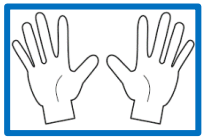
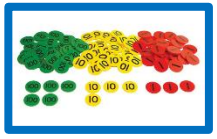
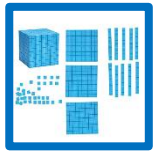
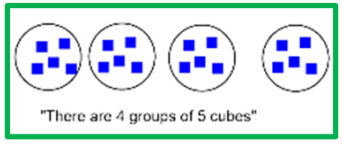
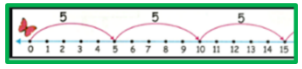
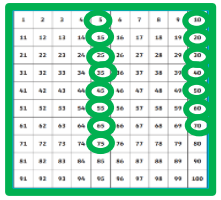
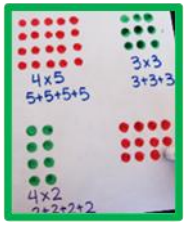
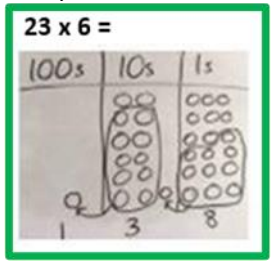
Gossops Green Primary School

Overview of Strategies and Methods – Multiplication

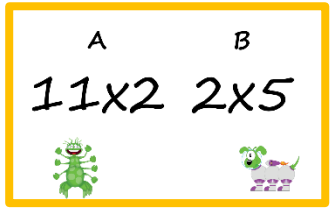
At Gossops Green, we use the Concrete, Pictorial, Abstract method in our maths teaching. Children are simultaneously introduced to a maths concept using a range of concrete materials and equipment that they can physically manipulate, pictorial representations of a concept and more abstract ways of working. This allows for a deeper understanding of the skills and knowledge required to apply Multiplication in different contexts. An overview of these for multiplication can be found below:

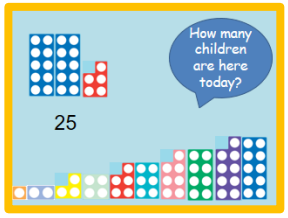
	Concrete	Pictorial	Abstract
Multiplication	Children are taught to use the following concrete resources (the list is not exhaustive):  Multilink  Numicon  Everyday items  Fingers  Place Value counters  Dienes Base Ten	Children are taught to use the following pictorial representations to support their multiplication:  Drawings  Dots  Number line  Hundred square  Arrays  Drawing counters  Drawing dienes	Children are taught to use the following abstract methods to record / solve multiplication calculations: 3 × 5 2 × 2 Use of x and = symbols A 6x5 B 8x5 Known number facts × 20 3 4 80 12 = 92 Grid method 23 x 4 = 92 T U 2 3 x 4 1 2 8 0 9 2 Expanded multiplication Short multiplication 24 × 6 becomes 2 4 × 6 1 4 4 2 Answer: 144

Overview of Number Fact Teaching:

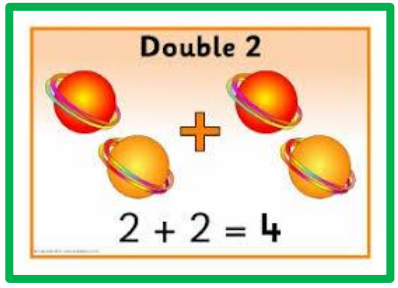
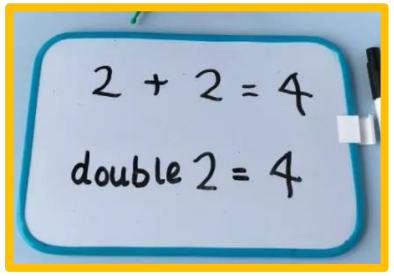
Children are taught to recall number facts through rigorous, daily teaching of key facts. Sessions are short and concise. Children learn specific new facts each term, alongside revisiting previously leant facts. Teachers use a variety of methods to teach these facts including CLIC, maths meetings, games and activities.

	Autumn	Spring	Summer
Reception	Double 1 and double 2	Doubles of 3, 4, 5	2+3 and 2+1
1	Number bonds to 10	Number bonds to 20	Double 6, 7, 8 and 9
2	10x table	5x table	2xtable
3	3x table	4x table	8x table
4	6x6 6x7 7x7 9x6 9x7 9x9	11x table	12x table

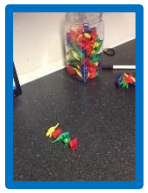
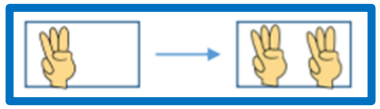
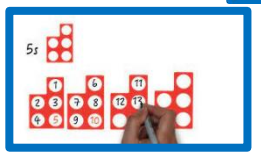
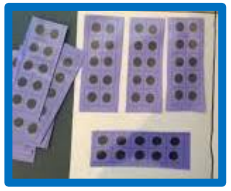
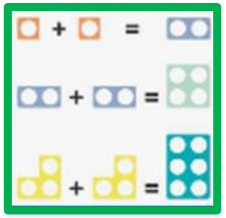
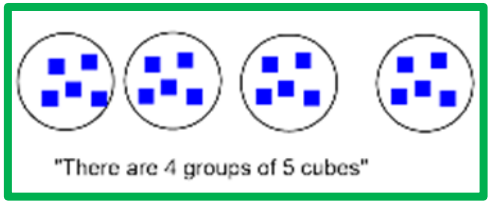
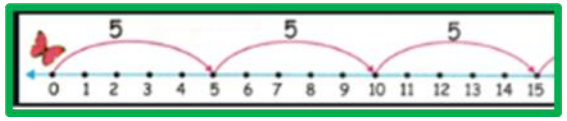
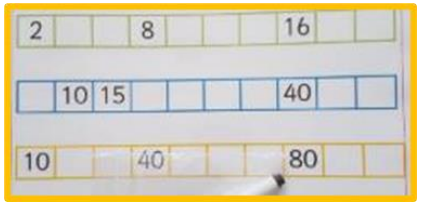




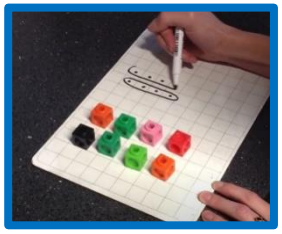
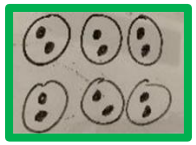
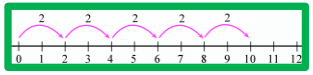
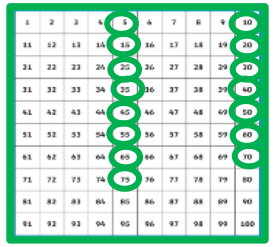
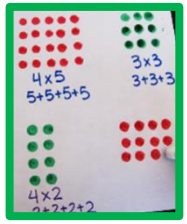
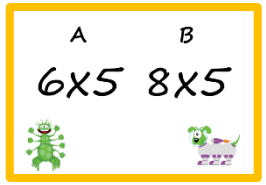
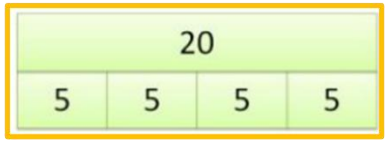
Overview of Strategies and Methods - Reception – Multiplication

	Concrete	Pictorial	Abstract
	Children solve problems, including doubling		
Multiplication	Children physically double a set of items including:  Numicon Dominoes Ten frames	Children count or draw dots or pictures to show doubles:    	Children may start to recognise doubles when recorded or spoken 

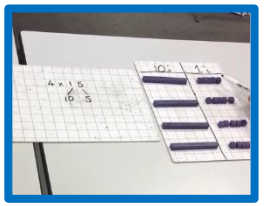
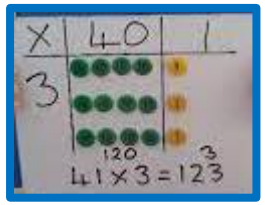
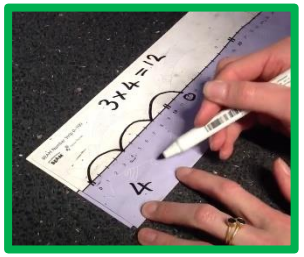
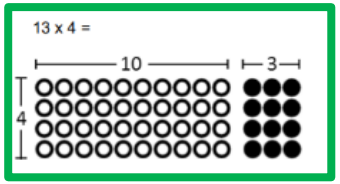
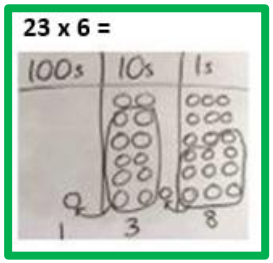
Overview of Strategies and Methods - Year 1 – Multiplication

	Concrete	Pictorial	Abstract
	Pupils should be taught to: - Double numbers and quantities. - Count in steps of 2, 5 and 10 from 0.		
Multiplication	Children continue to use a wide range of physical resources to double quantities, counting the total amount to find an answer.  Doubling - YouTube   Children use physical resources to make sets to help them count in 2s, 5s and 10s; e.g. Socks for 2s   Numicon for 5s Tens frames for 10s 	Children use pictorial representations to double or help them count in steps of 2, 5 and 10    Children use a number line to count in steps (repeated addition)  	Children are taught to count forwards and backward sin 2s, 5s and 10s through rote counting and overlearning. Numeral cards are used as a prompt to show steps of 2, 5 and 10.  Children start to complete missing numbers in sequences 

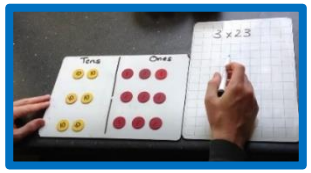
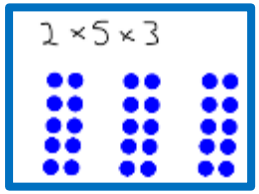
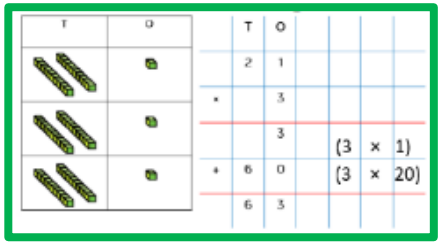
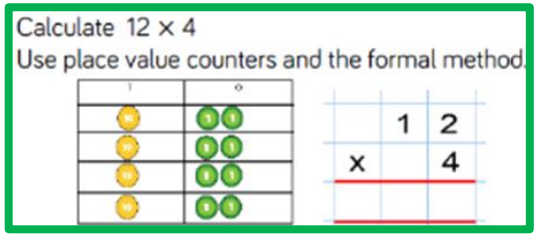
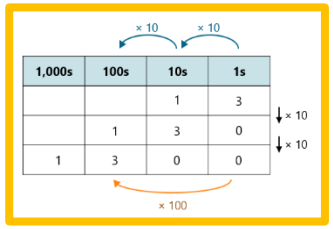
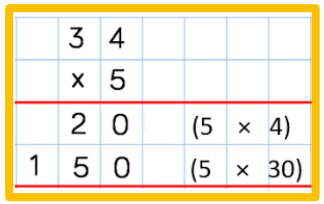
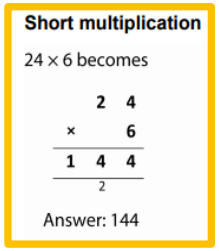
Overview of Strategies and Methods – Year 2 – Multiplication

	Concrete	Pictorial	Abstract
	Pupils should be taught to: • Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (×) and equals (=) signs. • Show that multiplication of two numbers can be done in any order (commutative) • Recall and use multiplication facts for the 2, 5 and 10 multiplication tables		
Multiplication	Children use multilink or other equipment to complete repeated addition calculations [Repeated addition - YouTube]  Children are then taught to make arrays  [Multiplication Arrays - YouTube] Children manipulate the arrays to show that multiplication can be completed in any order. 6x2=12 and 2x6=12 	Children draw dots to represent a repeated addition calculation  or they use a number line or number square    Children draw their own arrays using dots – one dot per square in their maths books. Children start to use bar models to present their jottings  	Children learn their 2, 5 and 10 multiplication facts by rote learning and through regular exposure to these facts.  Children start to use the X and = sign to represent multiplication calculations, understanding what it means 3 × 5 2 × 2 Children start to understand and interpret bar models representing multiplication 

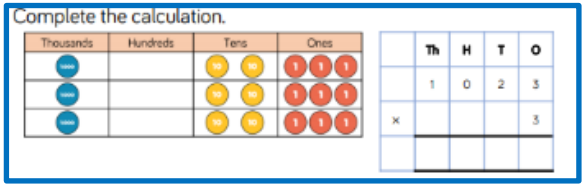
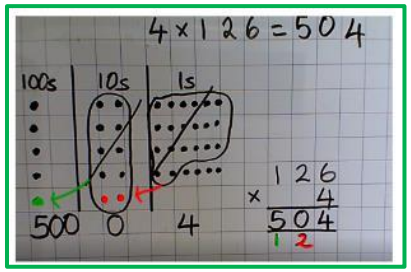
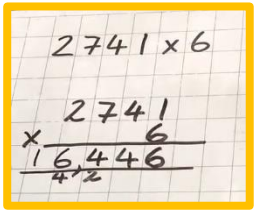
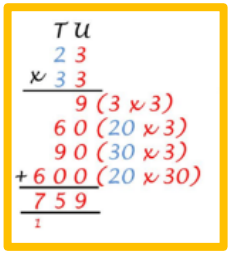
Overview of Strategies and Methods - Year 3 – Multiplication

	Concrete	Pictorial	Abstract
	Pupils should be taught to: • To recall and use multiplication facts for the 3, 4 and 8 multiplication tables • Write and calculate mathematical statements for multiplication using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods		
Multiplication	Children use dienes and / or place value counters to multiply by partitioning:  Multiplication by partitioning (dienes) - YouTube And using the grid method: Grid method multiplication using concrete resources - YouTube  	Children continue to use a number line for repeated addition, with the 3, 4, and 8x tables.  Repeated addition on a number line - YouTube Children draw dots and dienes to complete: Grid multiplication  or partitioning   	Children learn their 3, 4 and 8 multiplication facts by rote learning and through regular exposure to these facts. Children apply their use of these number facts to solve calculations using the grid method: × 20 3 4 80 12 = 92 Moving onto expanded multiplication method: 23 x 4 = 92 T U 2 3 x 4 1 2 8 0 9 2 1. Multiply the 'unit' digits together (3x4) 2. Multiply the 'tens' digit by the single 'unit' digit 3. Add the two totals together

Overview of Strategies and Methods – Year 4 – Multiplication

	Concrete	Pictorial	Abstract
	Pupils should be taught to: • Recall multiplication facts for multiplication tables up to 12 × 12 • Multiplying whole numbers by 10 and 100 • Use place value, known and derived facts to multiply and divide mentally, including multiplying by 0 and 1 and multiplying together three numbers • Multiply two-digit and three-digit numbers by a one-digit number using formal written layout		
Multiplication	Children are taught short multiplication, where there is no exchanging [Short multiplication 2 digit by 1 digit number - YouTube]  Children move onto short multiplication with exchanging  [Short multiplication (place value counters) - YouTube] Children use counters to make arrays to show multiplication of 3 numbers:  	Children use pictures of place value counters or dienes alongside formal written methods   	Children are taught to understand the pattern when multiplying by 10 and 100, by using a place value grid   Children continue to use the expanded method: Children are taught to use short multiplication: 

Overview of Strategies and Methods – Year 5 and 6 – Multiplication

	Concrete	Pictorial	Abstract
	Pupils should be taught to: • 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 (Y5) • multiply numbers mentally drawing upon known facts (Y5) • multiply whole numbers and those involving decimals by 10, 100 and 1000 (Y5) • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication (Y6)		
Multiplication	Children extend their understanding of multiplication with larger numbers using place value counters 	Children continue to use pictorial representations of place value counters or dots to support their understanding of the written methods taught. 	Children are taught to expand their use of the short multiplication method (or expanded method if they prefer) to include 4 digits. [5. 5 Multiplication Short multiplication 4 digit by 1 digit number - YouTube]   Children extend their understanding of these methods by moving to 2-digit x 2-digit calculations