Teacher Training Programme - April 2024

Course Topics

Each session is 2 hours in duration

1a	**Introduction to VM and the Nikhilam sutra**	Number partners Addition using number partners for 10 Addition and subtraction using complements Nikhilam subtraction
1b	**Vinculums**	Converting to and from vinculums
2a	**Nikhilam Multiplication**	Multiplying numbers close to a power of 10 (base) Below the base Above the base Carrying
2b	**Nikhilam Multiplication**	Above and below the base Geometric illustration of method Multiplying decimals
3a	**Special Cases of Nikhilam Multiplication**	Squaring numbers close to a base Squaring 2-digit numbers close to a base When the final digits add to 10
3b	**Straight Squaring**	Using of duplexes
4a	**Working with 2 - Proportionately**	Doubling and halving Repeated doubling and halving for 4 and 8
4b	**Working with 5 - Proportionately**	Multiplying and dividing by 5, 25, 50, ,etc. Application to decimals Decimal equivalents for denominators with 2s and 5s as factors
5a	**Digital Roots**	Finding digital root by summing Finding digital root by casting out 9s Digital root patterns in times tables
5b	**Applying Digital Roots**	Further digital root patterns Checking multiplication using digital roots
6a	**Nikhilam Division**	Dividing by 9 Oversized remainder Oversized quotient digits Divisor below 100, 1000
6b	**Paravartya Division**	Divisor above 100, 1000
7a	**Vertically and Crosswise Multiplication**	2 by 2 digit multiplication from right to left and left to right 3 by 3 digit multiplication Multiplication by 11 4 by 4 digit multiplication Aligning digits eg 0.00072 X 43 Multiplying decimals

7b	**HCF & LCM by Vertically and Crosswise**	Definitions of HCF and LCM Dividing by common factors
8a	**Divisibility**	Divisibility rules for 10, 5, 2, 4, 8, 9, 3, 25 Divisibility rules for composite numbers, 6, 12, 15, 18
8b	**Straight Division**	2-digit divisors Altered remainders
9a	**Linear Sequences**	Finding common difference to extend a sequence Nth term formula with applications to IVMO problems
9b	**Fractions of shapes using Symmetry**	Applications to IVMO problems
9c	**Triangular Numbers**	Explanation of formula Application to counting shapes on a grid
10a&b	**Solutions to IVMO**	Worded problems from past IVMO Primary and Junior level problems