Progression of skills: Maths - Algebra

Curriculum intent:
At Shawclough, our intent for Mathematics is to teach a rich, balanced and progressive curriculum using Maths to reason, problem solve and develop fluent conceptual understanding I n each area. Our curriculum allows children to better make sense of the world around them by making connections between Mathematics and everyday life. Our policies, resources and schemes of work support our vision and clearly outline where Maths can be incorporated across different curriculum areas. The structure of the Mathematics curriculum across school shows clear progression in line with age related expectations. Teaching curriculum content in blocks allows children to explore skills and knowledge in depth and gain a secure understanding of particular subject matter. Key knowledge and skills are also revisited regularly allowing repetition to embed learning. A concrete, pictorial, abstract approach provides children with a clear structure in which they can develop their depth of understanding of mathematical concepts. We aim to ensure that Mathematics is a high profile subject which children view positively and with a 'Can do' attitude.

For the youngest children developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationship between and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding- such as using manipulative, including small pebbles and tens frames for organising counting – children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, 'have a go', talk to adults and peers about what they notice and not be afraid to make mistakes

Intended Experiences **Nursery**	**Intended Experiences** **Reception**	**Early Learning Goal** **Maths – Numerical pattern**
To spot patterns and talk about them e.g. stripes on a scarf. To react to changes in amounts e.g in hiding and returning rhymes (two little dicky birds) To notice and arrange things in patterns	To understand the 'one more than/one less than' relationship between consecutive numbers · To link the number symbol (numeral) with its cardinal number value.	Verbally count beyond 20, recognising the pattern of the counting system. · 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,

To begin to understand position through words alone e.g. in front behind To begin to use vocabulary to describe the time of day e.g. morning, afternoon, evening, yesterday, tomorrow To select shapes appropriately when building To extend a pattern that has been made and create my own simple patterns (ABAB) To start to talk about upcoming events e.g. Birthdays and then talk about what happened after the event To understand in front behind, on top, next to To talk about patterns and spot errors To continue and create patterns To sequence a pattern of events using time language e.g. first, next, then. To talk about 2D and 3D shapes (using informal vocab e.g. sides, straight, round, flat) To describe a familiar route using vocab e.g. in front, behind	To count to 10 by rote To compare manipulatives (e.g. saying when one tower is bigger/smaller. To find one more/ one less using resources To continue and copy patterns To create their own patterns To subitise, recall number bonds, estimate and compare quantities and have a deep understanding of number to 10. To count to 20, knowing the teen numbers · To compare two quantities saying when one is bigger/smaller/ same To say a number that is one more/ less without resources. To spot errors in the pattern and can name a pattern e.g. ABAB To star to identify odd and even numbers linked to sharing	double facts and how quantities can be distributed equally

FORMULAE					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
			Perimeter can be expressed algebraically as 2(a + b) where a and b are the dimensions in the same unit. (Copied from NSG measurement)		Use simple formulae. Recognise when it is possible to use **formulae** for area and volume of shapes (copied from Measurement).
SEQUENCES					
Sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening (copied from Measurement)	Compare and sequence intervals of time (copied from Measurement) Order and arrange combinations of mathematical objects in patterns (copied from Geometry: position and direction).				Generate and describe linear number sequences.
EQUATIONS					
Solve one-step problems that involve addition and	Recognise and use the inverse relationship between addition and	Solve problems, including **missing number** problems, using		Use the properties of rectangles to deduce related facts and find	Express missing number problems algebraically.

subtraction, using concrete objects and pictorial representations, and **missing number problems** such as 7 = □ – 9 (copied from Addition and Subtraction)	subtraction and use this to check calculations and **missing number** problems (copied from Addition and Subtraction).	number facts, place value, and more complex addition and subtraction (copied from Addition and Subtraction).		**missing lengths and angles** (copied from Geometry: Properties of Shapes)	
	Recall and use addition and subtraction to 20 fluently, and derive and use related facts up to 100 (copied from Addition and Subtraction).				Find pairs of numbers that satisfy number sentences involving two unknowns.
Represent and use number bonds and related subtraction facts within 20 (copied from Addition and Subtraction).					Enumerate all possibilities of combinations of two variables.
VISUAL ALGEBRA POLICY					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
A9, 10, 11 B15, 16 C24 D32 E38 G70 H74, 75, 76	A11, 12, 13, 14 B17, 18 C25 D32 E39, 40, 41, 42, 43 G70, 71 H77, 78	B17, 18 C26, 27 D33, 34, 35 E44, 45, 46, 47 G72 H79	B19, 20, 21 C26, 27 D33, 34, 35 E48, 49, 50, 51 F57, 58 G73 H79, 80 I92, 93, 94	B20, 21, 22, 23 C28, 29, 30, 31 D36, 37 E52 F59, 63 G74 H81, 82 83 I95, 96, 97 J98, 99, 100, 101, 102	B20. 21, 22, 23 C28, 29, 30, 31 D36, 37 E53, 54, 55, 56 F61, 62, 63, 64, 65, 66, 67, 68, 69 H84, 85, 86, 87, 77, 89, 90, 91 I95, 96, 97 J98, 99, 100, 101, 102
VOCABULARY					

Solve, one step problem, missing, number, check, calculate, problem, sequence, chronology	Solve, one step problem, missing, number, check, calculate, problem, sequence, chronology, Inverse, relationship, compare, order, arrange, pattern.	Solve, one step problem, missing, number, check, calculate, problem, sequence, chronology, Inverse, relationship, compare, order, arrange, pattern.	Solve, one step problem, missing, number, check, calculate, problem, sequence, chronology, Inverse, relationship, compare, order, arrange, pattern, perimeter, algebra, algebraically.	Solve, one step problem, missing, number, check, calculate, problem, sequence, chronology, Inverse, relationship, compare, order, arrange, pattern, perimeter, algebra, algebraically, properties, rectangles, deduce, related facts, missing lengths, missing angles.	Solve, one step problem, missing, number, check, calculate, problem, sequence, chronology, Inverse, relationship, compare, order, arrange, pattern, perimeter, algebra, algebraically, properties, rectangles, deduce, related facts, missing lengths, missing angles, Formula, formulae, equation, unknown, variable.