Kenmore Park Infant and Nursery School



PROGRESSION IN CALCULATION POLICY– Teaching for Mastery

Mastery is for all, and the aim of this policy is to ensure all children leave our school with a secure understanding of the four operations and can confidently use both written and mental calculation strategies in a range of contexts. It aims to ensure consistent strategies, models and images are used across the school to embed and deepen children's learning and understanding of mathematical concepts.

This policy sets out the progression of strategies and written methods which children will be taught as they develop in their understanding of the four operations. Strategies are set out to develop a Concrete, Pictorial, Abstract (CPA) approach to develop children's deep understanding and mastery of mathematical concepts.

Models and images from the White Rose Calculation Policy have been included in this policy.

Article 28

You have the right to a good quality education. You should be encouraged to go to school to the highest level you can.

	Addition	Subtraction	Multiplication	Division
	Children are encouraged to develop a mental picture of the number system in their heads to use for calculation. They develop ways of recording calculations using pictures, etc.	Children are encouraged to develop a mental picture of the number system in their heads to use for calculation. They develop ways of recording calculations using pictures etc.	Children will work on practical problem solving activities involving equal sets or groups.	Children will understand equal groups and share items out in play and problem solving.
Reception	Image: Constraint of the second se	Substitution Substitution Substitution Substitution	Doubling is taught as part of multiplication.	Halving is taught as part of division.



Children should also be taught use of the 100 square to support addition using counting on in ones along the rows and counting on in tens going down a column, both practically and then visualising a mental image.	Children should also be taught use of the 100 square to support subtraction using counting back in ones along the rows and counting back in tens going up a column, both practically and then visualising a mental image.	 3 x 2 = 6 2 x 3 = 6
Count on 3 $+ 3 = 6$ Count on 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	Count back 3 $8-3=5$ Count back 10 13-3=10 1 2 4 5 5 5 7 7 8 9 10 11 12 18 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	



































Skill: 2 times table Year: 2 Encourage daily 12 14 16 18 20 22 24 counting in multiples both forwards and backwards. This can be supported using a number line or a hundred square. Look for patterns in the two times table, using concrete 3 4 5 9 18 13 14 15 16 17 20 (12) 19 manipulatives to 11 22 23 2 28 25 29 30 support. Notice how 21 27 32 37 38 33 3 all the numbers are 35 30 (40 39 31 even and there is a 43 4 48 41 45 47 49 pattern in the ones. Use different models 16 9 10 п 12 15 19 20 13 17 to develop fluency.



Skill: 10 times table Year: 2 Encourage daily 10 20 30 40 50 60 70 80 90 100 counting in multiples both forwards and backwards. This can be supported using a number line or a hundred square. Look for patterns in the ten times table, using concrete manipulatives to 32 33 35 36 38 39 support. Notice the 42 43 pattern in the digits-52 53 54 55 56 the ones are always 0, 62 63 64 65 66 68 69 and the tens increase 72 73 74 75 by 1 ten each time.









Mathematical Language

The Following Mathematical language will be consistently used by teachers with reference to the four operations, however, children will be taught that there are many different words which apply to the four operations:

The word *number sentence* will be used with any of the four operations.

Addition: *Add* Subtraction: *Subtract* Multiplication: *Multiplied by*

Division: Divided by