St Andrew's **Mathematics** *Framework 2014*
Year 4 Medium term plan: autumn term

***Objectives in italics are from 2014 framework** – others are best practice objectives*	

EVERY DAY: Practise and develop oral and mental skills (e.g. counting, mental strategies, rapid recall of + and – facts)
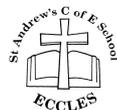
Read and write whole numbers up to 10000 *Count in multiples of 6, 7,8, 9, 25 and 1000 from any given number.* *Find 100 and 1000 more or less than a given number.* *Round any three-digit number to the nearest 10, 100*	Recall addition and subtraction facts for each number up to 50 Add/subtract a pair of two-digit numbers (crossing 10 but not 100 boundary) Derive doubles of whole numbers to 50, corresponding halves Recall multiplication facts up to x8. Recognise and use factor pairs within 64.

From Y4 – 10 mins of basic written calculation practice every day after the mental starter

Days	Topic	Objectives: children will be taught to
5	**NUMBER** **Number and place value**	Read and write whole numbers beyond 1000 in figures and words *Know what each digit represents and partition into Th H T U (recognize the place value)* Multiply and divide an integer up to 1000 by 10/100; understand the effect *Order and compare numbers beyond 1000.* *Round any positive number less than 1000 to nearest 10/100*
10	**NUMBER** **Addition and Subtraction** Mental calculation strategies (+ –) Pencil and paper procedures (+ –) Money and 'real life' problems Making decisions, checking results	Consolidate understanding of relationship between addition/subtraction. Check with addition in a different order. Use knowledge of addition and subtraction facts and place value to derive sums and differences of pairs of multiples of 10, 100, or 1000 Add or subtract to the nearest multiple of 10 and adjust. *Add and subtract numbers mentally (2-digit numbers) Check with the inverse.* *Add and subtract using formal written methods subtraction of columnar addition (up to 4 digits)* *Choose appropriate number operations and calculation methods to solve money or 'real life' word problems with one and two steps.*
10	**NUMBER** **Multiplication and division** Understanding x and ÷ Mental calculation strategies (x ÷) Pencil and paper procedures (x ÷) Money and 'real life' problems	Use doubling and halving of two-digit numbers, eg x4=double double, x5=x10 halve, x20=x10 double, x8=x4double, ¼=half on one ½. *Use place value, known and derived facts to multiply and divide mentally ie 30x6= 180 (include x0and x ÷1, multiplying 3 digits)* *Recognise and use factor pairs in mental calculations.* *Use formal written methods to multiply and divide 2 and 3 digit numbers by 1 digit.(see calculation policy)* Choose appropriate number operations and calculation methods to solve money and 'real life' word problems with one or more steps.
5	**STATISTICS**	*Interpret and present discrete and continuous data using bar charts and line graphs* Practise using scales with intervals labelled in 2s, 5s, 10s, 20s
3	**NUMBER** **Number, sequencing** Properties of numbers and number sequences Reasoning about numbers	Recognise, extend number sequences formed by counting from any number in steps of constant size, eg 25 to 500 Recognise odd and even numbers up to 1000 and some of their properties, eg sums, differences of pairs of odd/even numbers. Investigate and solve number puzzles, recognise patterns, generalise and predict.
5	**GEOMETRY** **Angles** **Properties of Shape**	*Identify acute and obtuse angles and compare and order angles up to two right angles in size.* *Compare and classify triangles based on properties (number of sides, angles, lines of symmetry) and size.* *Identify acute and obtuse angles and compare the size of different angles* Use eight compass points. Consolidate horizontal and vertical vocabulary Solve shape problems or puzzles.

Read and write whole numbers up to 10000 Count on/back in 10s, 100s from any three or four-digit number Count forwards and back using simple fractions and decimal fractions (100ths) Round any three-digit number to the nearest 100 1000	Add/subtract a pair of two-digit numbers (crossing 10 and 100 boundary) Recall addition and subtraction facts, for each number up to 50 Derive doubles of whole numbers to 100, corresponding halves Recall multiplication facts up to x8 and derive division facts. Recognise and use factor pairs within 64. Know ½, ¼, ¾, 1/10 of 1 kilometre in m (kg/g, l/ml)

Days	Topic	Objectives
2	**GEOMETRY** **Properties of Shape/ Symmetry**	*Identify lines of symmetry in 2D shapes presented in different orientations* *Complete a simple symmetric figure in a given line of symmetry in different orientations*
10	**NUMBER** **Fractions including decimals**	*Recognise and show using diagrams, families of common equivalent fractions* *Make connections between fractions of a length/shape and as representation of one whole or set of quantities* Find the effect of dividing a 1 or 2 digit number by 10 and 100. *Recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10.* *Recognise and write decimal equivalents of any number of 10ths or 100ths.* Compare numbers with the same number of decimal places up to 2dp
10	**MEASURES** **Conversions** **Perimeter & Area**	Suggest suitable units and equipment to estimate or measure length, weight, mass *Convert between different units of measure - Know ½, ¼, ¾, 1/10 of 1 kilometre in m (kg/g, l/ml)* Record m and cm using decimals, and other measurements (kg/g, l/ml) using mixed units. *Measure and calculate the perimeter of rectangles* *Measure and calculate area of rectangles/ polygons using counting methods* *Choose appropriate number operations and calculation methods to solve measurement word problems with one and two steps.*
5	**GEOMETRY** **Position and direction**	*Describe positions on a 2d grid as co-ordinates in the first quadrant* Draw and label axes accurately. Recognise clockwise, anti-clockwise. *Make and describe patterns involving translation on a grid in the first quadrant*

5	**MEASURES**	Read time to 1 min. on analogue/12 hour digital clock. Use 9:53 am and pm.
	Time, including problems	*Solve time word problems involving converting from hours to minutes, minutes to seconds,*

EVERY DAY: Practise and develop oral and mental skills (e.g. counting, mental strategies, rapid recall of + and – facts)	
Read and write whole numbers up to 1000 Round any four-digit number to the nearest 100 1000 Count forwards and back using simple fractions and decimal fractions	Recall addition and subtraction facts for each number to 100 Add/subtract a pair of two-digit numbers (crossing 10 but not 100 boundary) Add several small numbers by finding pairs that total 10, or 9 or 11 Add two three-digit numbers. Derive doubles of multiples of 10 to 500, corresponding halves Recall multiplication facts up to x9 and derive division facts. Recognise and use factor pairs within 81. Write subtraction fact corresponding to given addition fact

days	Topic	Objectives: children will be taught to
3	**NUMBER** **Number, place value and rounding**	*Read and write whole numbers beyond 1000 in figures and words* *Know what each digit represents and partition into Th H T U etc up to Millions* *Read Roman Numerals to 100(1-C) and know that number system changed over time to include zero and place value.* *Identify, represent and estimate numbers using different representations (inc measures)* Use symbols = <> correctly. Give a number lying between two others *Order and compare numbers up to 10000.* *Round any positive number less than 1000 to nearest 10/100*
5	**NUMBER** **Addition and Subtraction** Mental calculation strategies (+ –) Pencil and paper procedures (+ –) Money and 'real life' problems Making decisions, checking results	Consolidate understanding of relationship between addition/subtraction. *Understand commutative and associative law of addition* Add or subtract to the nearest multiple of 10 and adjust *Add and subtract numbers mentally (2-digit numbers) Check with the inverse.* *Add and subtract using formal written methods subtraction of columnar addition (up to 4 digits)* *Choose appropriate number operations and calculation methods to solve money or 'real life' word problems with one and two steps.* Check with an equivalent calculation/check using knowledge of sums of odd/even numbers
5	**GEOMETRY** **Angles** **Properties of Shape**	*Identify acute and obtuse angles and compare and order angles up to two right angles in size.* *Start to draw, measure and order angles.* *Compare and classify quadrilaterals based on properties (sides, angles) and size.(use of ruler)* Describe and visualise 3-D (edges, vertices, faces) and 2-D polygons (sides, angles) Consolidate horizontal and vertical perpendicular and parallel vocabulary Solve shape problems or puzzles.
10	**NUMBER** **Multiplication and division** Understanding x and ÷ Mental calculation strategies (x ÷) Pencil and paper procedures (x ÷) Money and 'real life' problems	Use place value, known and derived facts to multiply and divide mentally ie 30x6= 180 (include x0and x ÷1, multiplying 3 digits) *Recognise and use factor pairs and commutativity in mental calculations.* *Use formal written methods to multiply and divide 2 and 3 digit numbers by 1 digit.(see calculation policy)* *Interpret remainders appropriately as integers* *Solve problems involving multiplication and adding (distributive law 39x7=30x7+9x7)* Choose appropriate number operations and calculation methods to solve money and 'real life' word problems with one or more steps.
5	**STATISTICS**	*Interpret and present discrete and continuous data using bar charts and line graphs* Use vertical and horizontal representations of bar graphs -variable on horizontal (shoe size), frequency on vertical (number of people) Practise using scales with intervals labelled in 2s, 5s, 10s, 20s
3	**NUMBER** **Number, sequencing** Properties of numbers and number sequences	Recognise, extend number sequences formed by counting from any number in steps of constant size, eg 25 to 500 Investigate and solve number puzzles, recognise patterns, generalise and predict.

Read and write whole numbers up to 10000 Count on or back in equal steps including below zero Round any four-digit number to the nearest 100 1000 Read Roman numerals to 100. Count forwards and back using simple fractions and decimal fractions	Derive addition pairs that total 100, multiples of 50 that total 1000 Add/subtract two two-digit numbers (crossing 10 but not 100 boundary). Recall multiplication facts up to x9 and derive division facts. Derive doubles of multiples of 10 to 500, corresponding halves Recognise and use factor pairs within 81.

10	**NUMBER** **Fractions including decimals**	*Recognise and show using diagrams, families of common equivalent fractions* *Use factors and multiples to recognize equivalent fractions and simplify where appropriate* *Recognise that hundredths arise when dividing an object by 100 and dividing tenths by 10.* *Solve problems involving fractions to calculate quantities, and fractions to divided quantities* *Recognise and write decimal equivalents of any number of 10ths or 100ths.* *Extend the use of the number line to connect fractions, numbers and measures* *Compare numbers with the same number of decimal places up to 2dp* *Make connections between fractions of a length/shape and as representation of one whole or set of quantities* *Round decimals with one decimal place to the nearest number*

10	**MEASURES** **Conversions** **Perimeter & Area**	Suggest suitable units and equipment to estimate or measure length, weight, mass Record measurements to suitable degree of accuracy, using mixed units, or the nearest whole/half/quarter unit (eg 3.25kg) Know ½, ¼, ¾, 1/10 of 1 kilometre in m (kg/g, l/ml) Know 1 metre in cm or mm Record m and cm using decimals, and other measurements (kg/g, l/ml) using mixed units. Convert up to 1000 cm to metres and vice versa and (g/kg, ml/l) *Measure and calculate the perimeter of rectangles (express perimeter algebraically 2(a+b)* *Measure and calculate area of rectangles and simple shapes, using counting methods and standard units (square centimetres)* *Choose appropriate number operations and calculation methods to solve measurement word problems with two steps.*
5	**GEOMETRY** **Position and direction**	*Describe positions on a 2d grid as co-ordinates in the first quadrant* Draw and label axes accurately. Recognise clockwise, anti-clockwise. *Make and describe patterns involving translation on a grid in the first quadrant* Plot specified points and draw sides to complete a given polygon on a grid Know whole turn 360, 4 right angles; quarter turn, 90 , 1 right angle; half turn, 180 , 2 right angles. Recognise 45 as half a right angle.
5	**MEASURES** **Time**, including problems	Read time to 1 min. on analogue/12 hour digital clock. Use 9:53 am and pm. *Convert time to 12 and 24 hour clock* *Solve time word problems involving converting from hours to minutes, minutes to seconds, weeks to days.*

Year 4 Medium term plan: summer term

EVERY DAY: Practise and develop oral and mental skills (e.g. counting, mental strategies, rapid recall of + and – facts)	
Read and write whole numbers up to 10000 Round any four-digit number to the nearest 100 1000 Count forwards and back using simple fractions and decimal fractions	Add/subtract a pair of two-digit numbers (crossing 10 and 100 boundary) Derive addition pairs that total 100 and multiples of 50 that total 1000 Recall multiplication facts up to x12 and derive division facts. Derive doubles of multiples of 100 to 5000, corresponding halves Multiply or divide whole numbers by 10/100 /1000 including decimals Multiply TU by U, eg 13x3

days	Topic	Objectives: children will be taught to
3	**NUMBER** **Number, place value and rounding**	*Read and write whole numbers beyond 1000 in figures and words* *Know what each digit represents and partition into Th H T U etc to Millions* *Read Roman Numerals to 100(1-C) and know that number system changed over time to include zero and place value.* *Identify, represent and estimate numbers using different representations (inc measures)* *Use symbols = <> correctly. Give a number lying between two others* Simple calculations involving negative numbers in context: number line, thermometer (use number line)
5	**NUMBER** **Addition and Subtraction** Mental calculation strategies (+ –) Pencil and paper procedures (+ –) Money and 'real life' problems Making decisions, checking results	Consolidate understanding of relationship between addition/subtraction. Check with addition in a different order. *Understand commutative and associative law of addition* Add or subtract to the nearest multiple of 10 and adjust Accurately add and subtract numbers mentally, including 2-digit numbers. Check with the inverse. *Add and subtract numbers mentally (2-digit numbers) Check with the inverse.* Add and subtract using formal written methods subtraction of columnar addition (up to 4 digits) *Choose appropriate number operations and calculation methods to solve money or 'real life' word problems with one and two steps..* Check with an equivalent calculation/check using knowledge of sums of odd/even numbers
5	**GEOMETRY** **Angles** **Properties of Shape**	*Identify acute and obtuse angles and compare and order angles up to two right angles in size.* *Start to draw, measure and order angles.* *Compare and classify geometric shapes, including quadrilaterals and triangles, based on properties and size. (use of ruler)* Visualise solid shapes from 2-d drawings. Identify simple nets Consolidate horizontal and vertical perpendicular and parallel vocabulary Solve shape problems or puzzles.
10	**NUMBER** **Multiplication and division** Understanding x and ÷ Mental calculation strategies (x ÷) Pencil and paper procedures (x ÷) Money and 'real life' problems	Use doubling and halving of two-digit numbers, eg x4=double double, x5=x10 halve, x20=x10 double, x8=x4double, ¼=half on one ½. *Use place value, known and derived facts to multiply and divide mentally ie 30x6= 180 (include x0and x ÷1, multiplying 3 digits)* *Use formal written methods to multiply and divide 2 and 3 digit numbers by 1 digit.(see calculation policy)* *Interpret remainders appropriately as integers* *Solve problems involving multiplication and adding (associative law (2x3) x4= 2x(3x4)* *Combine knowledge of number facts and rules to solve mental and written calculations* *Choose appropriate number operations and calculation methods to solve money and 'real life' word problems with one or more steps.*
3	**STATISTICS**	*Solve comparison, sum and difference problems using information presented in bar charts, pictograms, table and other graphs.*
2	**NUMBER** **Number, sequencing** Properties of numbers and number sequences Reasoning about numbers	Recognise, extend number sequences formed by counting from any number in steps of constant size, eg 25 to 500 Investigate and solve number puzzles, recognise patterns, generalise and predict.

Read and write whole numbers up to 10000 Count on/back in equal steps including beyond zero Round any four-digit number to the nearest 100 1000 Count forwards and back using simple fractions and decimal fractions	Add/subtract a pair of two-digit numbers (crossing 10 and 100 boundary) Derive addition pairs that total 100 and multiples of 50 that total 1000 Recall multiplication facts up to x12 and derive division facts. Derive doubles of multiples of 100 to 5000, corresponding halves Multiply or divide whole numbers by 10/100 /1000 including decimals Multiply by partitioning, eg 23x4

10	**NUMBER** **Fractions including decimals**	*Use factors and multiples to recognize equivalent fractions and simplify where appropriate* *Solve problems involving fractions to calculate quantities, and fractions to divided quantities* *Add and subtract fractions with the same denominator.* *Recognise and write decimal equivalents to ¼, ½, ¾* *Extend the use of the number line to connect fractions, numbers and measures* *Make connections between fractions of a length/shape and as representation of one whole or set of quantities* Round decimals with one decimal place to the nearest number Compare numbers with the same number of decimal places up to 2dp Estimate a proportion e.g. about ¼ of the apples in the box are green.

10	**MEASURES** **Conversions** **Perimeter & Area**	Record measurements to suitable degree of accuracy, using mixed units, or the nearest whole/half/quarter unit (eg 3.25kg) Know ½, ¼, ¾, 1/10 of 1 kilometre in m (kg/g, l/ml) Know 1 metre in cm or mm Record m and cm using decimals, and other measurements (kg/g, l/ml) using mixed units. Convert up to 1000 cm to metres and vice versa and (g/kg, ml/l) *Measure and calculate the perimeter of rectangles (express perimeter algebraically 2(a+b)* *Measure and calculate area of rectangles and simple shapes, using counting methods and standard units (square centimetres).(properties of shape)* *Choose appropriate number operations and calculation methods to solve measurement word problems with one and two steps.*
5	**GEOMETRY** **Position and direction**	*Describe positions on a 2d grid as co-ordinates in the first quadrant* Draw and label axes accurately. Recognise clockwise, anti-clockwise. *Make and describe patterns involving translation on a grid in the first quadrant* Plot specified points and draw sides to complete a given polygon on a grid Know whole turn 360, 4 right angles; quarter turn, 90 , 1 right angle; half turn, 180 , 2 right angles. Recognise 45 as half a right angle.
3	**MEASURES** **Time**, including problems	Read time to 1 min. on analogue/12 hour digital clock. Use 9:53 am and pm. *Convert time to 12 and 24 hour clock* *Solve time word problems involving converting from hours to minutes, minutes to seconds, years to months, weeks to days.* Use a calendar to solve word problems