Learning, Caring and Growing Together in Faith.

St Andrew's C of E Infant School

Progression in Mathematics

	Reception	Year 1	Year 2
National curriculum and ELGs	**ELGS:** Children at the expected level of development will: **Number** • Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5. • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. **Numerical Patterns** • Verbally count beyond 20, recognising the pattern of the counting system.	**National Curriculum**	**National Curriculum**

'God is my strength, in whom I trust.' Psalm 18

Progression in Mathematics

	• Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.		
Counting	Rote count from 1. Rote counts on from a given number between 1 and 20. Count back from 20 to 0. Rote count back from a given number between 0 and 20. Know what number comes between two given numbers. Rote count beyond 20. Understand that counting is to find out how many.	Count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number. Count in multiples of twos, fives and tens.	Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward.

Progression in Mathematics

	Use one to one correspondence when counting. Understand the last number said is the number in the set. Count up to 20 objects, pictures, sounds and actions. Understand and use conservation of number. Use the word 'zero' to represent 'none'. State without counting (subitise) quantities within 5.		
Place Value	Recognise and identify numerals 0 to 20. Represent amounts in their own ways. Write numerals 0 to 20. Select the numeral that represents a set of objects. Partition a set of objects in different ways using the terminology part-part whole.	Read and write numbers to 100 in numerals. Read and write numbers from 1 to 20 in numerals and words. Begin to recognise the place value of numbers beyond 20 (tens and ones). Identify and represent numbers using objects and pictorial representations including the number line.	Read and write numbers to at least 100 in numerals and in words. Recognise the place value of each digit in a two-digit number (tens, ones). Partition numbers in different ways (for example, 23 = 20 + 3 and 23 = 10 + 13). Identify, represent and estimate numbers using different representations, including the number line.

Progression in Mathematics

	Understand that 'teens' numbers are a group of 10 plus another number. Understand that 20 is the same as two groups of 10.		
Comparing and Ordering	Compare two sets of different objects saying which set is more, greater, fewer, less, same, equal. Order three or more sets of objects. Order numerals 0 to 20.	Use the language of: equal to, more than, less than (fewer), most, least. Given a number, identify one more and one less.	Compare and order numbers from 0 up to 100; use >, < and = signs. Find 1 or 10 more or less than a given number.
Rounding, approximation and estimation	Make a sensible guess of quantities within 10.		Round numbers to at least 100 to the nearest 10.
Multiplying by powers of 10			Understand the connection between the 10 multiplication table and place value.
Sequences and Patterns	Explore and represent the patterns in odd and even numbers. Recognise repeating patterns in the counting sequence i.e., 6, 7, 8, 9 and 16, 17, 18, 19 and 26, 27, 28, 29 etc.	Recognise and create repeating patterns with numbers, objects and shapes. Identify odd and even numbers linked to counting in twos from 0 and 1.	Describe and extend simple sequences involving counting on or back in different steps.

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Progression in Mathematics

Solving number problems	Represent and explain their thinking in their own ways.	Solve problems and practical problems involving all of the above.	Use place value and number facts to solve problems.
Understanding addition and subtraction	Understand the concept of addition by practically combining sets of objects to how many and use the terminology part-part-whole. Understand the concept of subtraction by practically removing one amount from within another to find how many are left and use the terminology part-part-whole.	Read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs.	Choose an appropriate strategy to solve a calculation based upon the numbers involved (recall a known fact, calculate mentally, use a jotting). Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. Understand subtraction as take away and difference (how many more, how many less/fewer).
Addition and subtraction facts	Automatically recall addition and subtraction facts up to 5 and some addition and subtraction facts to 10. Identify one more and one less than a given number Identify two more and two less than a given number.	Represent and use number bonds and related subtraction facts within 20.	Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. Recall and use number bonds for multiples of 5 totalling 60 (to support telling time to nearest 5 minutes.
Mental methods	Add two single-digit numbers totalling up to 10, using practical equipment.	Add and subtract one-digit and two-digit numbers to 20, including zero (using concrete objects and pictorial representations).	Select a mental strategy appropriate for the numbers involved.

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Progression in Mathematics

	Add two single-digit numbers totalling greater than 10, using practical equipment Subtract a single-digit number from a number up to 10, using practical equipment. Subtract a single-digit number from a number greater than 10, using practical equipment.		Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: - a two-digit number and ones. a two-digit number and tens - two two-digit number. - adding three one-digit numbers.
Written methods		*Written methods are informal at this stage – see mental methods for expectation of calculations	*Written methods are informal at this stage – see mental methods for expectation of calculation
Estimating and checking calculations	Relate subtraction and addition in practical situations using the terminology part-part-whole.		Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
Solving addition and subtraction problems including those with missing numbers	Represent and explain their thinking in their own ways.	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = _ - 9.	Solve problems with addition and subtraction including those with missing numbers: - using concrete objects and pictorial representations, including those involving numbers, quantities and measures. - applying their increasing knowledge of mental and written methods.

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Progression in Mathematics

understanding multiplication and division	Understand that sharing is splitting an amount into equal parts Understand that halving is splitting into two equal parts. Understand that doubling is adding a number to itself.		Understand multiplication as repeated addition. Understand division as sharing and grouping and that a division calculation can have a remainder. Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.
Multiplication and division facts	Automatically recall double facts to double 5.	Recall and use doubles of all numbers to 10 and corresponding halves.	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. Derive and use doubles of simple two-digit numbers (numbers in which the ones total less than 10). Derive and use halves of simple two-digit even numbers (numbers in which the tens are even).
Mental Methods			Calculate mathematical statements for multiplication (using repeated addition) and division within the multiplications table and write them using the multiplication (x), division (÷) and equals (=) signs.

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Progression in Mathematics

Written Methods		*Written methods are informal at this stage – see mental methods for expectation of calculations	*Written methods are informal at this stage – see mental methods for expectation of calculations.
Solving multiplication and division problems including those with missing numbers.		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.	Solve problems involving multiplication and division (*Including those with remainders),* using materials, arrays, repeated addition, mental methods, and multiplication and division facts including problems in contexts.
Understanding fractions.	Understand that sharing is splitting an amount into equal parts.	Understand that a fraction can describe part of a whole. Understand that a unit fraction represents one equal part of a whole.	Understand and use the terms numerator and denominator. Understand that a fraction can describe part of a set. Understand that the larger the denominator is, the more pieces it is split into and therefore the smaller each part will be.
Fractions of objects, shapes and quantities.	Understand that halving is splitting into two equal parts.	Recognise, find and name a half as one of two equal parts of an object, shape or quantity (including measure).	Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity.

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Progression in Mathematics

		Recognise, find and name a quarter as one of four equal parts of a whole.	
Counting, comparing and ordering fractions.			Count on and back in steps of ½ and ¼.
Equivalence			Write simple fractions for example ½ of 6 = 3 and recognise the equivalence of 2/4 and ½ .
Length/Height	Understand that measures of distance can have different names including length, width, height. Understand and use language to compare the length/width of two objects. Understand and use language to compare the height of two objects. Understand and use language of comparison when ordering three objects of different length/widths/heights.	Measure and begin to record lengths and heights, using non-standard and then manageable standard units (m and cm) within children's range of counting competence. Compare and describe lengths and heights (for example, long/short, longer/shorter, tall/short, double/half)	Chose and use appropriate standard units to estimate and measure length/height in any direction (m/cm) to the nearest appropriate unit using rulers. Compare and order lengths and record the results using >, < and =

Progression in Mathematics

	Understand the concept of conservation of length/width/height.		
Mass	Understand the measurement of weight/mass (heavy/light). Understand and use language to compare the weight/mass of two objects. Understand the concept of conservation of weight/mass.	Measure and begin to record mass/weight, using non-standard and then standard units (kg and g) within children's range of counting competence. Compare and describe mass/weight (for example, heavy/light, heavier than, lighter than).	Choose and use appropriate standard units to estimate and measure mass (kg/g) to the nearest appropriate unit using scales. Compare and order mass and record the results using >, < and =
Capacity/volume	Understand the measurement of volume/capacity (empty/full, nearly). Understand and use language to compare two of the same containers holding different amounts. Understand and use language to compare two of the same containers holding different amounts.	Measure and begin to record capacity and volume using non-standard and then standard units (litres and ml) withing children's range of counting competence. Compare and describe capacity and volume (for example, full/empty, more than, less than, half, half full, quarter)	Choose and use the appropriate standard units to estimate and measure capacity and volume (litres/ml) to the nearest appropriate unit using measuring vessels. Compare and order volume/capacity and record the results using >, < and =

Progression in Mathematics

	Understand the concept of the conservation of volume/capacity.		
Time	Talk about significant times of the day, e.g., home time, lunch time, snack time, bed time, etc. Know the names of the days of the week. Say the names of the days of the week in order. Understand and use language – before, after, yesterday, today and tomorrow. Use the language of comparison when talking about time e.g., longer/shorter, faster/slower. Sequence two or three familiar events and describe the sequence.	Recognise and use language relating to dates, including days of the week, weeks, months and years. Compare and describe time (for example quicker, slower, earlier, later). Sequence events in chronological order using language (for example before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening). Measure and begin to record time (hours, minutes seconds). Tell the time to the hour and half past the hour and draw the hands on a clock face to show these times.	Compare and sequence intervals of time. Know the number of minutes in an hour and the number of hours in a day. Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times.
Money	Understand that we need to pay for goods.	Recognise and know the different value of different denominations of coins and notes.	Recognise and use symbols for pounds (£) and pence (p).

Progression in Mathematics

	Talk about things they want to spend their money on. Talk about different ways we can pay for things. Recognise that there are different coins. Recognise 1p coin. Use 1p coins to pay for objects.		Combine amounts to make a particular value. Find different combinations of coins that equal the same amounts of money. Add and subtract money of the same unit, including giving change.
Solving problems involving money and measures.		Solve practical problems for: -Lengths and Heights - Mass/Weight - Capacity and volume -Time	Solve Simple problems in a practical context involving addition and subtraction of money and measures (including time).
Properties of Shape.	Know that shapes can appear in different ways and can be different sizes. Create and describe pictures using 2-D shapes. Name common 2-D shapes (circle, triangle, square, rectangle, oblong rectangle) Build and make models with 3-D shapes.	Recognise and name common 2-D shapes, including rectangles (including squares), circles and triangles. Recognise and name common 3-D shapes, including cuboids (including cubes), pyramids and spheres.	Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. Identify 2-D shapes on the surface of 3-D shapes, (for example, a circle on a cylinder and a triangle on a pyramid). Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces.

Progression in Mathematics

	Name common 3-D shapes (sphere, cube, cuboid). Talk about shapes using mathematical language (Straight, curved, sides, flat, solid). Sort shapes according to their own criteria.		
Angles and rotation		Describe movement including whole, half, quarter and three-quarter turns.	Use mathematical vocabulary to describe movement, including rotation as a turn. Understand the link between rotation and turns in terms of right angles for quarter, half and three – quarter turns (clockwise and anti-clockwise).
Patterns	Describe and recognise patterns made of objects, numbers and shapes. Create patterns made of objects, numbers and shapes.	Recognise and create repeating patterns with objects and shapes.	Order and arrange combinations of mathematical objects in patterns and sequences.
Position and direction.	Understand and use positional language in everyday situations. Understand and use ordinal numbers when describing position.	Describe position and direction.	Use mathematical vocabulary to describe position, movement, including movement in a straight line.

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	Understand and use the language of movement/direction.		
Sorting and classifying.	Sort shapes according to their own criteria. Sort objects and say what features they have in common.	Sort objects, numbers and shapes to a given criterion and their own.	Compare and sort objects, numbers and common 2-D and 3-D shapes and everyday objects.
Present and interpret data.		Present and interpret data in block diagrams using practical equipment.	Interpret and construct simple pictograms, tally charts, blocks and diagrams and simple tables.
Solve problems using data.		Ask and answer simple questions by counting the number of objects in each category. Ask and answer questions by comparing categorical data.	Ask and answer simple questions by counting the number of objects in each category and sorting the category by quantity. Ask and answer questions about totalling and comparing categorical data.