Shawlands Primary School

Key Stage 1 and Key Stage 2 Maths Calculation Policy

Addition and Subtraction

Multiplication and Division

Miss Hargreaves 2021

Addition and subtraction

Yr	National Curriculum Objective	Concrete (make)	Pictorial (draw)	Abstract (write)
1	Number bonds to 10	• Manipulatives • Numicon • Bead string • Part whole model • Tens frames • Fingers/head • 100 square	• Part whole model • Tens frames • Drawn manipulatives	• Number sentences (pattern / mixed)
1	Add and subtract two 1 digit numbers to 10	• Bead strings • Manipulatives • Tens frames (to 20) • Part-whole model • Fingers/head • 100 square • Numicon	• Tens frames • Drawn manipulatives • Part-whole model • Number tracks / lines	• Number sentences
1	Add and subtract 1 digit and 2 digit numbers to 20, including 0	• Bead strings • Manipulatives • Tens frame (to 20) • Part-whole model • Fingers/head • 100 square • Numicon • Base ten	• Number tracks / lines • Drawn manipulatives • Part-whole model • Base ten	• Number sentences
2	Number bonds to 20 and 100	• Manipulatives • Numicon • Part whole model • Tens frame • Fingers (100 – counting in 10s) • 100 square	• Part-whole model • Tens frames	• Number sentences (pattern / mixed)

2	Add and subtract a 2 digit number and ones	• Manipulatives • Base ten • Bead string • 100 square	• Number tracks / lines • Base ten • Part whole model	• Number sentences
2	Add and subtract a 2 digit number and tens	• Base ten • 100 square	• Base ten • Number lines • Part whole model	• Column method • Number sentences
2	Add and subtract two two-digit numbers	• Base ten • Place value counters • 100 square • Part-whole model	• Base ten • Part whole model • Number lines	• Column method • Partitioning
2	Adding three 1 digit numbers	• Manipulatives • Bead string • 100 square • Tens frames • Numicon	• Drawn manipulatives • Number line	• Number sentences (looking for number bonds / largest number)
3	Add and subtract 3 digit numbers and 1s	• Place value chart • place value counters • Base ten	• Place value chart • Part whole model • Number line • Base ten	• Number sentences
3	Add and subtract 3 digit numbers and 2 digit numbers	• Place value chart • Place value counters • Base ten	• Place value chart • Base ten • Part whole model • Number line	• Column method • Number sentences

3	Add and subtract two 3 digit numbers	• Place value chart • Place value counters • Base ten	• Place value chart • Base ten	• Column addition
4	Add 1s, 10s, 100s and 1000s to 4 digit numbers	• Place value chart • Place value counters	• Place value chart • Place value counters	• Number sentences
	Add two 4 digit numbers	• Place value chart • Place value counters • Base ten	• Place value chart • Base ten	• Column method
5	Add and subtract whole numbers with more than 4 digits	• Place value chart • Place value counters	• Place value chart	• Column method
6	Add and subtract integers	• Place value chart • Place value counters	• Place value chart	• Column method

Multiplication and Division

Yr	National Curriculum objective	Concrete (make)	Pictorial (draw)	Abstract (write)
1	Counting in multiples of 2, 5 and 10	• Manipulatives • 100 square • Arrays • Numicon • Fingers • Bead string	• Number line / tracks • Manipulatives • Arrays	• Write out times table facts • Number sequences (pattern / mixed)
1	Making equal groups	• Arrays • Numicon • Objects – grouping • Bead string	• Drawn manipulatives - grouping • Arrays	• Number sentences (pattern / mixed)
1	Making doubles	• Arrays • Numicon • Manipulatives • Bead string	• Drawn manipulatives • Arrays	• Number sentences (x 2 and adding)
2	Recall multiplication facts for the 2, 5 and 10 times tables (and counting in 3s)	• Manipulatives • 100 square • Arrays • Numicon • Fingers • Bead string • Money	• Manipulatives • Number line • Arrays	• Number sentences (pattern and mixed)
2	Repeated addition	• Manipulatives • Numicon • Bead string	• Manipultives • Number line	• Number sentences

2	Making equal groups	• Arrays – grouping • Numicon • Manipulatives • Bead string • 100 square	• Arrays – grouping • Number lines • Drawn manipulatives	• Number sentences
2	Doubling	• Manipulatives • Mirrors • Arrays • Numicon	• Drawn manipulatives • Arrays • Number line	• Number sentences – multiply by 2 / add number to itself / (2 digits) partition number, double and then add together
2	Halving	• Halving mat • Manipulatives	• Grouping – drawn manipulatives • Arrays	• Number sentences – divide by 2 / partition the number, halve and then add the numbers back together
3	Multiply by 3, 4 and 8	• Manipulatives • 100 square • Fingers • Arrays	• Arrays • Drawn manipulatives • Number line (repeated addition)	• Number sentences (pattern / mixed) • Written repeated addition • Double and double again (4 times table) • Multiply by 4 and double (8 times table) • Partition into known times tables (for 8 times table)

3	Divide by 3, 4 and 8	• Manipulatives / arrays -grouping • Fingers	• Manipulatives / arrays - drawn grouping • Bar model • Repeated subtraction (number line)	• Number sentences Written repeated subtraction • (pattern / mixed) • Halve and halve again (4 times table) • Divide by 4 and halve (8 times table)
3	Multiply 2 digits by 1 digit	• Partition with place value chart and base 10 / place value counters	• Partition with drawn place value chart and base 10 / place value counters • Part whole model	• Number sentences (x) • Formal written method (short)
3	Divide 2 digits by 1 digit (no remainders and remainders	• Partition with place value chart and base 10 / place value counters	• Partition with drawn place value chart and base 10 / place value counters • Part whole model	• Number sentences (÷) • Formal written method (short)
4	Multiplying by 10	• Place value chart / place value counters	• Place value chart	• Formal written method (short)
4	Multiply and divide by 11 and 12	• Base ten • 100 square	• Bar model • Number line (repeated addition / subtraction)	• Written repeated addition / subtraction
4	Multiply by 100		• Place value chart	• Number sentences

4	Divide by 10 (and 100)	• Place value chart / place value counters • Place value chart / place value counters	• Place value chart • Bar model	• Multiply by 10 and 10 again • Number sentences • Divide by 10 and 10 again (÷100)
4	Multiply and divide by 6, 7 and 9	• Manipulatives – array / grouping • 100 square	• Manipulatives – drawn array / grouping • Bar model • Number lines (repeated addition / subtraction)	• Number sentences – pattern and mixed (relate to known times tables where applicable)
4	Multiply 3 numbers	• Arrays	• Arrays	• Number sentences
4	Multiply 2 digit numbers by 1 digit numbers	• Manipulatives - partitioning – arrays • Place value chart / place value counters	• Manipulatives - partitioning – arrays • Part whole model • Number line • Place value chart / place value counters	• Partitioning – written • Grid method • Written method (expanded and short)
4	Multiply 3 digit numbers by 1 digit numbers	• Place value chart / place value counters	• Place value chart / place value counters	• Formal written method (expanded and short)
4	Divide 2 digit numbers by 1 digit numbers	• Place value chart / place value counters / base 10	• Part whole model • Place value chart / place value counters / base 10 • Grouping with base 10 / place value counters	• Partitioning Formal written method (short)
4	Divide 3 digit numbers by 1 digit numbers		• Part whole model	• Partitioning

		• Place value chart / place value counters / base 10	• Place value chart / place value counters / base 10	• Formal written method (expanded and short)
5	Multiply 4 digit numbers by 1 digit numbers	• Place value chart / place value counters	• Place value chart / place value counters	• Grid method • Formal written method (short)
5	Multiply 2 digits by 2 digits	• Base 10	• Base 10 / place value counters (drawn) on grid method	• Grid method Formal written method (expanded)
5	Multiply 3 digits by 2 digits			• Formal written method (expanded)
5	Multiply 4 digits by 2 digits			• Formal written method (expanded)
5	Divide 4 digits by 1 digit	• Place value chart / place value counters	• Place value chart / place value counters	• Formal written method (short)
6	Multiply and divide by 10, 100 and 1000	• Place value chart / place value counters	• Place value chart / place value counters	• Number sentences (using x10 facts for 100 and 1000)
6	Multiply decimals by integers	• Place value chart / place value counters	• Place value chart / place value counters	• Number sentences • Formal written method (short)
6	Divide decimals by integers	• Place value chart / place value counters	• Place value chart / place value counters • Part whole model	• Number sentences

				• Formal written method (short)