Woodridge Primary School
Calculation Policy

The purpose of this policy is to outline how written calculations are taught throughout the school to ensure consistency and progression for all pupils. As pupils progress in their maths, they become ready to handle more formal written methods that in many cases increase efficiency. However, pupils should not be moved onto these methods before their conceptual understanding of each operation is sound.

Although the focus of this policy is on pencil and paper procedures, it is important to recognise that the ability to calculate mentally lies at the heart of numeracy. Mental calculation should be seen as complementary to written recordings, as in every written method there is an element of mental processing. Supporting all calculation work should be a sound understanding of estimation and checking the reasonableness of an answer. Concrete apparatus should be used throughout the school to scaffold and support the learning of written methods.

Early Years

Objectives (Early Learning Goal)
- Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer.

Addition	Subtraction
Finds the total number of items in two groups by counting all. e.g. 3 + 2 = 5	Subtraction as take away (using objects and crossing out). e.g. 6 – 2 = 4
Vocabulary: add, plus, and, altogether, more, make, sum, total, how many more to make?	Vocabulary: subtract, take away, minus, leave, less, left over, how many are left?, how many are gone?, fewer,

Objectives (Early Learning Goal)
- Solve problems, including doubling, halving and sharing.

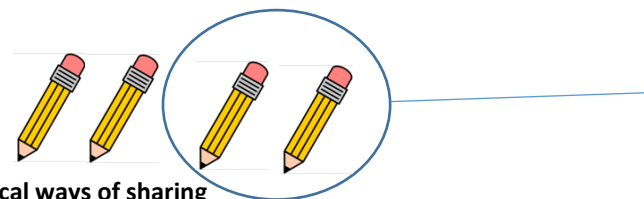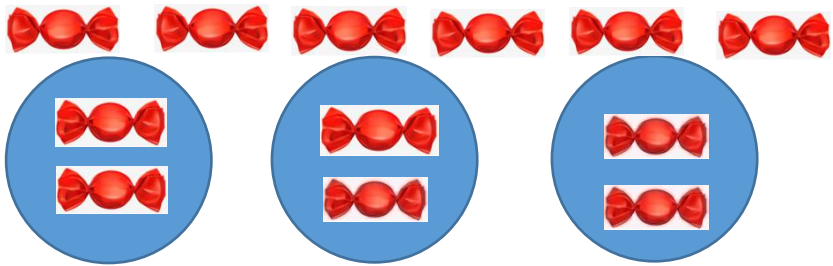| Multiplication	Division
Practical ways of doubling I have 3 apples, can you double the number of apples? Double 3 is 6. There are 6 apples in total.	**Practical ways of halving** Give half of these pencils to the next table. **Practical ways of sharing**

	Share 6 sweets between 3 children. How many will they have each?
Vocabulary: Doubles, groups.	Vocabulary: Sharing, into groups, halve, share, one each… two each… three each etc.

Year 1

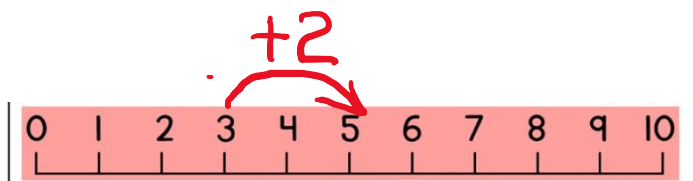### Year 1 – Addition and Subtraction

Objectives:
- read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero

- Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as: $7 = \boxed{} - 9$.
- Pupils memorise and reason with number bonds to 10 and 20 in several forms (for example, $9 + 7 = 16$; $16 - 7 = 9$; $7 = 16 - 9$). They should realise the effect of adding or subtracting zero. This establishes addition and subtraction as related operations.
- Pupils combine and increase numbers, counting forwards and backwards.
- They discuss and solve problems in familiar practical contexts, including using quantities. Problems should include the terms: put together, add, altogether, total, take away, distance between, difference between, more than and less than, so that pupils develop the concept of addition and subtraction and are enabled to use these operations flexibly.

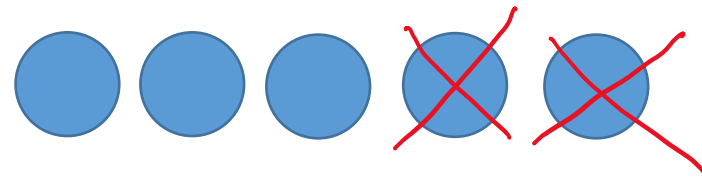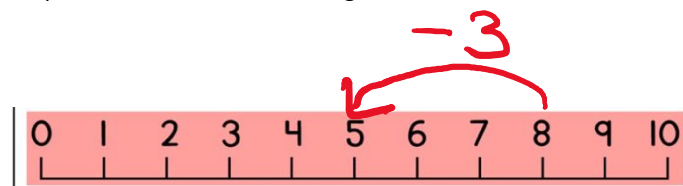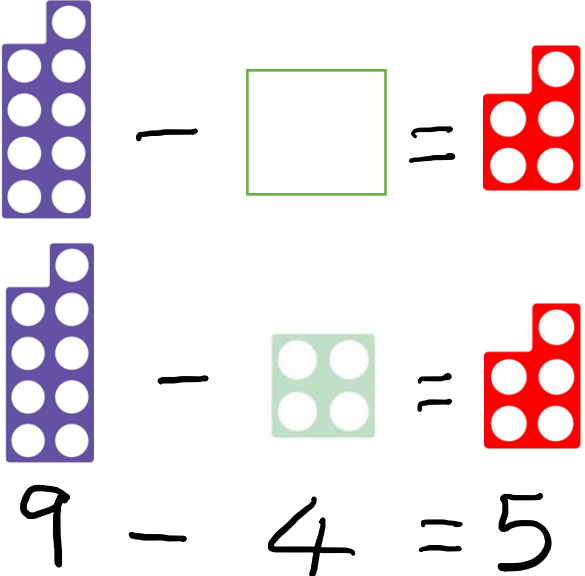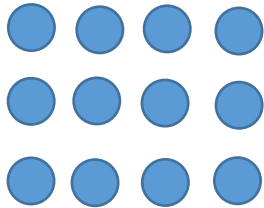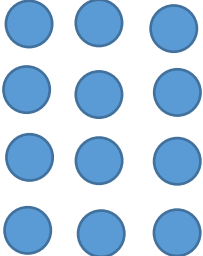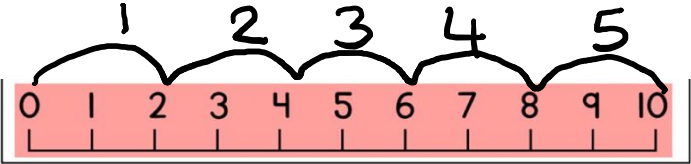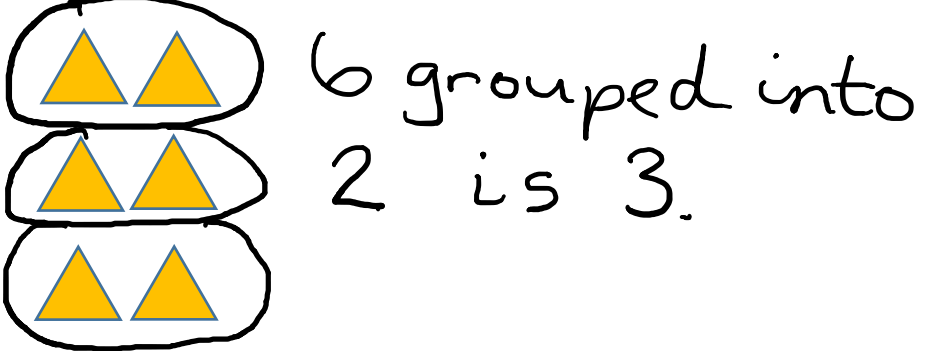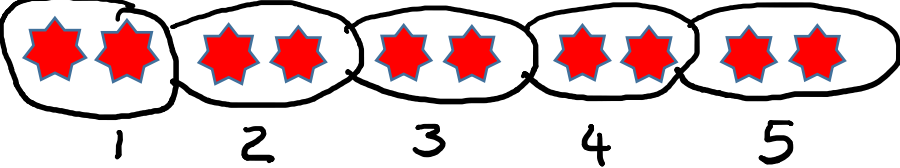| Addition	Subtraction
Count on using number tracks and/or number lines to support. 2 + 4 = 6 +2 0 1 2 3 4 5 6 7 8 9 10 3 + 2 = 5 Record related number facts. = 4 + 3 = 7 = 3 + 4 = 7 = 7	Take away using concrete resources to support the development of subtraction as physically taking away. 5 – 2 = 3 Count back using number tracks and number lines to support the development of the concept of subtraction as counting back. −3 0 1 2 3 4 5 6 7 8 9 10 8 - 3 = 5 Develop subtraction facts initially to ten and then to 20. Record related number facts (and make links to related addition facts) e.g. 9 - 4 = 5, 9 - 5 = 4
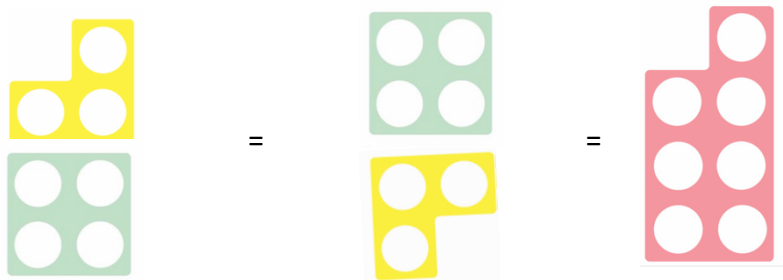
	$9 - 4 = 5$ $9 - 5 = 4$
Develop understanding of the equals sign / equality and the concept of 'empty box' questions. Record solutions to calculations such as: $4 + \boxed{} = 6$	Develop understanding of the equals sign / equality Develop understanding of the concept of 'missing number' questions. Record solutions to calculations such as $9 - \boxed{} = 5$. $9 - 4 = 5$
Vocabulary: Add, plus, and, altogether, more, make, sum, total, how many more to make?	Vocabulary: subtract, take away, minus, leave, less, left over, how many are left? How many are gone? Find the difference.

Year 1 – Multiplication and Division

Objectives:
- solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.
- Through grouping and sharing small quantities, pupils begin to understand: multiplication and division; doubling numbers and quantities; and finding simple fractions of objects, numbers and quantities.
- They make connections between arrays, number patterns, and counting in twos, fives and tens.

Multiplication	Division
Counting aloud in jumps e.g.	Develop division as sharing
0, 2, 4, 6, 8, 10, 12, 14…	
0, 5, 10, 15, 20, 25…	
0, 10, 20, 30, 40, 50…	Develop division as repeated grouping (repeated subtraction of sets of the same size) using practical apparatus and diagrams.
Repeated addition	4 shared between 2 is 2.
$4 \times 3 = 12$	
$3 \times 4 = 12$	6 grouped into 2 is 3.
Using a number line	How many sets of two stars could you make with ten stars?
	1 2 3 4 5
$5 \times 2 = 10$	You could make 5 sets of 2 stars with 10 stars.
	Vocabulary: Sharing into groups, fairly, equal, halve, share, one each…two each…three each… etc.

Year 2

Year 2 – addition and subtraction

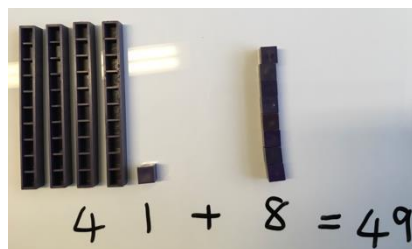Objectives:

Pupils should be taught to:

- solve problems with addition and subtraction:
  - using concrete objects and pictorial representations, including those involving numbers, quantities and measures
  - applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers
- show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.
- Pupils extend their understanding of the language of addition and subtraction to include sum and difference.
- Pupils practise addition and subtraction to 20 to become increasingly fluent in deriving facts such as using 3 + 7 = 10; 10 − 7 = 3 and 7 = 10 − 3 to calculate 30 + 70 = 100; 100 − 70 = 30 and 70 = 100 − 30. They check their calculations, including by adding to check subtraction and adding numbers in a different order to check addition (for example, 5 + 2 + 1 = 1 + 5 + 2 = 1 + 2 + 5). This establishes commutativity and associativity of addition.
- Recording addition and subtraction in columns supports place value and prepares for formal written methods with larger numbers.

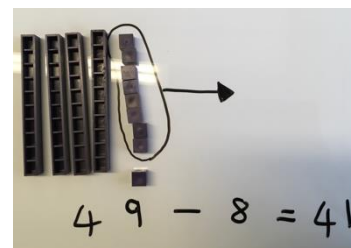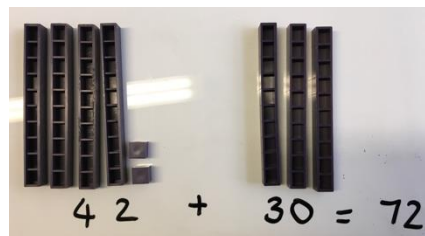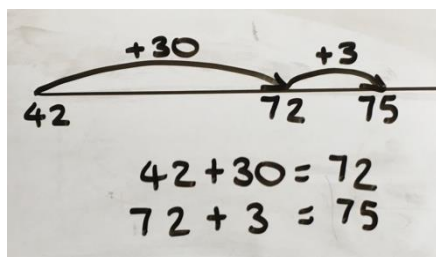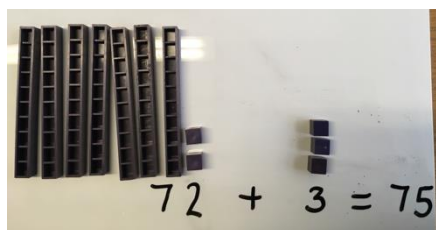| Addition	Subtraction
Continue to use concrete resources e.g. counters, blocks, objects etc. Develop understanding of partitioning and place value and use this to support addition. TO + O 41 + 8 = 49 	Continue to use concrete resources e.g. counters, blocks, objects etc. Develop understanding of partitioning and place value and use this to support subtraction. TO − O 49 - 8 = 41

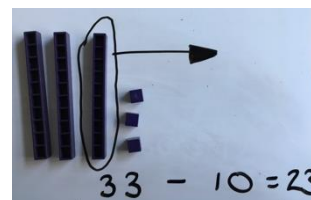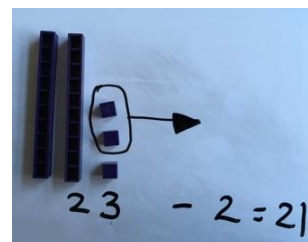| TO + TO	TO - TO
42+33 = 42 + 30 = 72 (add the tens first) 72 + 3 = 75 (then add the ones) Concrete resources are used to support this, as are number tracks, 100 squares and number lines (numbered and empty). Calculations are recorded horizontally.	33 - 12 = 33 - 10 = 23 (subtract the tens first) 23 -2 = 21 (then subtract the ones) If the ones are larger than the number being subtracted e.g. 33-17 = 16 First subtract the tens: 33-10=23 Then subtract the ones: 23-7=16 Concrete resources are used to support this, as are number tracks, 100 squares and number lines (numbered and empty). Calculations are recorded horizontally.
Vocabulary: Add, addition, plus, and, altogether, more, make, sum, total, increase, number line, count on, partition, inverse.	Vocabulary: subtract, subtraction, take away, minus, leave, less, left over, how many are left? How many are gone? Inverse, decrease, difference, fewer than.
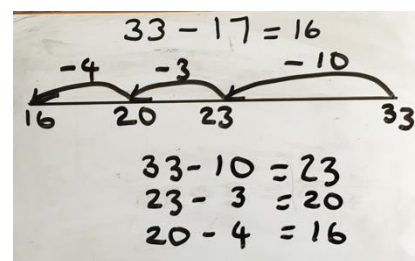
Year 2 – Multiplication and Division

Objectives:

Pupils should be taught to:

- recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs
- show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.
- Pupils use a variety of language to describe multiplication and division.
- Pupils are introduced to the multiplication tables. They practise to become fluent in the 2, 5 and 10 multiplication tables and connect them to each other.
- They connect the 10 multiplication table to place value, and the 5 multiplication table to the divisions on the clock face.
- They begin to use other multiplication tables and recall multiplication facts, including using related division facts to perform written and mental calculations.
- Pupils work with a range of materials and contexts in which multiplication and division relate to grouping and sharing discrete and continuous quantities, to arrays and to repeated addition.
- They begin to relate these to fractions and measures (for example, 40 ÷ 2 = 20, 20 is a half of 40). They use commutativity and inverse relations to develop multiplicative reasoning (for example, 4 × 5 = 20 and 20 ÷ 5 = 4).

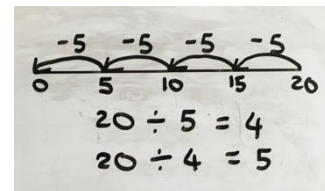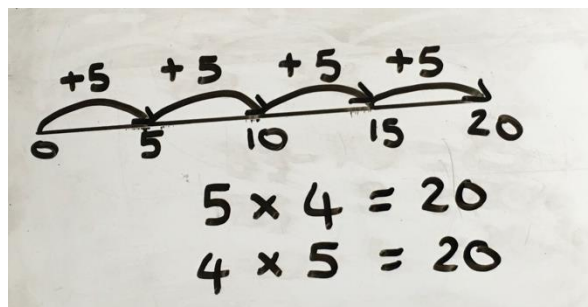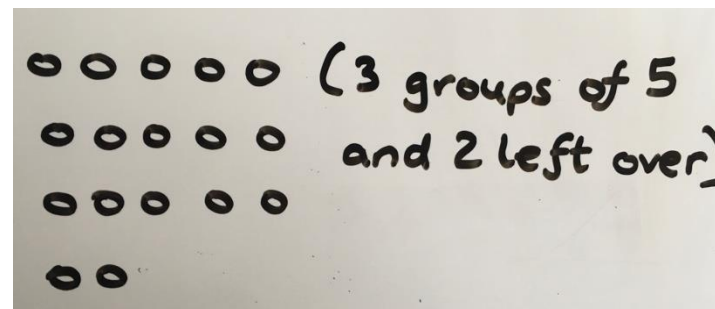| Multiplication	Division
Develop an understanding of multiplication using arrays and number lines showing repeated groups. 4 x 5 4 rows of 5 5 x 4 5 rows of 4	Develop an understanding of division using arrays and number lines showing repeated groups. Use number lines to show repeated grouping (repeated subtraction of sets of the same size) Division as repeated subtraction using a numberline. Start at 20. Jump back in fives until zero is reached. Count the number of jumps. Questions that give rise to remainders.

Use number lines to show repeated grouping (repeated addition of sets of the same size.	Use the 'array' format below:.
5 × 4 = 20 4 × 5 = 20	17 ÷ 5 = (3 groups of 5 and 2 left over) 17 ÷ 5 = 3 remainder 2
Vocabulary: Lots of groups, repeat, same size, times, multiply, jumps of, steps of, multiplied by, multiple of, array, row, column, double, repeated addition.	Vocabulary: sharing, share equally, into groups, fairly, equal, halve, share, one each…two each…three each… etc., divided by, divided into, left over, remainder, how many groups?

Year 3

Year 3 – Addition and Subtraction

Objectives:
Pupils should be taught to:
- add and subtract numbers mentally, including: ; a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds
- add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction
- estimate the answer to a calculation and use inverse operations to check answers
- Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.
- Pupils practise solving varied addition and subtraction questions. For mental calculations with two-digit numbers, the answers could exceed 100.
- Pupils use their understanding of place value and partitioning, and practise using columnar addition and subtraction with increasingly large numbers up to three digits to become fluent.

| Addition	Subtraction
Continue to develop understanding of partitioning and place value and use this to support addition. Use concrete resources to support this e.g. dienes, numicon, number tracks, 100 squares and number lines. Where ones combine to make totals greater than 10, regroup using partitioning skills.	Continue to develop understanding of partitioning and place value and use this to support subtraction. Use practical apparatus to support this, as are number tracks /100 squares and number lines. Use expanded recording and apparatus to illustrate concept initially if required before moving towards the formal written method.

e.g. 25 + 36 =

25 + 30 = 55

55 + 6 = 61

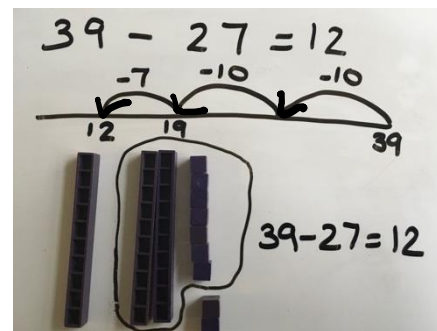Pupils continue to determine when calculations are best carried out using mental strategies.

Record in columns with a focus on place value. Use expanded recording and concrete resources to illustrate concept initially, before moving towards the formal written method:
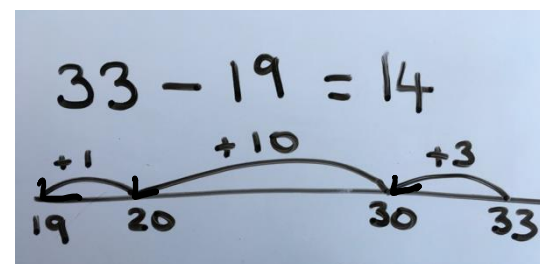
TO + TO

$$25 + 36 =$$

$$+ = 55$$

$$25 + 36 =$$

$$+ = 61$$

$$55 + 6 = 61$$
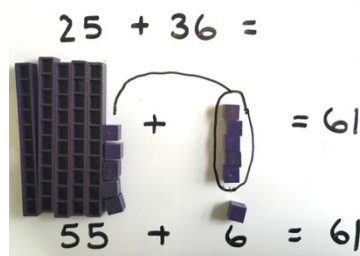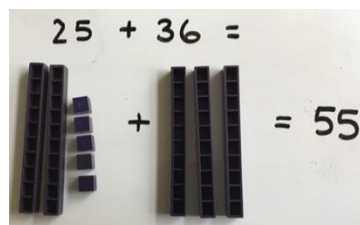
$$\begin{array}{r} 25 \\ 36+ \\ \hline 61 \\ \hline \end{array}$$

No exchange

$$39 - 27 = 12$$

$$39 - 20 = 19$$
$$19 - 7 = 12$$

$$39 - 27 = 12$$

$$\begin{array}{r} 39 \\ -27 \\ \hline 12 \\ \hline \end{array}$$

With exchange

$$33 - 19 = 14$$

$$33 - 10 = 23$$
$$23 - 9 = 14$$

$$\begin{array}{r} 33 \\ -19 \\ \hline 14 \\ \hline \end{array}$$

315 + 52 =
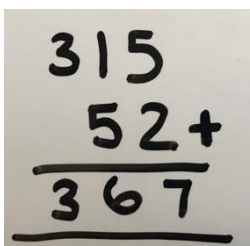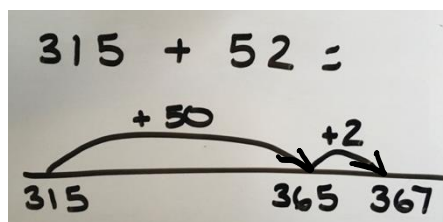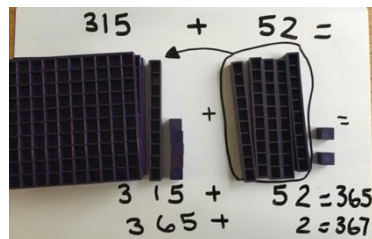
Vocabulary: Add, addition, plus, and, altogether, more, make, sum, total, increase, number line, count on, partition, inverse, how many more to make? How many more is____than____? Hundreds, tens, units.

Vocabulary: subtract, subtraction, take away, minus, decrease, leave, less, left over, how many are left/left over? How many are gone? Inverse, decrease, difference, fewer than, more than, hundreds, tens, units, boundary, how much less is__than_____?

Year 3 – Multiplication and Division

Objectives: Pupils should be taught to:
- recall and use multiplication and division facts for the 3, 4, and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
- solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.
- Pupils continue to practise their mental recall of multiplication tables when they are calculating mathematical statements in order to improve fluency.
- Through doubling, they connect the 2, 4 and 8 multiplication tables.
- Pupils develop efficient mental methods, for example, using commutativity and associativity (for example, 4 × 12 × 5 = 4 × 5 × 12 = 20 × 12 = 240) and multiplication and division facts (for example, using 3 × 2 = 6, 6 ÷ 3 = 2 and 2 = 6 ÷ 3) to derive related facts (for example, 30 × 2 = 60, 60 ÷ 3 = 20 and 20 = 60 ÷ 3).
- Pupils develop reliable written methods for multiplication and division, starting with calculations of two-digit numbers by one-digit numbers and progressing to the formal written methods of short multiplication and division.

- Pupils solve simple problems in contexts, deciding which of the four operations to use and why. These include measuring and scaling contexts, (for example, four times as high, eight times as long etc.) and correspondence problems in which m objects are connected to n objects (for example, 3 hats and 4 coats, how many different outfits?; 12 sweets shared equally between 4 children; 4 cakes shared equally between 8 children).

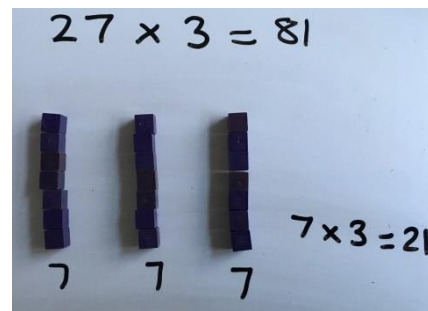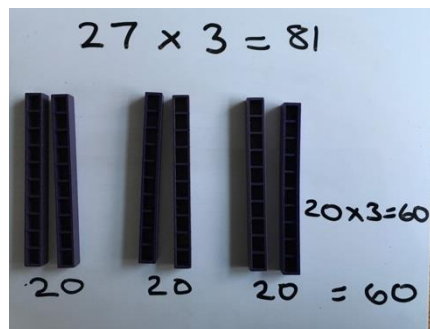| Multiplication	Division

Develop the use of x and = symbols to record calculations horizontally.
 	
Use arrays and other practical apparatus to illustrate commutativity (that multiplication calculations can be carried out in any order) e.g. 2 x 5 arrives at the same product as 5 x 2.
Begin to derive new facts from known facts
e.g. 3 x 2 = 6 (known fact)
   30 x 2 = 60
   300 x 2 = 600 etc
 	
Begin to use understanding of place value and partitioning to carry out multiplication of two- digit by one -digit numbers:
	Develop the use of ÷ and = symbols to record calculations horizontally. Use arrays and other practical apparatus to illustrate making of repeated groups. Begin to derive new facts from known facts:
	
	e.g. 6 ÷ 2 = 3 (known fact)
	   60 ÷ 2 = 30
	   600 ÷ 2 = 300
	
	Begin to carry out division of two- digit by one -digit numbers, first without remainders, then introducing remainders, illustrating this using informal methods and concrete resources first.
	
	36 ÷ 3
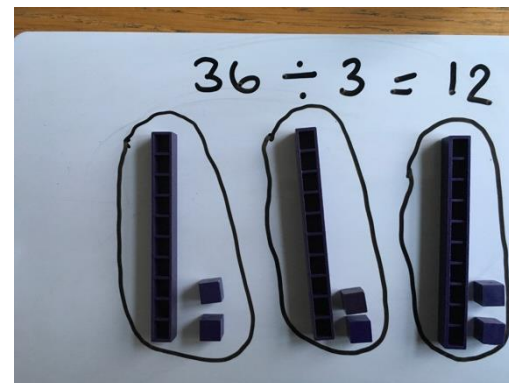
Division using larger multiples of the divisor, first with no remainders, then with remainders.
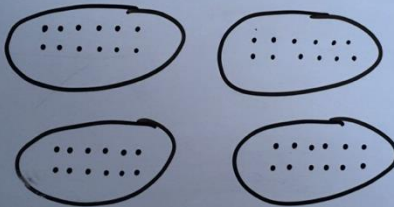
Begin to use grid approaches to illustrate, using practical apparatus to support.

$3 \times 56 = 168$

x	50	6
3x	150	18

$150 + 18 = 168$

e.g. $48 \div 4$

$48 \div 4 = 12$

Then $49 \div 4$

$49 \div 4 = 12 r. 1$

Numberline (with remainders)
$18 \div 4 = 4$ r.2
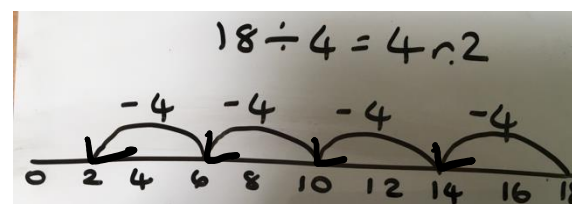
$18 \div 4 = 4 r.2$

Vocabulary: lots of, groups, repeat, same size, times, multiply, jumps of, steps of, multiplied by, multiple of, array, row, column, double, repeated addition, product, grid method.

Vocabulary: sharing, equally, into groups, fairly, equal, halve, share, one each…two each…three each… etc. divided by, divided onto, left over, remainder, how many groups?

Year 4 – Addition and Subtraction

Objectives:

Pupils should be taught to:

- Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- Estimate and use inverse operations to check answers to a calculation
- Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.
- Pupils continue to practise both mental methods and columnar addition and subtraction with increasingly large numbers to aid fluency

Addition	Subtraction
Expanded column method (ones first)	**Expanded partitioning**

Expanded column method (ones first)
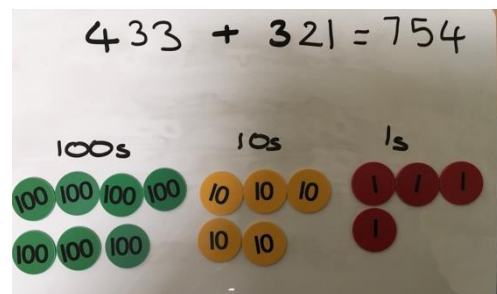
$$433 + 321 = 754$$
$$400 + 300 = 700$$
$$30 + 20 = 50$$
$$3 + 1 = 4$$
$$700 + 50 + 4 = 754$$

Expanded partitioning
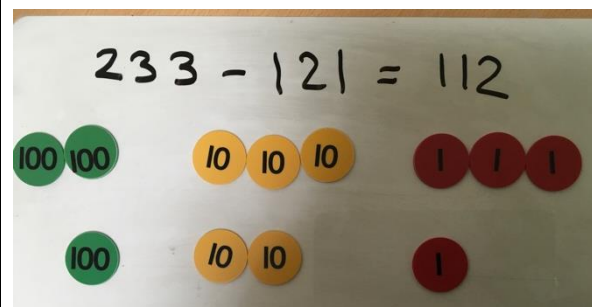
$$233 - 121 = 112$$
$$233 - 100 = 133$$
$$133 - 20 = 113$$
$$113 - 1 = 112$$

Compact column

$$465 + 328 = 793$$

Children to be taught to add the ones first when using column method.

Children to be taught to refer to the number of hundreds, tens and ones e.g. 357 is 3 hundreds, 5 tens and 7 ones

Compact column

$$753 - 645 = 108$$

Year 4 – Multiplication and Division

Objectives:
Pupils should be taught to:
- recall multiplication and division facts for multiplication tables up to 12 × 12
- use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.
- Pupils continue to practise recalling and using multiplication tables and related division facts to aid fluency.
- Pupils practise mental methods and extend this to three-digit numbers to derive facts, (for example $600 \div 3 = 200$ can be derived from $2 \times 3 = 6$).
- Pupils practise to become fluent in the formal written method of short multiplication and short division with exact answers (see Mathematics Appendix 1).
- Pupils write statements about the equality of expressions (for example, use the distributive law $39 \times 7 = 30 \times 7 + 9 \times 7$ and associative law $(2 \times 3) \times 4 = 2 \times (3 \times 4)$).
- They combine their knowledge of number facts and rules of arithmetic to solve mental and written calculations for example, $2 \times 6 \times 5 = 10 \times 6 = 60$.
- Pupils solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers. This should include correspondence questions such as the numbers of choices of a meal on a menu, or three cakes shared equally between 10 children.

Multiplication	Division
Using the Grid Method for TO x TO	Using the standard method for short division, first with no remainders, then with remainders.

Multiplication

Using the Grid Method for TO x TO

$38 \times 62 =$

×	60	2
30	1800	60
8	480	16

$1800 + 60 = 1860$
$480 + 16 = 496$
$1860 + 496 = 2356$

Develop expanded recording in columns and then move to formal written method, using practical apparatus to support as required.

$$
\begin{array}{r}
36 \\
\times 15 \\
\hline
30 \ (6 \times 5) \\
60 \ (6 \times 10) \\
150 \ (30 \times 5) \\
+300 \ (30 \times 10) \\
\hline
540 \\
\end{array}
$$

$30 \ \ 6$
$10 \ \ 5$

Division

Using the standard method for short division, first with no remainders, then with remainders.
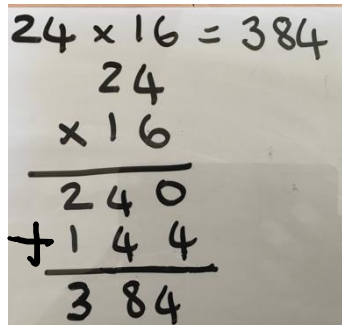
With no remainders

$98 \div 7 = 14$

$$7 \overline{\smash{)}9^2 8} = 14$$

With remainders

$432 \div 5 = 86r2$

$$5 \overline{\smash{)}43^3 2} = 86r2$$

Compact column method

$$24 \times 16 = 384$$

```
    24
   x16
  ─────
   240
  +144
  ─────
   384
```

Year 5 and 6

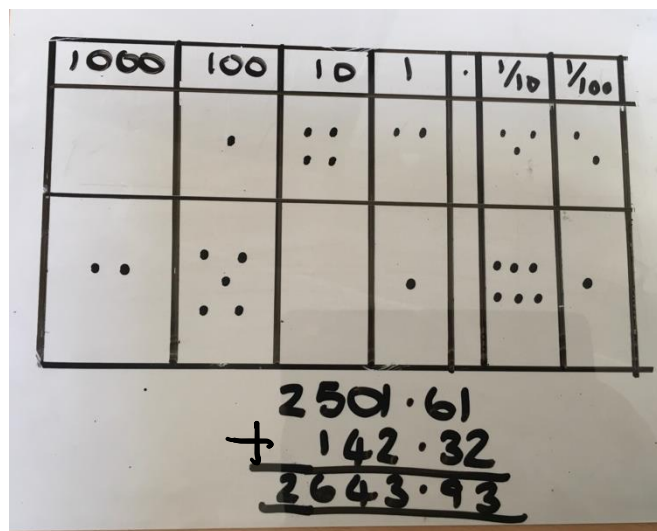### Year 5 and 6 – Addition and Subtraction

Objectives:

Pupils should be taught to:
- Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
- Add and subtract numbers mentally with increasingly large numbers
- Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- Pupils practise using the formal written methods of columnar addition and subtraction with increasingly large numbers to aid fluency
- They practise mental calculations with increasingly large numbers to aid fluency (for example, 12 462 – 2300 = 10 162).
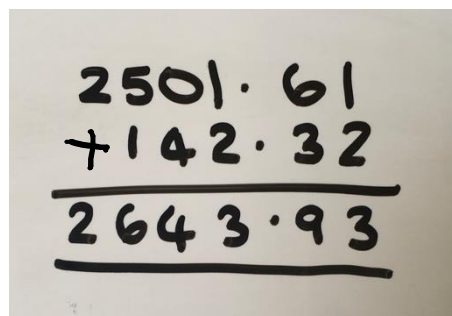
In the KS2 tests at the end of Year 6, children are expected to use the formal methods for addition and subtraction.

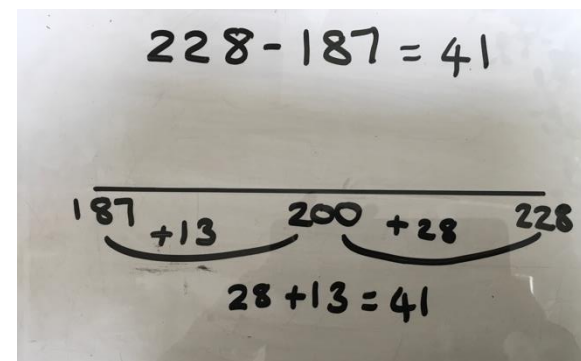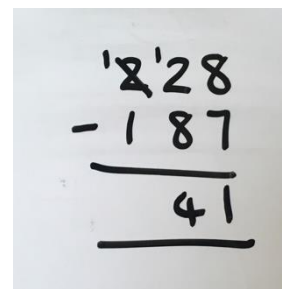| Addition	Subtraction
Add larger numbers (including hundreds and thousands) or decimal amounts using partitioning and place value to support this.	Find the difference between the two numbers. Children to be shown two methods: counting on and counting back.

Addition side:

$$2501.61$$
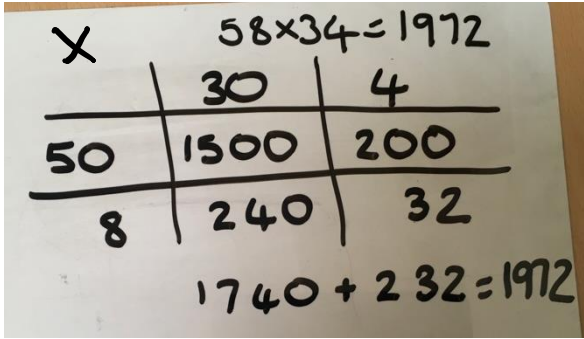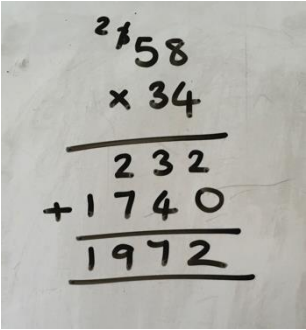$$+\ 142.32$$
$$2643.93$$

Formal (compact column)

$$2501.61$$
$$+142.32$$
$$2643.93$$

Subtraction side:

$$228 - 187 = 41$$

$$187 \xrightarrow{+13} 200 \xrightarrow{+28} 228$$

$$28 + 13 = 41$$

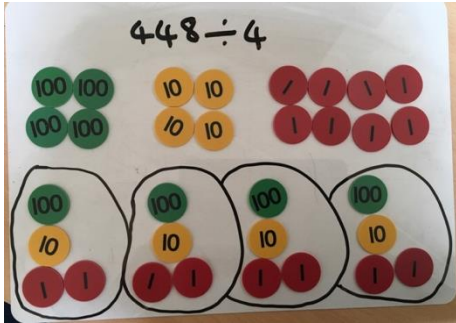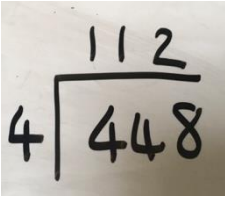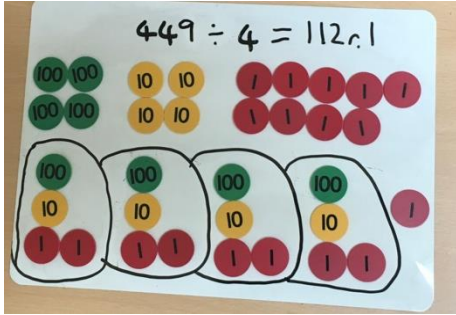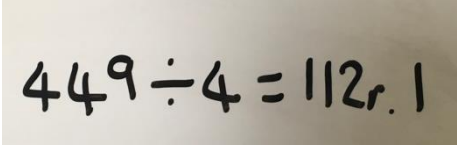Formal (compact column)

$$228$$
$$-187$$
$$41$$

Year 5 – Multiplication and Division

Objectives:

Pupils should be taught to:

- Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
- Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers
- Establish whether a number up to 100 is prime and recall prime numbers up to 19
- 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
- Multiply and divide numbers mentally drawing upon known facts
- Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
- recognise and use square numbers and cube numbers, and the notation for squared (^{2}) and cubed (^{3})
- solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes
- solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
- solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates
- Pupils practise and extend their use of the formal written methods of short multiplication and short division. They apply all the multiplication tables and related division facts frequently, commit them to memory and use them confidently to make larger calculations
- They use and understand the terms factor, multiple and prime, square and cube numbers
- Pupils interpret non-integer answers to division by expressing results in different ways according to the context, including with remainders, as fractions, as decimals or by rounding (for example, $98 \div 4 = 98/4 = 24\ r\ 2 = 24\ \frac{1}{2} = 24.5 \approx 25$)
- Pupils use multiplication and division as inverses to support the introduction of ratio in year 6, for example, by multiplying and dividing by powers of 10 in scale drawings or by multiplying and dividing by powers of a 1000 in converting between units such as kilometres and metres.
- Distributivity can be expressed as $a(b + c) = ab + ac$
- They understand the terms factor, multiple and prime, square and cube numbers and use them to construct equivalence statements (for example, $4 \times 35 = 2 \times 2 \times 35$; $3 \times 270 = 3 \times 3 \times 9 \times 10 = 9^2 \times 10$)
- Pupils use and explain the equals sign to indicate equivalence, including in missing number problems (for example, $13 + 24 = 12 + 25$; $33 = 5 \times \square$)

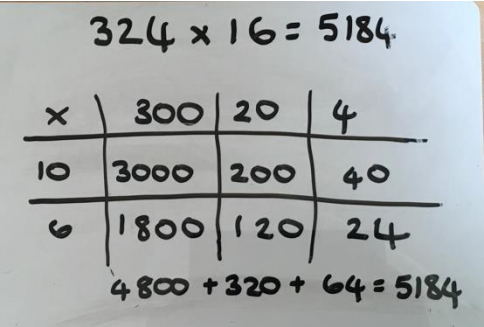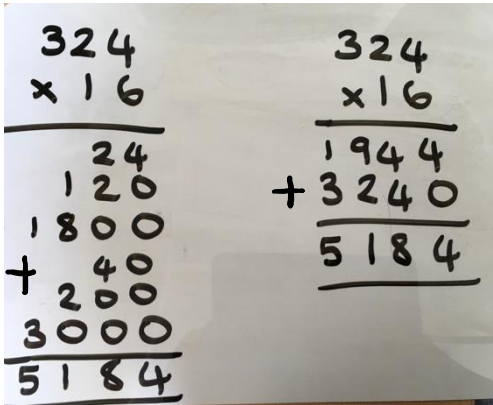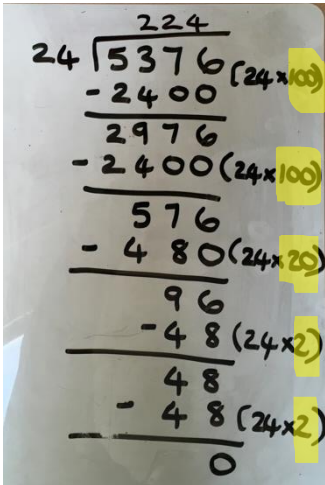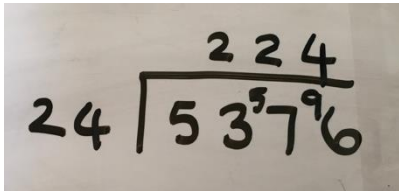| Multiplication	Division
Develop expanded recording in columns and then move to formal written method, using practical apparatus to support as required. 	Extend written calculation methods to more complex problems involving larger numbers, firstly with no remainders and then with remainders. Building on work from Y4, with the addition of the hundreds column. With no remainders: With remainders:
Vocabulary: lots of, groups, repeat, same size, times, multiply, jumps of, steps of, multiplied by, multiple of, array, row, column, double, repeated addition, product, grid method, short multiplication.	Vocabulary: Sharing, share equally, into groups, fairly, equal, halve, share, divided by, divided into, left over, remainder, how many groups, factor, divisible by, divisibility, chunking, inverse, quotient.

Year 6 -
Multiplication
and Division

Objectives:

Pupils should be taught to:

- multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication
- divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context
- divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding as appropriate for the context
- perform mental calculations, including with mixed operations and large numbers
- identify common factors, common multiples and prime numbers
- use their knowledge of the order of operations to carry out calculations involving the four operations
- solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why
- solve problems involving addition, subtraction, multiplication and division
- use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy
- Pupils practise addition, subtraction, multiplication and division for larger numbers, using the formal written methods of columnar addition and subtraction, short and long multiplication, and short and long division (see Mathematics Appendix 1 in the national Curriculum)
- They undertake mental calculations with increasingly large numbers and more complex calculations
- Pupils continue to use all the multiplication tables to calculate mathematical statements in order to maintain their fluency
- Pupils round answers to a specified degree of accuracy, for example, to the nearest 10, 20, 50 etc., but not to a specified number of significant figures
- Pupils explore the order of operations using brackets; for example, 2 + 1 x 3 = 5 and (2 + 1) x 3 = 9
- Common factors can be related to finding equivalent fractions.

In the KS2 tests at the end of Year 6, children are expected to use the formal methods for multiplication and division.

Multiplication	Division
Extend written approaches to HTO x TO and ThHTO x TO Develop expanded recording in columns and then move to formal written method of long multiplication, using practical apparatus to support as required. 	Extend written approaches to the formal method of long division when dividing by two-digit numbers, illustrating this using informal methods first if required. Develop expanded recording in columns and then move to formal method of long division, using practical apparatus to support as required.
Vocabulary: lots of, groups, repeat, same size, times, multiply, jumps of, steps of, multiplied by, multiple of, array, row, column, double, repeated addition, product, grid method, short multiplication.	Vocabulary: Sharing, share equally, into groups, fairly, equal, halve, share, divided by, divided into, left over, remainder, how many groups, factor, divisible by, divisibility, chunking, inverse, quotient.