Calculation Policy
2020-2021
Year 2

Addition - Year 2

End of Year Expectation:
Add numbers using concrete objects, pictorial representations, and mentally, including: 3 one-digit numbers., a two-digit number and units, a two-digit number and tens and 2 two-digit numbers.
Solve addition problems, including numbers, quantities and measures.
Recall and use addition facts to 20 fluently.
Derive and use related addition facts up to 100.
Understand that addition can be done in any order (commutative law).
Understand the link between addition and subtraction, and use this to check calculations and solve missing number problems.
NB Ensure that children are confident with the methods outlined in the previous year's guidance before moving on.
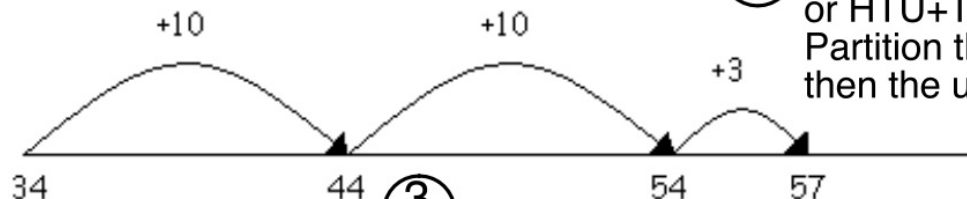
(1) $9+5+6$
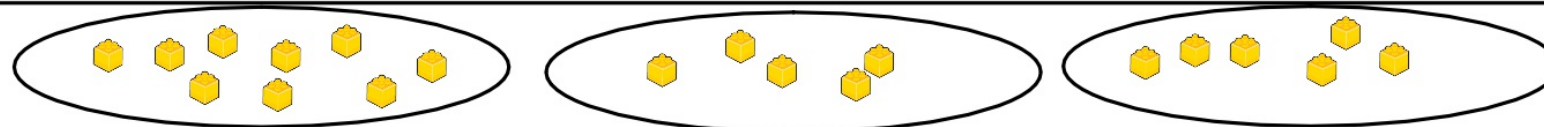
When working out, children will begin to rearrange the number order to start with the largest. However in Y2 pupils should start to look for patterns
e.g. Taking 1 from 5 and adding to 9 will make 10 so now the calculation is $10 + 4 + 6 = ?$ Recognising pairs of numbers to 10 so $4 + 6 = 10$

$34 + 23 = 57$

+10   +10   +3

34   44   54   57

(2) Use a number line or 100 square to add TU+TU or HTU+TU.
Partition the smallest number adding then tens then the units.

(4) Moving on to using partitioning to add TU + TU e.g. $83 + 42$ (expanded method only)

$83 + 42 = 125$

40   2

$83 + 40 = 120$
$123 + 2 = 125$

(3) Pupils must be proficient in using the 100 square, counting on and back from any number. Which number is below, above, to the left of/right of a given number. They must be secure with mental methods of calculation, working horizontally to partition numbers effectively before proceeding with column methods.

1	2	3	4	5	6	7	8	9	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

Key vocabulary add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary

Subtraction - Year 2

End of Year Expectation:
Subtract numbers using concrete objects, pictorial representations, and mentally, including:
> a two-digit number and ones
> a two-digit number and tens
> 2 two-digit numbers
> 3 one-digit numbers
NB Ensure that children are confident with the methods outlined in the previous year's guidance before moving on.

Year 2 Subtract with 2-digit numbers

(1) Use practical equipment such as Dienes and Numicon to model sub-

(2) Subtract first on a on a numbered number line, then on an empty number line, by counting back, aiming to develop mental subtraction skills.

Subtracting pairs of 2-digit numbers on a number line:

$47 - 23 = 24$ Partition the second number and subtract it in tens and units, as below:

-1 -1 -1 - 10 - 10
24 25 26 27 37 47
Subtract tens first.
Then subtract units.

Move towards more efficient jumps back, as below:
-3
-20
24 27 47
Combine methods with use of a hundred square to reinforce understanding of number value and order.

Teaching children to bridge through ten can help them to become more efficient, for example 42—25:

-3 -2
-20
17 20 22 42

+4 +10 +3
76 80 90 93
'counting on' to find 'difference'
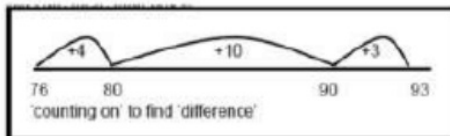
Children should also learn how to count on in order to find the difference. They should be given opportunities to explore when to count on and when to count back.

(100 square grid 1-100)

(3) Move to
Same method
however link to 100
square

$47 - 23 =$
$47 - 20 = 27$ (counting back on 100 square)
$27 - 3 = 24$ (7 - 3 = 4)

Key vocabulary equal to, take, take-away, less, minus, subtract, leaves, distance between, how many more, how many fewer/less than, most, least count back, how many left, how much less is..., difference, count on, strategy, partition, tens units

Multiplication - Year 2

End of Year Expectation:
Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables including odd and even numbers.
Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the correct signs.
Show that multiplication of two numbers can be done in any order (commutative) and division cannot.
Solve problems involving multiplication using materials, arrays, repeated addition, mental methods and multiplication facts including problems in contexts.

Year 2 Multiplication using arrays and repeated addition.

(using at least 2s, 5s and 10s)

Starting from zero, make equal jumps on a number line to work out multiplication facts and write multiplication
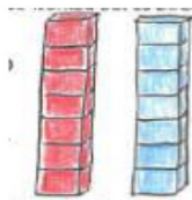
Use repeated addition on a number line:

$$4 \times 5 = 20$$
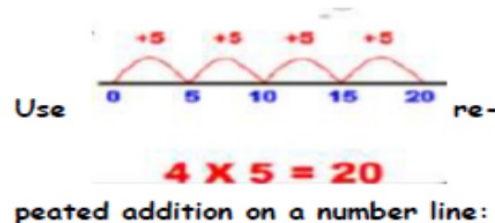
Use arrays and Numicon to help teach children to understand the commutative law of multiplication and give

$$5 \times 3 = 15$$

$$3 \times 5 = 15$$
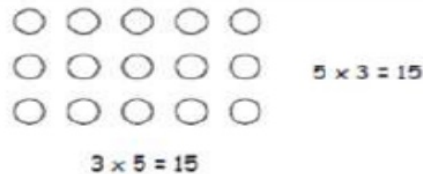
Learn doubles to double 20

Begin to double multiples of 5 to 100

Begin to double two-digit numbers less than 50 with 1s digits of 1, 2, 3 4 or 5

Name _____

arrays station

Directions: Draw the rectangular arrays you make. Label them.

2×10   3×5   7×3

5×4

Key vocabulary groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times...

Division - Year 2

①

Year 2 Group and share using the ÷ and = signs.

Use objects, Numicon, arrays, pictorial representations and grouping on a

Arrays:
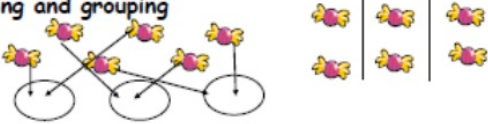
This represents 12 ÷ 3, posed as how many groups of 3 are in 12?

Pupils should also show that the same array can represent 12 ÷ 4 = 3 if grouped horizontally.
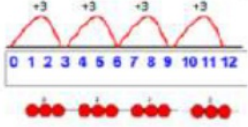
$12 ÷ 3 = 4$

24 divided into groups (chunks) of 6

There are 4 groups of 6 in 24

Know and understand sharing and grouping
6 sweets shared between 3 people, how many do each get?

Grouping using a number line

Group from zero in equal jumps to find 'how many groups of _ in _?

Use bead-bars/strings to make link to number line.

Pose 12÷3 as "How many groups of 3 are there in 12?"

$12 ÷ 3 = 4$

②

- using low 2-digit numbers with no remainders and grouping as the preferred method.

Key vocabulary share, share equally, one each, two each…, group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over

③

Develop fluency in mathematical talk or patter e.g.
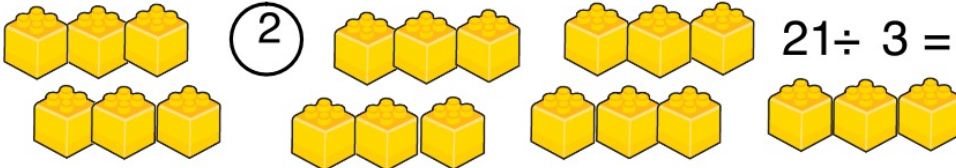" My question is 21 divided by 3.
I know that the inverse will be ?x 3 = 21
so how may 3's make 21? 3, 6, 9, 12, 15, 18, 21 = 7
7 x 3 = 21 so 21 divided by 3 is 7"

teach alongside the inverse of multiplication:

$21 ÷ 3 = \boxed{}$ $\boxed{} X 3 = 21$