Collins Calculation Policy

Year 1

NUMBER AND PLACE VALUE

To add, subtract, multiply and divide successfully, pupils need to:

- count, read and write numbers from 1 to 20 in numerals and words
- count, read and write numbers to 100 in numerals
- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- count in multiples of twos, fives and tens
- given a number, identify one more and one less
- compare and order numbers to at least 20
- identify and represent numbers using objects and pictorial representations, including the number line, and use the language of: equal to, more than, less than (fewer), most, least

ADDITION

Conceptual understanding and procedural fluency

To add successfully, pupils need to:

- understand addition as combining two or more groups of objects
- understand addition as counting on
- represent and use number bonds within 20
- add one-digit and two-digit numbers to 20, including zero
- realise the effect of adding zero
- recall doubles of all numbers to 10
- understand that addition can be done in any order
- read, write and interpret mathematical statements involving addition (+) and equals (=) signs

Reason mathematically and solve problems

Pupils need to use and apply their understanding of, and fluency in, addition to:

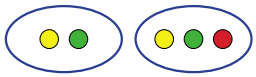
- solve one-step problems that involve addition, using concrete objects and pictorial representations, and missing number problems such as 16 = □ + 7
- solve one-step problems that involve addition in familiar contexts, e.g. money

Year 1

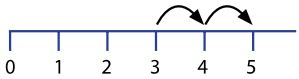
ADDITION Continued

Mental strategies

- Use of models and images:
  - concrete objects/pictorial representations



  - number tracks and number lines

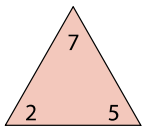


  - 1–100 number square

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

  - trios

5 + 2 = 7
2 + 5 = 7
7 – 2 = 5
7 – 5 = 2



  - addition and subtraction tables

+	0	1	2	3	4	5	6	7	8	9	10
0	0	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10	11
2	2	3	4	5	6	7	8	9	10	11	12
3	3	4	5	6	7	8	9	10	11	12	13
4	4	5	6	7	8	9	10	11	12	13	14
5	5	6	7	8	9	10	11	12	13	14	15
6	6	7	8	9	10	11	12	13	14	15	16
7	7	8	9	10	11	12	13	14	15	16	17
8	8	9	10	11	12	13	14	15	16	17	18
9	9	10	11	12	13	14	15	16	17	18	19
10	10	11	12	13	14	15	16	17	18	19	20

+	11	12	13	14	15	16	17	18	19	20
0	11	12	13	14	15	16	17	18	19	20
1	12	13	14	15	16	17	18	19	20	
2	13	14	15	16	17	18	19	20		
3	14	15	16	17	18	19	20			
4	15	16	17	18	19	20				
5	16	17	18	19	20					
6	17	18	19	20						
7	18	19	20							
8	19	20								
9	20									

- Identify near doubles, using doubles already known (e.g. 6 + 5)
- Recognise and use patterns of similar calculations (e.g. 10 + 0 = 10, 9 + 1 = 10, 8 + 2 = 10 ...)
- Understand and use the inverse relationship between addition and subtraction

Year 1

SUBTRACTION

Conceptual understanding and procedural fluency

To subtract successfully, pupils need to:

- understand subtraction as 'taking away' (counting back)
- understand subtraction as 'finding the difference' (counting up)
- represent and use subtraction facts within 20
- subtract one-digit and two-digit numbers to 20, including zero
- realise the effect of subtracting zero
- understand that subtraction cannot be done in any order
- read, write and interpret mathematical statements involving subtraction (–) and equals (=) signs

Reason mathematically and solve problems

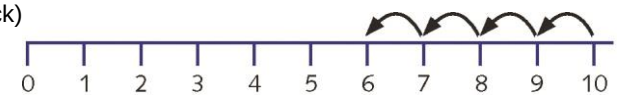
Pupils need to use and apply their understanding of, and fluency in, subtraction to:

- solve one-step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9
- solve one-step problems that involve subtraction in familiar contexts, e.g. money

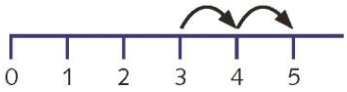
Mental strategies

- Use of models and images:
  - concrete objects/pictorial representations

  - - number tracks and number lines: 'take away' (counting back)



'finding the difference' (counting up)



  - 1–100 number square

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11	12	13	14	15	16	17	18	19	20
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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

  - trios

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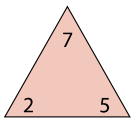


Year 1

SUBTRACTION Continued

Mental strategies continued

- addition and subtraction tables

+	0	1	2	3	4	5	6	7	8	9	10
0	0	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10	11
2	2	3	4	5	6	7	8	9	10	11	12
3	3	4	5	6	7	8	9	10	11	12	13
4	4	5	6	7	8	9	10	11	12	13	14
5	5	6	7	8	9	10	11	12	13	14	15
6	6	7	8	9	10	11	12	13	14	15	16
7	7	8	9	10	11	12	13	14	15	16	17
8	8	9	10	11	12	13	14	15	16	17	18
9	9	10	11	12	13	14	15	16	17	18	19
10	10	11	12	13	14	15	16	17	18	19	20

+	11	12	13	14	15	16	17	18	19	20
0	11	12	13	14	15	16	17	18	19	20
1	12	13	14	15	16	17	18	19	20	
2	13	14	15	16	17	18	19	20		
3	14	15	16	17	18	19	20			
4	15	16	17	18	19	20				
5	16	17	18	19	20					
6	17	18	19	20						
7	18	19	20							
8	19	20								
9	20									

- Recognise and use patterns of similar calculations
  (e.g. 10 – 0 = 10, 10 – 1 = 9, 10 – 2 = 8)
- Understand and use the inverse relationship between addition and subtraction

Year 1

MULTIPLICATION

Conceptual understanding and procedural fluency

To multiply successfully, pupils need to:

- understand multiplication through grouping small quantities
- understand the link between multiplication and doubling

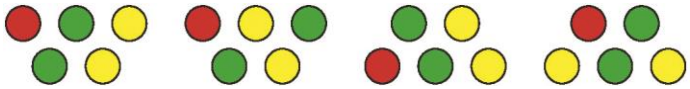
Reason mathematically and solve problems

Pupils need to use and apply their understanding of, and fluency in, multiplication to:

- solve one-step problems involving multiplication, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher
- solve one-step problems that involve multiplication in familiar contexts

Mental strategies

- Use of models and images:
  - concrete objects/pictorial representations



  - arrays

4 lots of 5 is 20

5 lots of 4 is 20

- Make connections between arrays, number patterns and counting in steps of a constant size

Year 1

DIVISION

Conceptual understanding and procedural fluency

To divide successfully, pupils need to:

- understand division through sharing small quantities
- understand the link between division and halving

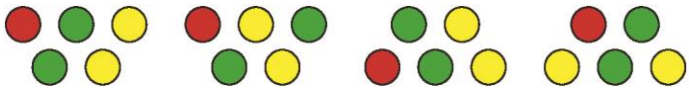
Reason mathematically and solve problems

Pupils need to use and apply their understanding of, and fluency in, division to:

- solve one-step problems involving division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher
- solve one-step problems that involve division in familiar contexts

Mental strategies

- Use of models and images:
  - concrete objects/pictorial representations



  - arrays

4 lots of 5 is 20

5 lots of 4 is 20

- Make connections between arrays, number patterns and counting in steps of a constant size