ and ¼ of shapes To be able to recognise simple equivalent fractions of shapes e.g. ½ is the same as 2/4 **FRACTIONS OF NUMBERS:** To be able to find simple fractions of numbers e.g. ½ of 10, ¼ of 12 **ROUNDING:** Round numbers to the nearest 10, or 100 **ADDITION AND SUBTRACTION** All do learn relating number bonds to 10 to bonds to 20 To state what must be added to a number to take it to the next multiple of 10 52 + ? = 60 Number calculations with missing numbers Finding different combinations to make given totals Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. Solve addition and subtraction ***two-step*** problems in contexts, deciding which operations and methods to use and why. **PROBLEM SOLVING focus:** Diagram problems and visual puzzles	**POSITION AND DIRECTION:** To be able to use left and right and compass points N, E, S, W Describe position on a 2D grid as co-ordinates Plot specified co-ordinate points TO identify position of objects after turns e.g. whole turn, ¼ turn etc. **STATISTICS:** Interpret and present data using appropriate graphical methods, including bar charts, pictogram and tables Answer questions using information presented in bar charts, pictograms, tables. **MULTIPLICATION AND DIVISION:** Begin to recall and use 2x, 5x and 10x facts Link 5x to the clock face Show that division is not commutative eg 10 divided by 2 is not the same as 2 divided by 10 Multiply and divide by 2, 5 and 10 with continuous quantities such as pieces of string, or water Link division to finding a fraction of an amount or quantity eg 3/4 Rapid recall and fluent use of doubles up to 20 and corresponding halves, rapid recall and fluent use of doubles of multiples of 10 to 50, and corresponding halves Find remainders after dividing (sharing and grouping) practically Explore additional times table in terms of repeated addition and arrays. Counting in steps of multiple to multiply mentally Solve problems involving multiplying Begin to explore multiplication by other numbers such as 3, 4 and 8 as repeated addition, as an array and as scaling, and division by other numbers such as 3, 4 and 8 as sharing and grouping. Find doubles of numbers up to 100 and corresponding halves by partitioning and doubling tens and units and recombining **PROBLEM SOLVING focus:** Logic puzzles Revisit finding rules and describing patterns	**ADDITION AND SUBTRACTION:** Rapid , fluent recall of number facts to 20 Make connections between number facts to 10 and 20, and number facts to 100 7 + 3 = 10 23 + 67 = 100 Check answers using the inverse operation, or by adding in a different order Add and subtract any two digit numbers -partition one number and keep one number whole Eg 25 + 36 25 + 30 + 6 Or 82 – 26 82 – 20 – 2 - 4 -partition two numbers to prepare for column addition; (addition only) 25 + 30 20 + 30 = 50 5 + 6 = 11 50 + 11 = 61 Use dienes or place value counters -add or subtract 9, 19, 29, 11, 21 etc by adding and subtracting multiples of ten and adjusting on a number line 67-19= 67 – 20 + 1 -Use near doubles Use 25 = 25 = 50 to calculate 25 + 26 **COVERING GAPS** **PROBLEM SOLVING focus:** Finding all possibilities	Solve problems with addition and subtraction, multiplication and division applying their increasing knowledge of mental and written methods. **MEASUREMENT:** To be able to read simple scales in divisions of 1s and 10s Read o'clock, half past and quarter past Compare and sequence intervals of time Solving problems involving time **COVERING GAPS**

Ramsgate Free School – Maths Medium Term Plan for 2015-2016 - YEAR 3

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
NUMBER AND PLACE VALUE: Count on and back in steps of 1, 10 and 100 State what needs to be added to a number to make the next multiple of 100 Recognise the place value of each digit in a 3 digit number. Compare and order numbers up to 1000. Read and write numbers up to 1000 in numerals and words. Compare numbers using greater than and less than symbols. **ADDITION AND SUBTRACTION:** Use of mental strategies covered in Year 2 for facts to 100 not remembered, such as: -reordering numbers when adding to match pairs of numbers for example which total multiples of 10 or 100, Eg 24 + 37 + 36 = 60 + 37 -partitioning one number and keeping one number whole, Eg 58 - 21 -partitioning both numbers for addition only, -bridging through multiples of ten, eg 82 - 26 Add and subtract using a number line or Dienes apparatus for example at first, and then mentally including; -a three digit number and a unit number - a three digit number and a multiple of ten -a three digit number and a multiple of one hundred Add and subtract amounts of money to give change, using both £ and p in practical contexts	**NUMBER AND PLACE VALUE:** Count on and back in steps of 2,3, 4, 5 and 10 Recall of number facts up to 100, including doubles and halves of numbers up to 100. Make connections between multiplying by 2 and 4 by doubling **SUBTRACTION:** Add and subtract using a number line or Dienes apparatus for example at first, and then mentally including; -a three digit number and a unit number - a three digit number and a multiple of ten -a three digit number and a multiple of one hundred **MULTIPLICATION AND DIVISION:** Explore 3x table as repeated addition, arrays and scaling, eg making a tower 3 times as tall or an amount 3 times as many Multiply whole numbers by 0, 1, 10,100 Look for patterns in the multiples of 3, make links between 2 x 3, 4 x 3, 8 x 3 Practice recall of 3x table Make links between multiplying and dividing by 3, showing this practically or with an array or on a number line Explore multiplying TU numbers by 2,5, and 10. Show this as an array and talk about the distributive law eg show with the array that 12 x 5 is the same as 10 x 5 add 2 x 5 Divide numbers by 2,5,10 or 3 using a sharing or a grouping strategy, recording with number sentences, discuss dividing by 1 and by the number itself. Explore associative law eg 2x 12 x 4 = 8 x 12 **PROPERTIES OF SHAPE** Draw 2D shapes and make 3D shapes using modelling materials. Recognise 3D shapes in different orientations and describe them.	**NUMBER AND PLACE VALUE:** Find 10 or 100 more or less than a given number. Rounding numbers to the nearest 10 or 100. **FRACTIONS OF NUMBERS:** 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. 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 [e.g. 5/7 + 1/7 = 6/7]. Compare and order unit fractions and fractions with the same denominator. **ADDITION AND SUBTRACTION** Adding or subtracting a larger or small number and then adjusting e.g. adding 9 or 11 Estimate the answer to a calculation and use inverse operations to check solutions. Fluent mental addition and subtraction with numbers up to 100 Column methods with addition and subtraction for two digit numbers, starting with an expanded form and moving to the formal method. Use of Dienes or place value counters for example alongside written methods. Link with place value and exchanging ten units for a ten. (Swap a block game.)	**NUMBER AND PLACE VALUE:** Solve number problems and practical problems involving number and place value skills. **MEASURES** Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) Measure the perimeter of simple 2-D shapes **MULTIPLICATION AND DIVISION:** Explore 4x table as repeated addition, arrays and scaling, eg making a tower 4 times as tall or an amount 4 times as many Look for patterns in the 4x table , make links between 2 x 4, 4 x 4, 8 x 4 etc Practice recall of 4 x table Make links between multiplying and dividing by 4 showing this practically or with an array or on a number line Rapid recall and fluent use of 4s table Explore multiplying TU numbers by 2,5, 10, 3 and 4. Show this as an array and talk about the distributive law eg show with the array that 12 x 3 is the same as 10 x 3 add 2 x 3. Begin to talk about how the array can be shown as a grid, so that the items within the array are not shown individually, with the array and grid shown side by side. Divide numbers by 2,5,10, 3 and 4 using a sharing strategy or a grouping strategy, recording with number sentences, and link with multiplication Use place value to link facts eg 4 x 3 = 12, 40 x 3 = 120, 4 x 30 = 120, 120 ÷ 4 = 30 etc	**STATISTICS** Interpret and present data using bar charts, pictograms and tables Solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts and pictograms and tables **ANGLES AND ROTATION** Recognise that angles are 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 **ADDITION AND SUBTRACTION** Fluent mental addition and subtraction with numbers above 100 Column methods with addition and subtraction for three digit numbers, starting with an expanded form and moving to the formal method. Use of Dienes or place value counters for example alongside written methods. Link with place value and exchanging ten tens for a hundred. (Swap a block game.)	**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, hours and o'clock; use vocabulary such as a.m./p.m., 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:** Explore 8x table as repeated addition, arrays and scaling, eg making a tower 8 times as tall or an amount 8 times as many Look for patterns in the 8x table , make links between 2 x 8, 4 x 8, 8 x 8 etc Make connections between multiplying by 2 , 4 and 8 by doubling Practice recall of 8x table Make links between multiplying and dividing by 8, showing this practically or with an array or on a number line. Rapid recall and fluent use of 3,4x and 8x table, stating and using division facts for each multiplication fact Explore multiplying TU numbers by 2,5, 10, 3, 4 and 8. Show this as an array and talk about the distributive law eg show with the array that 12 x 8 is the same as 10 x 8 add 2 x 8. Show this with the array, grid method and with annotations 12 X5 10 (5 x 10) 50 (5 x 2) 60 Divide numbers by 2,5,10, 3, 4 and 8 using a sharing strategy or a grouping strategy, recording with number sentences or formally using √ for small numbers. Solve problems, including missing number problems, measures and scaling, deciding which operation to use. Talk about remainders in contexts

Ramsgate Free School – Maths Medium Term Plan for 2015-2016 - YEAR 4

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
NUMBER AND PLACE VALUE: Counting in different steps Find 1000 more or less than a given number Count backwards through 0 (to include negative numbers) Recognise the place value of each digit in a four digit number Order and compare numbers Estimate numbers Round numbers to the nearest 10, 100 or 1000 Solve number and practical problems that involve all of the above and with increasingly large positive numbers **ADDITION AND SUBTRACTION:** Rapid and fluent recall and use of facts up to and beyond 100. Strategies to work out facts which cannot be remembered such as Estimate the answers to addition and subtraction problems, and use inverse operations to check solutions Solve addition and subtraction one step problems in contexts, deciding which operations and methods to use and why.	**MULTIPLICATION AND DIVISION:** Explore different times table in terms of repeated addition, arrays and scaling Look for patterns in the multiples of 6 and 9, make links with 3x Practice recall of 6 and 9x table Make links between multiplying and dividing by 6 and 9, showing this practically or with an array or on a number line Multiply whole numbers by 0, 1, 10, 100, 1000, divide by 1, 10, 100, 1000 Use place value knowledge to derive new facts eg 6 x 9 = 54 so 60 x 9 = 540, 540 ÷ 60 = 9 etc Solve problems involving multiplying and dividing, including missing number problems Multiply TU by U, revising the use of the array and grid method Solve division problems including in grouping and sharing contexts, eg share 42 stickers between 6 children, or how many teams of 6 can you **FRACTIONS AND DECIMALS:** recognise and show, using diagrams, families of common equivalent fractions count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths solve problems involving fractions	**MEASUREMENT:** Convert between different units of measure Measure and calculate the perimeter of rectangles in cm and m Find the area of rectangles by counting squares Estimate, compare and calculate different measures, including money in pounds and pence Read, write and convert time between analogue and digital 12 and 24 hour clocks Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days **PROPERTIES OF SHAPE:** Compare and classify geometric shapes, including quadrilaterals and triangles based on their properties and sizes Identify acute and obtuse angles and compare and order angles up to two right angles by size Identify lines of symmetry in 2D shapes presented in different orientations Complete a simple symmetric figure with respect to a specific line of symmetry **ADDITION AND SUBTRACTION** Addition of numbers up to 4 digits using formal, column addition, drawing on place value knowledge Subtraction of numbers with up to 4 digits using formal, column subtraction, drawing on place value knowledge Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use.	**POSITION AND DIRECTION:** Describe position on a 2D grid as co-ordinates in the first quadrant Describe movements between positions as translations of a given unit to the left/right and up/down Plot specified points and draw sides to complete a given polygon **MULTIPLICATION AND DIVISION:** Explore additional times table in terms of repeated addition, arrays and scaling. Look for patterns in the multiples and make links between tables Practice recall of 7, 11 and 12 table Make links between multiplying and dividing by 7, 11 and 12, showing this practically or with an array or on a number line Multiply three numbers together Multiply HTU by U using the grid method	**ADDITION AND SUBTRACTION:** Rapid and fluent recall of number facts involving tenths Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. **STATISTICS:** Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs Answer questions using information presented in bar charts, pictograms, tables and other graphs **FRACTIONS AND DECIMALS** add and subtract fractions with the same denominator recognise and write decimal equivalents of any number of tenths or hundredths recognise and write decimal equivalents to $^{1}/_{4}$; $^{1}/_{2}$; $^{3}/_{4}$ find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as units, tenths and hundredths round decimals with one decimal place to the nearest whole number compare numbers with the same number of decimal places up to two decimal places solve simple measure and money problems involving fractions and decimals to two decimal places	**NUMBER AND PLACE VALUE:** Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value (linked to IPC) **MULTIPLICATION AND DIVISION:** Fluent and rapid recall of all table facts to 12x 12 and related division facts Explore square numbers pictorially Identify factor pairs for numbers and use to solve multiplication eg 16 x 7 = 4 x 4 x 7 Multiply two-digit and three-digit numbers by a one-digit number using grid method Begin short division of TU by U

Ramsgate Free School– Maths Medium Term Plan for 2015-2016 - YEAR 5

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
NUMBER AND PLACE VALUE: Read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000 Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers through zero Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 solve number problems and practical problems that involve all of the above **ADDITION AND SUBTRACTION:** Add and subtract numbers mentally with increasingly large numbers Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) 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. Solve	**MULTIPLYING AND DIVIDING BY 10, 100 AND 1000** Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 **MULTIPLICATION AND DIVISION:** Multiply and divide numbers mentally drawing upon known 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 **NUMBER AND PLACE VALUE** Read Roman numerals to 1000 (M) and recognise years written in Roman numerals – (linked to IPC) 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	**MULTIPLICATION AND DIVSION** solve problems involving multiplication and division including using their number knowledge of decimals Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign **FRACTIONS** Compare and order fractions whose denominators are all multiples of the same number Identify, name and write equivalent fractions of a given fraction Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number (e.g. $^{2}/_{5} + {}^{4}/_{5} = {}^{6}/_{5} = 1^{1}/_{5}$) Add and subtract fractions with the same denominator and multiples of the same number Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams **PROPERTIES OF SHAPE:** Identify 3-D shapes, including cubes and other cuboids, from 2-D representations Know angles are measured in degrees: 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 **MEASUREMENT:** Convert between different units of metric measure (e.g. kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) Understand and use 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 squares and rectangles including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes Estimate volume (e.g. using 1 cm^3 blocks to build cubes and cuboids) and capacity (e.g. using water) Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling	**ADDING AND SUBTRACTING** Solve increasingly complex problems including two step problems and more Use formal written methods with more confidence and accuracy. **TIME** Solve problems involving converting between units of time **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 **PROPERTIES OF SHAPES** estimate and compare acute, obtuse and reflex angles draw given angles, and measure them in degrees (^{o}) identify: angles at a point and one whole turn (total 360°) angles at a point on a straight line and ½ a turn (total 180°) other multiples of 90°	**MULTIPPLICATION AND DIVSION:** 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 Recognise and use square numbers & cube numbers, and the notation for squared (^{2}) and cubed (^{3}) solve problems involving multiplication and division including using their number knowledge of factors and multiples, squares and cubes solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates **FRACTIONS AND DECIMALS** Read and write decimal numbers as fractions (e.g. 0.71 = $^{71}/_{100}$) recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents **STATISTICS:** Solve comparison, sum and difference problems using information presented in a line graph Complete, read and interpret information in tables, including timetables	**PERCENTAGES FRACTIONS AND DECIMALS** 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 hundred, and as a decimal fraction solve problems which require knowing percentage and decimal equivalents of $^{1}/_{2}$, $^{1}/_{4}$, $^{1}/_{5}$, $^{2}/_{5}$, $^{4}/_{5}$ and those with a denominator of a multiple of 10 or 25 **FOUR RULE OF NUMBER** Confidently solve multi step problems using all four operations. Choose appropriate methods to solve real life problems. Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling

Ramsgate Free School – Maths Medium Term Plan for 2015-2016 - YEAR 6

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6
Partitioning, rounding and ordering numbers Partition numbers with up to 2 decimal places Order numbers with up to 3 decimal places and negative numbers Round numbers to nearest thousand, hundred, ten, 1 and 2 decimal places **Properties of numbers** Find the difference between a positive and negative integer. Find sums, differences and totals of decimal numbers Halve and double numbers including those with two decimal places. Apply this to mental multiplication – x3, x4, x8 and division - ÷ 4, ÷8 etc. **Multiplication and division facts** Know multiplication and division facts up to 10x10 and use these to apply to decimal numbers **Mental calculations with decimals** Addition, subtraction including in the context of measurement and money.	**Written methods of calculation including multiplication and division** Using standard written methods of calculation for addition, subtraction, multiplication and division as per Chilton calculation policy including HTU X TU HTU÷TU And also application to decimal numbers with differing numbers of decimal places (for all 4 operations) **Application to problem solving.** Multi step word problems involving all four operations in a variety of contexts and using more than one skills – money, measurement **Fractions** Find fraction of shapes and quantities Simplify fractions Compare and order fractions by using a common denominator Understand and convert between improper and proper fractions Calculate a whole given a fraction Add and subtract fractions **Percentages** Calculate percentages of amounts Shade shapes according to % calculations Calculate percentage increase and decreases Understand within the context of word problems Compare fractions and percentages Compare, understand the equivalence and order fractions, decimals and percentages.	**Unit conversions** **Convert between units of measure** Cm,mm,m,km L,ml KG,g And apply to multi step word problems **Reading and using scales** Interpret scales with unmarked divisions Compare readings on differing scales Calculate differences by reading scales Use scale readings to solve multi step word problems **Recognising and describing properties of polygons** Visualise, construct and describe the properties of polygons using appropriate mathematical vocabulary **Use of reflective and rotational symmetry** Recognise lines of reflective symmetry and complete reflective patterns given 2 lines of reflection Recognise and complete rotational symmetry **Constructing polygons** Construct accurately a range of polygons, using understanding of properties	**Use coordinates in all 4 quadrants** Identify coordinates Plot coordinates Identify coordinates on a straight line Calculate missing coordinates from given information **Translate and transform shapes** Translate shapes by counting squares and using direction appropriately Use vectors to recognise and complete translations Transform shapes by measuring from points of origin **Data Handling** Interpret a range of graphs and charts Understand interpret and construct pie charts	**Probability** Understand and explain chance and likelihood of outcomes given criteria Present likelihoods on a logical way Interpret and explain likelihood Link probability to fractions **Ratio and proportion** Calculate straightforward ratio and proportions given quantities and or/ratio Scale up and scale down Complete word problems by applying understanding to calculate using ratio and proportion Link proportion to percentages and fractions **Fractions and Percentages** Use equivalence between decimals, percentages and fractions to order quantities Calculate and explain percentage increase and decrease Calculate a whole, given a percentage Solve multistep word problems involving percentages and fractions **Statistics/data handling** Calculate and explain mean, median, mode and range	**Problem solving** Developing logical and strategic methods and approaches to complex tasks and problems Using trial and error **Written and mental methods of calculation** Using efficient written methods of addition, subtraction, multiplication and division as per calculation policy, including HTU X TU HTU÷TU And also application to decimal numbers with differing numbers of decimal places (for all 4 operations) **Statistics** – mean, median, mode and range