



Wessex
Learning Trust
We Learn Together!

Calculation Policy: EYFS

Mathematical Manipulatives

Key Representations

Progression in Procedures



EYFS - Vocabulary



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Key vocabulary

General number vocabulary: numeral, counting, subitising, comparing, more than, fewer than, pattern

Addition: add, plus, altogether, total, more, whole

Subtraction: less, subtract, take away, fewer, part, difference

Multiplication: double, pairs, equal groups

Division: share, fair, same amount, equal groups, enough

Fractions: whole, part, equal, half

Manipulatives: counters, cubes, Numicon, fingers, real-life objects, shapes, rekenreks blocks, loose parts

Representations: ten frames, dot patterns, fingers, part-part-whole diagrams, Number blocks, fingers, rekenreks, Hungarian tens frame (double die frame)



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EYFS ADDITION

Manipulatives



#

Factual knowledge

The key factual knowledge includes:

- Number bonds within 5
- Numbers bonds within 10
- Composition of numbers within 10



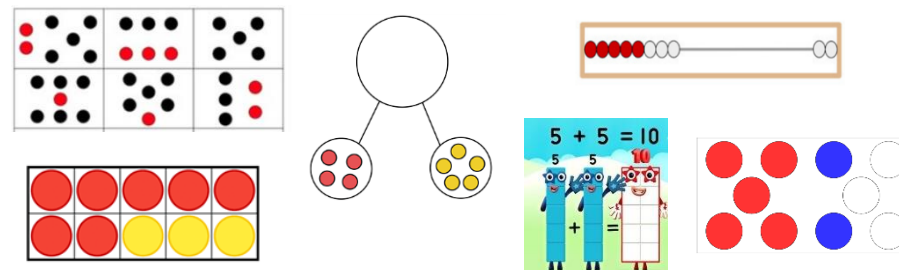
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KEY VOCABULARY: add, plus, altogether, total, more, whole

Representations

The key representations used are Hungarian tens frames (double die frame), ten frames, dot patterns, fingers, part-part-whole diagrams, rekenreks and Numberblocks.



Procedural knowledge

The key methods include:

- Combining groups
- Answering 'How many are there altogether?'
- Practical number stories
- Play-based exploration

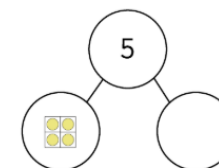
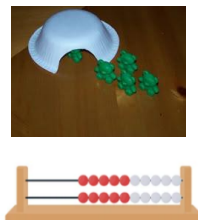
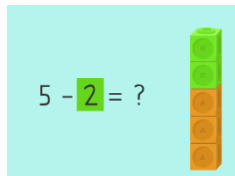
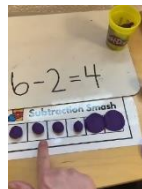
EYFS SUBTRACTION

Manipulatives

The recommended manipulatives are counters, cubes, real-life objects, Numicon, and other mathematical tools.

Representations

The key representations used are ten frames, fingers, Numberblocks, rekenreks and part-part-whole diagrams.



Factual knowledge

The key factual knowledge includes:

- Understanding that quantities decrease
- Understand that numbers can be partitioned into parts
- Number bonds to 5 and 10



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Composition of numbers within 10

KEY VOCABULARY: less, subtract, take away, fewer, part, difference

Procedural knowledge

The key methods include:

- Taking objects away – how many are left?
- Practical stories and songs
- Partitioning and recombining numbers

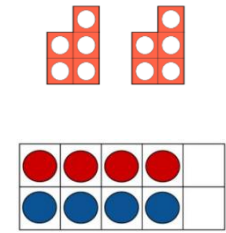
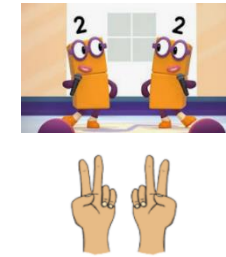
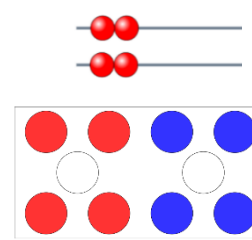
EYFS MULTIPLICATION

Manipulatives

The recommended manipulatives are counters, cubes, Numicon, real-life objects, fingers, rekenreks and loose parts.

Representations

The key representations used are Hungarian tens frames (double die frame), fingers, tens frames, Numicon, rekenreks and Numberblocks.



Factual knowledge

The key factual knowledge includes:

- Know doubles within 10
- Understand what equal means
- Know why numbers are sorted into odds and evens



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KEY VOCABULARY: double, pairs, equal groups

Procedural knowledge

The key methods include:

- Doubling quantities
- Identifying equal and not equal groups
- Making equal groups (through practical exploration)
- Sorting numbers into odds and evens

EYFS DIVISION

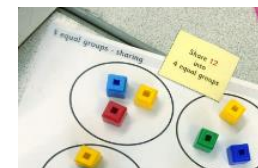
Manipulatives

The recommended manipulatives are counters, cubes, real-life objects (e.g. snack, animals) and loose parts.



Representations

The key representations used are sharing circles / plates / hoops.



Factual knowledge

The key factual knowledge includes:

- Understanding that objects can be shared between people or groups
- Recognising equal and unequal groups



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KEY VOCABULARY: share, fair, same amount, equal groups, enough

Procedural knowledge

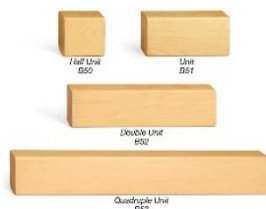
The key methods include:

- Sharing fairly – is there enough for everyone?
- Checking that each group has the same amount.

EYFS FRACTIONS

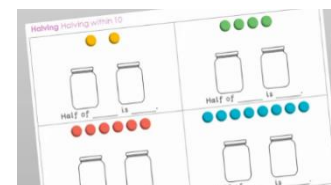
Manipulatives

The recommended manipulatives are real-life objects (e.g. food), shapes, counters and wooden blocks.



Representations

The key representations are part-part-whole diagrams, objects being shared equally and folding paper shapes in half.



Factual knowledge

The key factual knowledge includes:

- Understanding what the whole is
- Understanding that 2 parts must be equal to be halves of a whole

Procedural knowledge

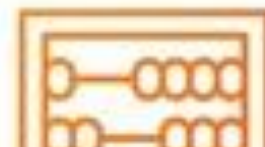
The key methods include:

- Folding shapes
- Sharing equally
- Identifying halves in practical contexts

KEY VOCABULARY: whole, part, equal, half



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Calculation Policy: Y1

Mathematical Manipulatives

Key Representations

Progression in Procedures



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YEAR 1 - Vocabulary

Key vocabulary

Place value: ones, tens, column, numeral, equal to, unequal, more than, less than (fewer), most, least, odd, even

Addition: sum, addend, add, put together, altogether, total

Subtraction: difference, subtrahend, subtract, partition, take away, more than and less than

Multiplication: multiples, array, groups of, double

Division: divide, share, group, halve

Fractions: equal part, whole

Manipulatives: place value counters, Dienes, 10-frame, Cuisinière rods, Numicon

Representations: represent, representation, number line, array, row/column, Part-Part-Whole diagram, bar model

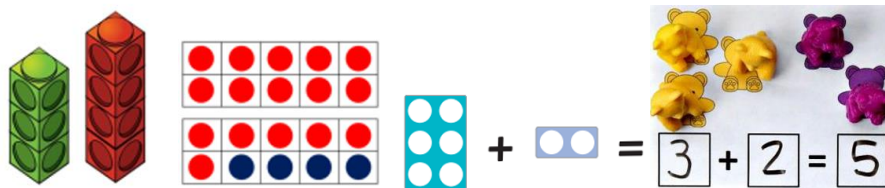


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YEAR 1 ADDITION

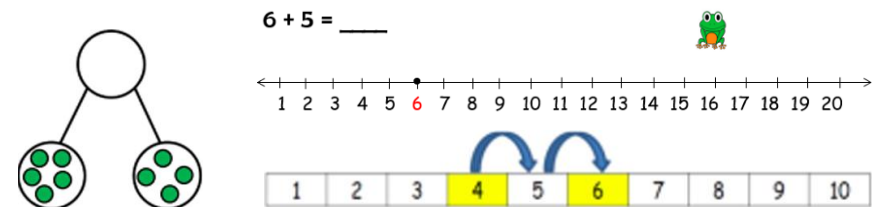
Manipulatives

The recommended manipulatives (physical resources) for adding 1-or 2-digit numbers to 20 are: counters, cubes, 10 frames, numicon and real life objects.



Representations

The key representations used are, number tracks, populated number lines, blank number lines and part-part-whole diagrams(which encourage children to apply their knowledge of place value).



Factual knowledge

The key factual knowledge includes recall of

Procedural knowledge

The key method used is a blank number line. Children are



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Number Bonds		
Story to 10		
2	3	4
5	6	7
8	9	10

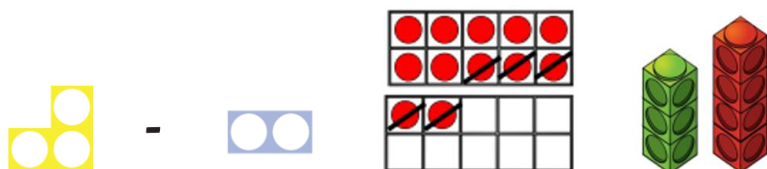
Number Bonds to 20		
There are 21 ways to make 20.		
0+20 = 20	20+0 = 20	
1+19 = 20	19+1 = 20	
2+18 = 20	18+2 = 20	
3+17 = 20	17+3 = 20	
4+16 = 20	16+4 = 20	
5+15 = 20	15+5 = 20	
6+14 = 20	14+6 = 20	
7+13 = 20	13+7 = 20	
8+12 = 20	12+8 = 20	
9+11 = 20	11+9 = 20	
10+10 = 20		

KEY VOCABULARY: sum, addend, add

YEAR 1 SUBTRACTION

Manipulatives

The recommended manipulatives (physical resources)) for subtracting 1 or 2- digit numbers to 20 are ten frames, counters, snap cubes and Numicon.



Representations

The key representations used are populated number lines, part-whole models, real life objects and bar models (which encourage children to apply their knowledge of place value).

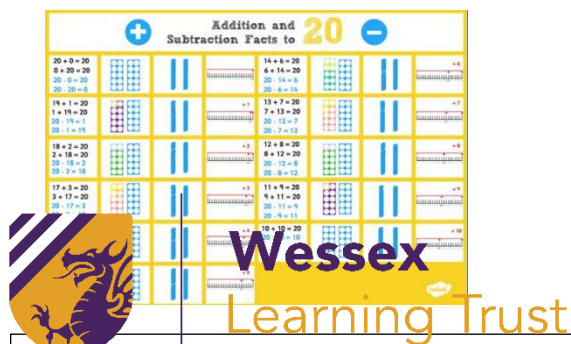


Factual knowledge

The key factual knowledge includes recall of addition/subtraction facts to 20, doubling/halving facts to 20.

Procedural knowledge

The key method (procedural knowledge) is a blank number line. Children are encouraged to draw their own blank number line alongside physical resources.

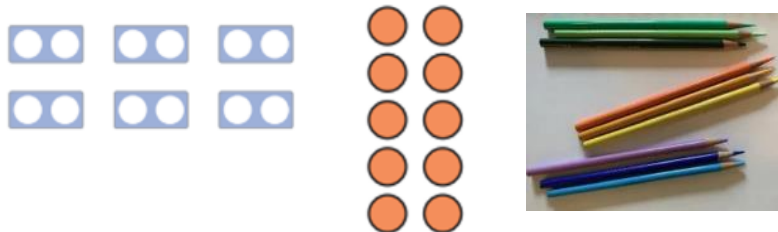


KEY VOCABULARY: difference, minuend, subtrahend, subtract, partition

YEAR 1 MULTIPLICATION

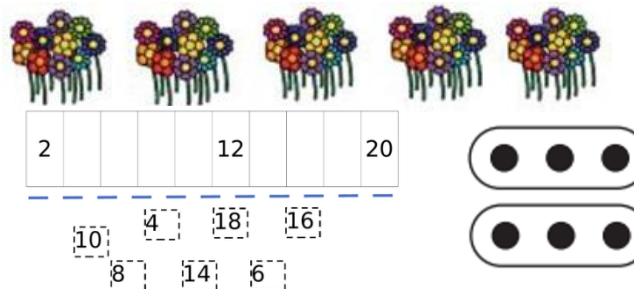
Manipulatives

The recommended manipulatives (physical resources) for solving 1-step problems involving multiplication are Numicon, counters, cubes and real-life objects.



Representations

The key representations used are arrays, real-life objects and partially completed number tracks.



Factual knowledge

The key factual knowledge (non-statutory) includes counting in 2s, 5s and 10s.



Procedural knowledge

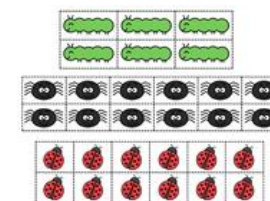
There is no specific key procedural knowledge. Children are encouraged to group and share concrete objects, use pictorial representations and arrays with the support of the teacher.



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KEY VOCABULARY: product, multiply, multiple, repeated addition



YEAR 1 DIVISION

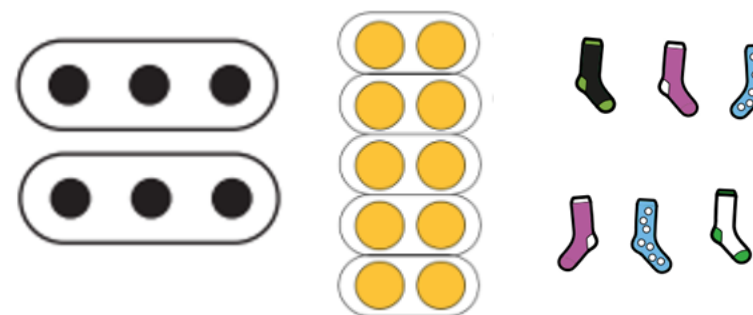
Manipulatives

The recommended manipulatives (physical resources) for one step problems involving division are place value counters and real-life objects.



Representations

The key representations used are arrays and real-life objects.



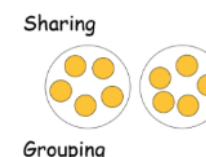
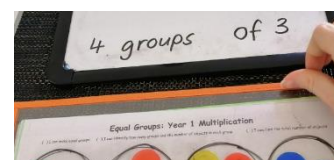
Factual knowledge

The key factual knowledge (non-statutory) includes counting in 2s, 5s and 10s.



Procedural knowledge

There is no specific key procedural knowledge. Children are encouraged to group and share concrete objects, use pictorial representations and arrays with the support of the teacher.





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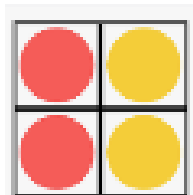
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KEY VOCABULARY: divide, share, group, halve

YEAR 1 FRACTIONS

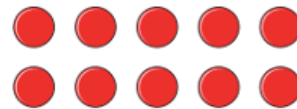
Manipulatives

The recommended manipulatives (physical resources) for fractions are counters or real-life objects.



Representations

The key representations are shapes, bar models and arrays.

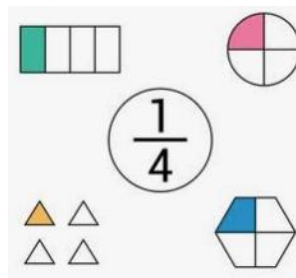
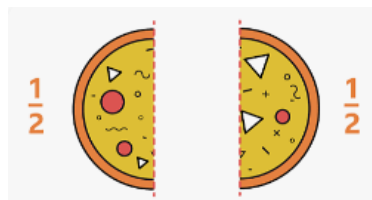


Find half



Factual knowledge

Children must be able to name a half as one of two equal parts and name a quarter as one of four equal parts.



Procedural knowledge



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Calculation Policy: Y2

Mathematical Manipulatives

Key Representations

Progression in Procedures





Key vocabulary

Place value: ones, tens, hundreds, column, numeral, digit, facts, greater than, less than, equal to

Addition: sum, addend, add, total, altogether, inverse, commutative

Subtraction: difference, subtrahend, minuend, subtract, partition, difference, inverse

Multiplication: product, multiplicand, multiplier, multiply, multiple, repeated addition, factor

Division: quotient, dividend, divisor, divide, repeated subtraction

Fractions: denominator, numerator, equal part, whole, equivalent, ascending, descending

Manipulatives: place value counters, Dienes, 10-frame

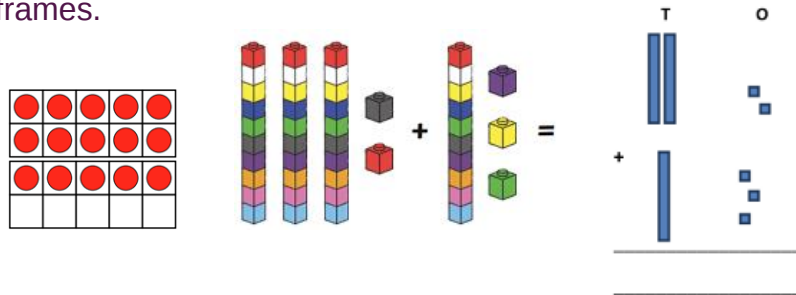
Representations: represent, representation, number line, array, row/column, Part-Part-Whole diagram, bar model



YEAR 2 ADDITION

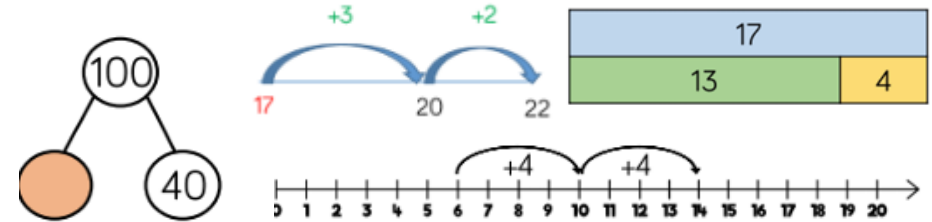
Manipulatives

The recommended manipulatives (physical resources) for adding two 2- digit numbers are Counters, cubes, dienes and 10 frames.



Representations

The key representations used are Populated and blank number lines, bar models and part-part-whole diagrams(which encourage children to apply their knowledge of place value).



Factual knowledge

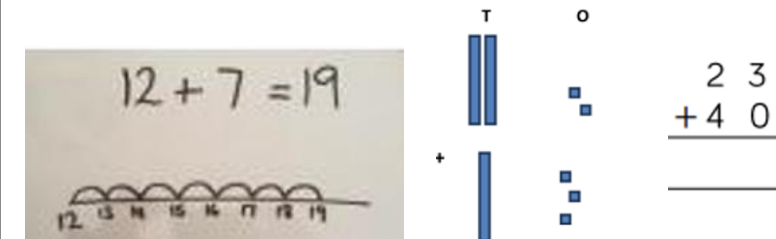
The key factual knowledge includes recall of addition/subtraction facts to 20 (and related facts), doubling/halving facts to 20.

facts such as using $3 + 7 = 10$; $10 - 7 = 3$
 $30 + 70 = 100$; $100 - 70 = 30$ and $70 = 100 - 30$.

	0	1	2	3	4	5	6	7	8	9	10
0	0+0	0+1	0+2	0+3	0+4	0+5	0+6	0+7	0+8	0+9	0+10
1	1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9	1+10
2	2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9	2+10
3	3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9	3+10
4	4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9	4+10
5	5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9	5+10
6	6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9	6+10
7	7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9	7+10
8	8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9	8+10
9	9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9	9+10
10	10+0	10+1	10+2	10+3	10+4	10+5	10+6	10+7	10+8	10+9	10+10

Procedural knowledge

Children should apply their increasing knowledge of mental and written methods, and recording addition in columns will support place value and prepare for formal written methods.



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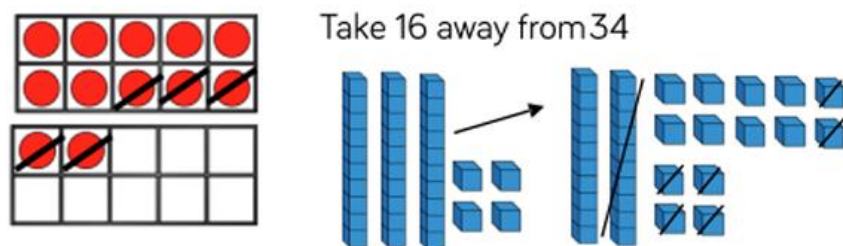
Learning Trust

KEY VOCABULARY: sum, addend, add, total, altogether, inverse, commutative, ones, tens

YEAR 2 SUBTRACTION

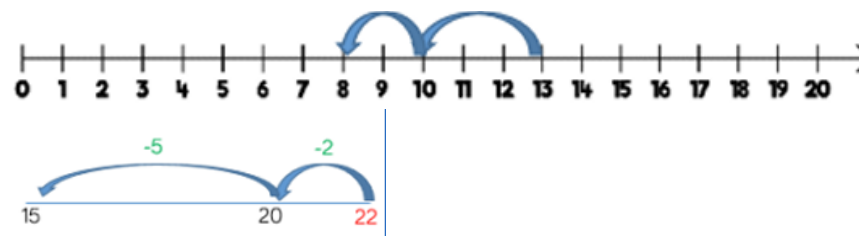
Manipulatives

The recommended manipulatives (physical resources) for subtracting two 2-digit numbers crossing 10 are Dienes and 10 frames.



Representations

The key representations used are Populated and blank number lines and bar models (which encourage children to apply their knowledge of place value).



Factual knowledge

The key factual knowledge includes recall of addition/subtraction facts to 20 (and related facts), doubling/halving facts to 20.

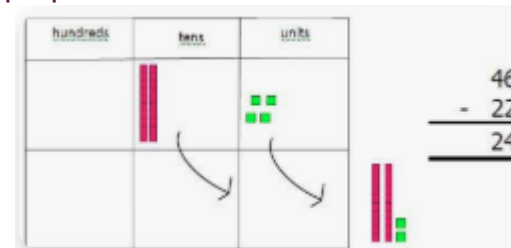
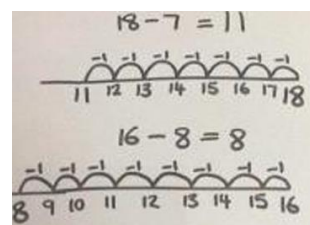
10-1	11-2	12-3	13-4	14-5	15-6	16-7	17-8	18-9
9-1	10-2	11-3	12-4	13-5	14-6	15-7	16-8	17-9
8-1	9-2	10-3	11-4	12-5	13-6	14-7	15-8	16-9
7-1	8-2	9-3	10-4	11-5	12-6	13-7	14-8	15-9
6-1	7-2	8-3	9-4	10-5	11-6	12-7	13-8	14-9
5-1	6-2	7-3	8-4	9-5	10-6	11-7	12-8	13-9
4-1	5-2	6-3	7-4	8-5	9-6	10-7	11-8	12-9
3-1	4-2	5-3	6-4	7-5	8-6	9-7	10-8	11-9
2-1	3-2	4-3	5-4	6-5	7-6	8-7	9-8	10-9



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Procedural knowledge

Children should apply their increasing knowledge of mental and written methods and recording subtraction in columns will support place value and prepare for formal written methods.



KEY VOCABULARY: difference, subtrahend, minuend, subtract, partition, difference, inverse

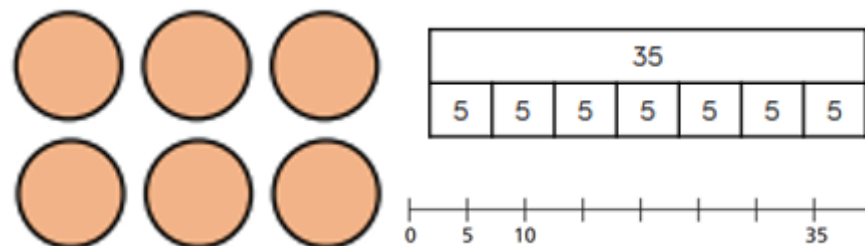
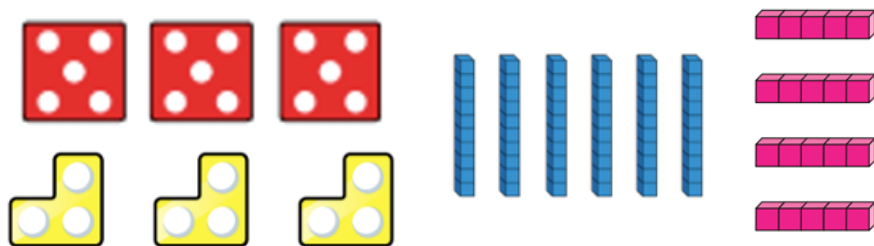
YEAR 2 MULTIPLICATION

Manipulatives

The recommended manipulatives (physical resources) for

Representations

The key representations used are arrays and bar models and



Factual knowledge

The key factual knowledge includes recall of 2, 5 and 10 multiplication tables.

0 x 2 = 0	0 x 5 = 0	0 x 10 = 0
1 x 2 = 2	1 x 5 = 5	1 x 10 = 10
2 x 2 = 4	2 x 5 = 10	2 x 10 = 20
3 x 2 = 6	3 x 5 = 15	3 x 10 = 30
4 x 2 = 8	4 x 5 = 20	4 x 10 = 40
5 x 2 = 10	5 x 5 = 25	5 x 10 = 50
6 x 2 = 12	6 x 5 = 30	6 x 10 = 60
7 x 2 = 14	7 x 5 = 35	7 x 10 = 70
8 x 2 = 16	8 x 5 = 40	8 x 10 = 80
9 x 2 = 18	9 x 5 = 45	9 x 10 = 90
10 x 2 = 20	10 x 5 = 50	10 x 10 = 100
11 x 2 = 22	11 x 5 = 55	11 x 10 = 110
12 x 2 = 24	12 x 5 = 60	12 x 10 = 120



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KEY VOCABULARY: product, multiplicand, multiplier, multiply, multiple, repeated addition

Procedural knowledge

The key methods is repeated addition. It is suggested that the children write the calculation alongside the concrete resources to ensure they can see the link between the two.

$$2 + 2 + 2 = \square \quad 3 \times 2 = \square$$

YEAR 2 DIVISION

Manipulatives

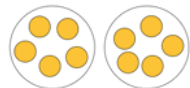
The recommended manipulatives (physical resources) for division are place value counters and Dienes.

Representations

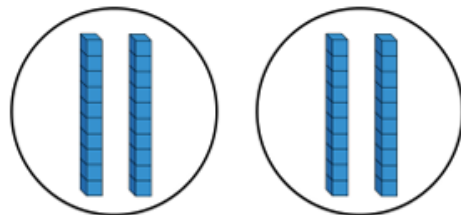
The key representations used are arrays, bar models and number lines.

$$10 \div 2$$

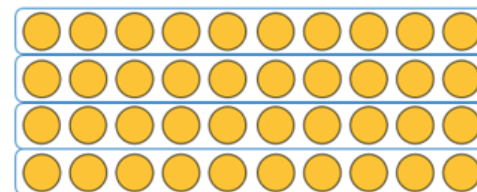
Sharing



Grouping



$$40 \div 2 = 20$$



12		
4	4	4

$$3. 16 \div 2 =$$



Factual knowledge

The key factual knowledge includes recall of 2, 5 and 10 multiplication tables and their corresponding division facts.

$\square \times 2 = 12$	$2 \times \square = 18$
$\square \times 5 = 15$	$5 \times \square = 25$
$\square \times 2 = 20$	$10 \times \square = 100$
$\square \times 10 = 40$	$\square \times 5 = 10$
$\square \times 5 = 35$	$2 \times \square = 24$
$2 \times \square = 22$	$\square \times 10 = 70$
$10 \times \square = 10$	$5 \times \square = 40$

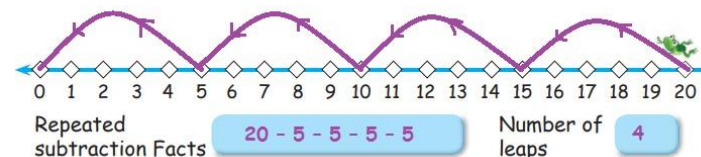


Learning Trust

VOCABULARY: share, group, halve, quotient, divisor, dividend, divide, repeated subtraction

Procedural knowledge

The key method is repeated subtraction on a number line. And continue to group and share concrete objects, use pictorial representations and arrays.



YEAR 2 FRACTIONS

Manipulatives

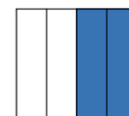
The recommended manipulatives (physical resources) for fractions are counters or real-life objects.

Share the tennis balls equally between Mo and Eva.



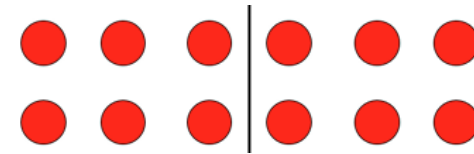
Representations

The key representations are shapes, bar models and arrays.



6		

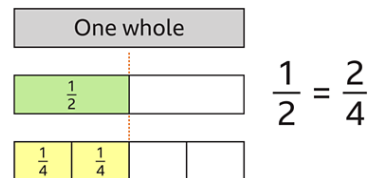
$$\frac{1}{3} \text{ of } 6 = \square$$



Factual knowledge

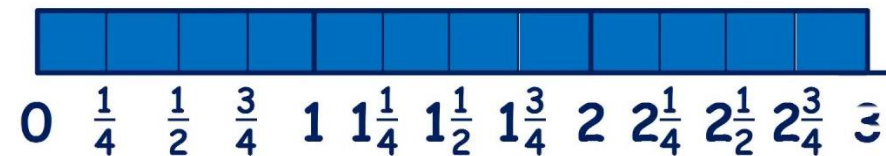
Children must be able to name a half as one of two equal parts and name a quarter as one of four equal parts.

$$\text{Circle with 1/2 shaded} = \text{Circle with 2/4 shaded}$$



Procedural knowledge

The key procedure is counting up/down in fractions on a number line.



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Calculation Policy: Y3

Mathematical Manipulatives

Key Representations

Progression in Procedures



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YEAR 3 - Vocabulary

Key vocabulary

Place value: ones, tens, hundreds, column, numeral, digit, facts, greater than, less than, equal to, multiples

Addition: sum, addend, add, total, altogether, inverse, commutative, partition

Subtraction: difference, subtrahend, minuend, subtract, partition, difference, inverse

Multiplication: product, multiplicand, multiplier, multiply, multiple, repeated addition, factor, scaling

Division: quotient, dividend, divisor, divide, repeated subtraction, related facts

Fractions: denominator, numerator, equal part, whole, equivalent, ascending, descending, unit fraction, non-unit fraction, tenths

Manipulatives: place value counters, Dienes, place value grid

Representations: represent, representation, number line, array, row/column, Part-Part-Whole diagram, bar model

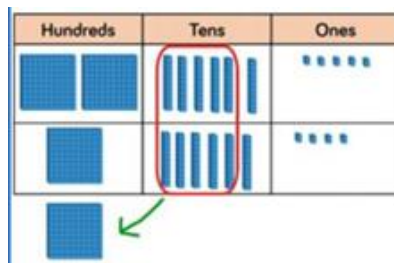


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YEAR 3 ADDITION

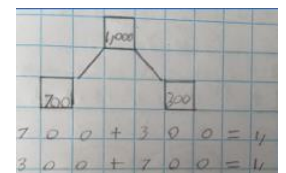
Manipulatives

The recommended manipulatives (physical resources) for adding numbers with up to 3-digits are place value counters and Dienes.



Representations

The key representations used are blank number lines, place value grids, bar models and part-part-whole diagrams (which encourage children to apply their knowledge of place value).



#

Factual knowledge

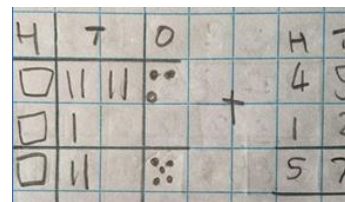
The key factual knowledge includes recall of addition/subtraction facts to 100 (and related facts), doubling/halving facts to 100.

90+10	20+80	30+70
40+60	50+50	60+40
10+90	80+20	70+30
77+23	81+19	35+65

0	0+0	0+1	0+2	0+3	0+4	0+5	0+6	0+7	0+8	0+9
1	1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9
2	2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9
3	3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9
4	4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9
5	5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9
6	6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9
7	7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9
8	8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9
9	9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9
10	10+0	10+1	10+2	10+3	10+4	10+5	10+6	10+7	10+8	10+9

Procedural knowledge

The key methods is formal column addition. It is suggested that the children write the calculation alongside the concrete resources to ensure they can see the link between the two.



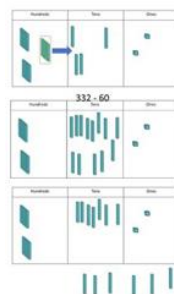
Learning Trust

KEY VOCABULARY: sum, addend, add, total, altogether, inverse, commutative, ones, tens

YEAR 3 SUBTRACTION

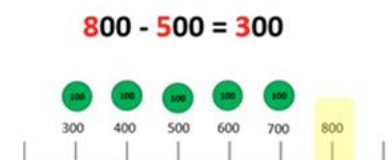
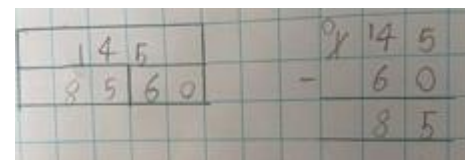
Manipulatives

The recommended manipulatives (physical resources) for subtracting numbers with up to 3-digits are place value counters and Dienes.



Representations

The key representations used are number lines, place value grids, bar models and part-part-whole diagrams(which encourage children to apply their knowledge of place value.



Factual knowledge

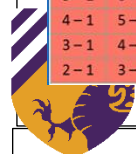
The key factual knowledge includes recall of addition/subtraction facts to 20 (and related facts), doubling/halving facts to 20.

10-1	11-2	12-3	13-4	14-5	15-6	16-7	17-8	18-9
9-1	10-2	11-3	12-4	13-5	14-6	15-7	16-8	17-9
8-1	9-2	10-3	11-4	12-5	13-6	14-7	15-8	16-9
7-1	8-2	9-3	10-4	11-5	12-6	13-7	14-8	15-9
6-1	7-2	8-3	9-4	10-5	11-6	12-7	13-8	14-9
5-1	6-2	7-3	8-4	9-5	10-6	11-7	12-8	13-9
4-1	5-2	6-3	7-4	8-5	9-6	10-7	11-8	12-9
3-1	4-2	5-3	6-4	7-5	8-6	9-7	10-8	11-9
2-1	3-2	4-3	5-4	6-5	7-6	8-7	9-8	10-9

$$74 + \square = 100 \quad \square + 46 = 100$$

$$92 + \square = 100 \quad \square + 28 = 100$$

$$87 + \square = 100 \quad \square + 14 = 100$$



Learning Trust

KEY VOCABULARY: difference, subtrahend, minuend, subtract, partition, difference, inverse

Procedural knowledge

Children should apply their increasing knowledge of mental and written methods and recording subtraction in columns will support place value and prepare for formal written methods.

YEAR 3 MULTIPLICATION

Manipulatives

The recommended manipulatives (physical resources) for multiplying 2-digit numbers by 1digit numbers are place value counters and Dienes.

Tens	Ones

Tens	Ones

Representations

The key representations used are blank number lines and place value grids.

x		

Factual knowledge

The key factual knowledge includes recall of 2, 3, 4, 5, 8 and 10

Procedural knowledge

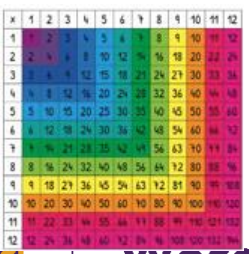
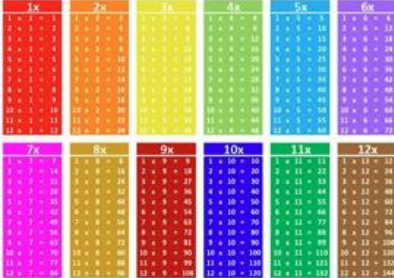
The key methods is repeated addition. It is suggested that the



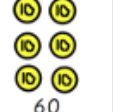
Wessex Learning Trust

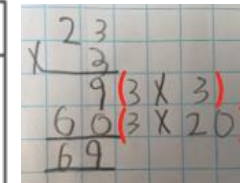
KEY VOCABULARY: product, multiplicand, multiplier, multiply, multiple, repeated addition, factor, scaling

TIMES TABLES

$$24 \times 3 = 72$$

$\times$	20	4
3	 60	 12

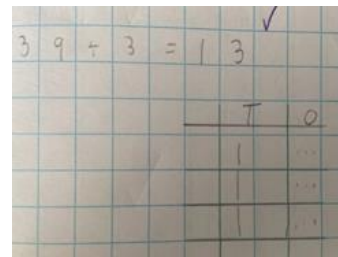
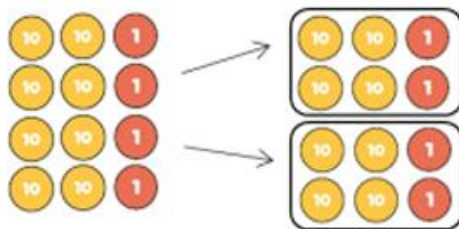


Handbook	Times	Group	T	O
			3	4
$\times$			1	7
			0	
			1	2

YEAR 3 DIVISION

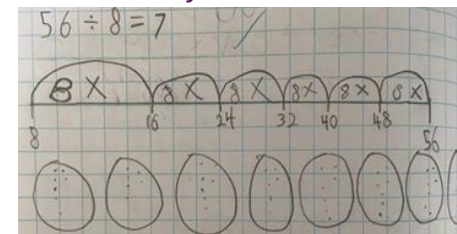
Manipulatives

The recommended manipulatives (physical resources) for Division are place value counters and Dienes.



Representations

The key method is repeated subtraction on a number line. And continue to group and share concrete objects, use pictorial representations and arrays.



Factual knowledge

The key factual knowledge includes recall of 2, 3, 4, 5, 8 and 10 multiplication tables and counting in multiples of 50 and 100.

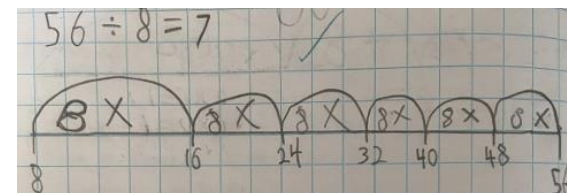
Procedural knowledge

The key method is repeated subtraction on a number line.



1x	2x	3x	4x	5x	6x
1	2	3	4	5	6
2	4	6	8	10	12
3	6	9	12	15	18
4	8	12	16	20	24
5	10	15	20	25	30
6	12	18	24	30	36
7	14	21	28	35	42
8	16	24	32	40	48
9	18	27	36	45	54
10	20	30	40	50	60
11	22	33	44	55	66
12	24	36	48	60	72

Division Table												
	÷1	÷2	÷3	÷4	÷5	÷6	÷7	÷8	÷9	÷10	÷11	÷12
÷1	1	2	3	4	5	6	7	8	9	10	11	12
÷2	2	4	6	8	10	12	14	16	18	20	22	24
÷3	3	6	9	12	15	18	21	24	27	30	33	36
÷4	4	8	12	16	20	24	28	32	36	40	44	48
÷5	5	10	15	20	25	30	35	40	45	50	55	60
÷6	6	12	18	24	30	36	42	48	54	60	66	72
÷7	7	14	21	28	35	42	49	56	63	70	77	84
÷8	8	16	24	32	40	48	56	64	72	80	88	96
÷9	9	18	27	36	45	54	63	72	81	90	99	108
÷10	10	20	30	40	50	60	70	80	90	100	110	120
÷11	11	22	33	44	55	66	77	88	99	110	121	132
÷12	12	24	36	48	60	72	84	96	108	120	132	144

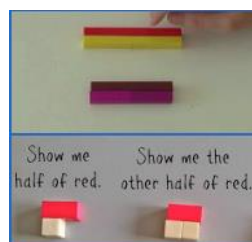
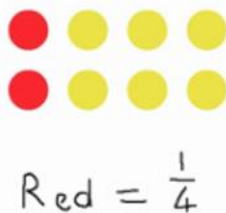
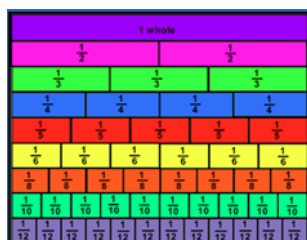


KEY VOCABULARY: quotient, dividend, divisor, divide, repeated subtraction, related facts

YEAR 3 FRACTIONS

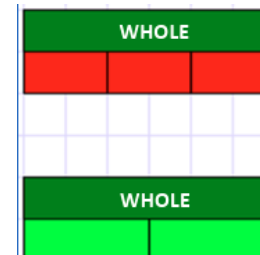
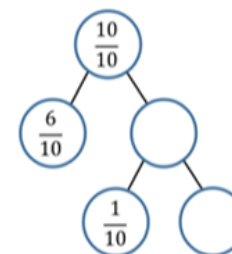
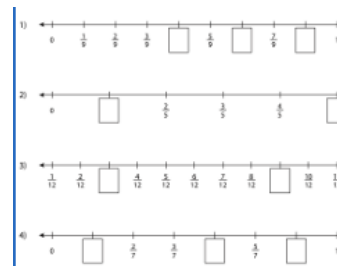
Manipulatives

The recommended manipulatives (physical resources) for Fractions are fraction walls, two-colour counters and Cuisenaire rods.



Representations

The key representations are number lines, Part-Part-Whole diagrams and bar models.



Factual knowledge

The key factual knowledge includes the recall and recognition of equivalent fractions with small denominators using a fraction wall.



Procedural knowledge

The key procedures are counting up/down in fractions on a number line, adding/subtracting fractions and finding fractions of amount.





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Calculation Policy: Y4

Mathematical Manipulatives

Key Representations



Progression in Procedures



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YEAR 4 - Vocabulary

Key vocabulary

Place value: ones, tens, hundreds, thousands, column, numeral, digit, facts, greater than, less than, equal to, tenth, hundredth, decimal

Addition: sum, addend, add, total, altogether, inverse, commutative, partition

Subtraction: difference, subtrahend, minuend, subtract, partition, difference, inverse

Multiplication: product, multiplicand, multiplier, multiply, multiple, repeated addition, factor, scaling

Division: quotient, dividend, divisor, divide, repeated subtraction, related facts

Fractions: denominator, numerator, equal part, whole, equivalent, ascending, descending, unit fraction, non-unit fraction, tenth, hundredth

Manipulatives: place value counters, Dienes, place value grid

Representations: represent, representation, number line, array, row/column, Part-Part-Whole diagram, bar model

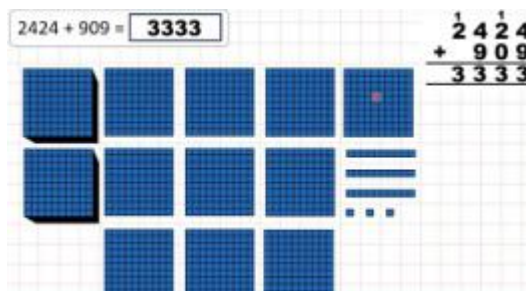


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YEAR 4 ADDITION

Manipulatives

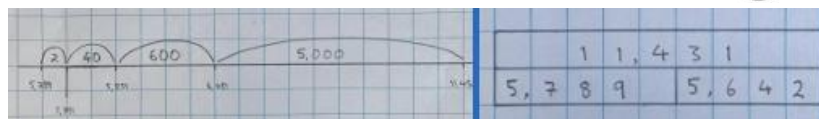
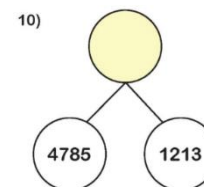
The recommended manipulatives (physical resources) for adding numbers with up to 4-digits are place value counters and Dienes.



Representations

The key representations used are place value grids, number lines, part-part-whole models and bar models.

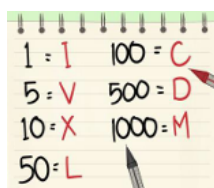
Th	H	T	U		$\frac{1}{10}$	$\frac{1}{100}$
Thousands	Hundreds	Tens	Units		Tenths	Hundredths



Factual knowledge

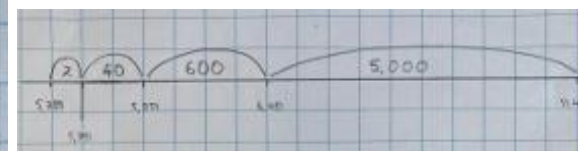
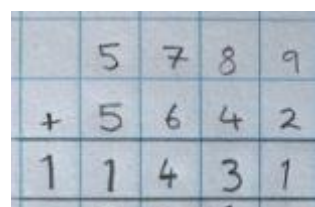
The key factual knowledge includes recall of addition/subtraction facts to 100, doubling/halving facts to 50 and all Roman numerals I-C.

100	
33	
100	
	26
100	
41	



Procedural knowledge

The key method is formal column addition. Use number lines alongside the formal algorithm to promote flexibility, estimation and decision making (number sense).

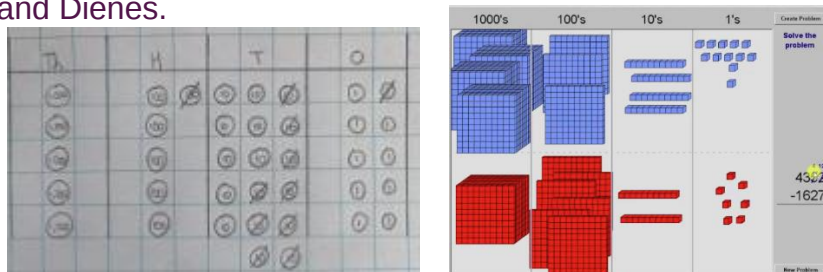




YEAR 4 SUBTRACTION

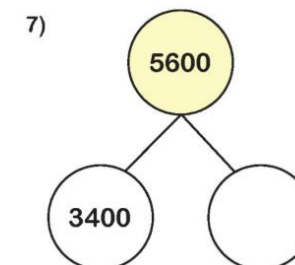
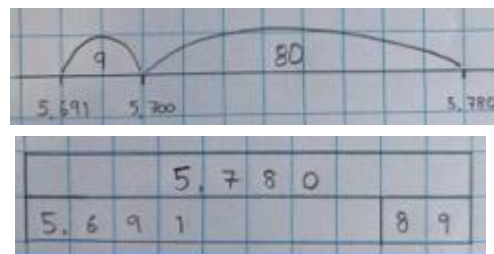
Manipulatives

The recommended manipulatives (physical resources) for subtracting numbers with up to 3-digits are place value counters and Dienes.



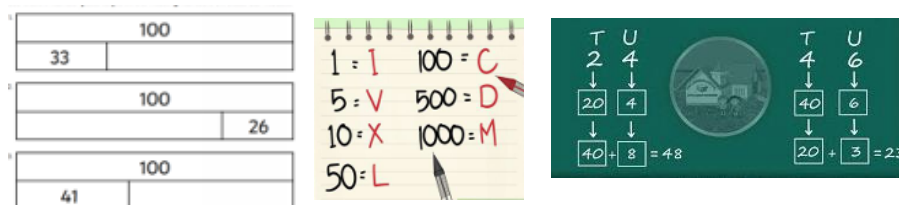
Representations

The key representations used are blank number lines, place value grids, bar models and part-part-whole diagrams.



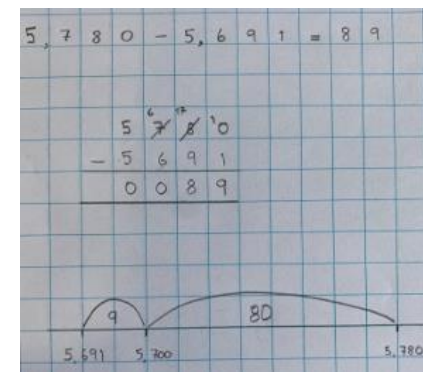
Factual knowledge

The key factual knowledge includes recall of addition/subtraction facts to 100, doubling/halving facts to 50 and all Roman numerals I-C.



Procedural knowledge

The key methods is formal column subtraction. Use number lines alongside the formal algorithm to promote flexibility, estimation and decision making (number sense).





YEAR 4 MULTIPLICATION

Manipulatives

The recommended manipulatives (physical resources) for multiplying up to 3- digit numbers by 1digit numbers are place value counters and Dienes.



Factual knowledge

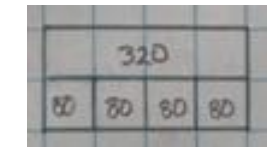
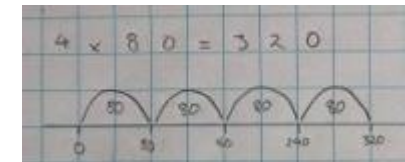
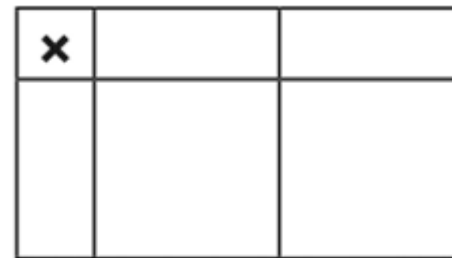
The key factual knowledge includes recall ALL multiplication tables and counting in multiples of 25, 50, 100 and 1000.

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

TIMES TABLES					
1x	2x	3x	4x	5x	6x
1x1=1	2x1=2	3x1=3	4x1=4	5x1=5	6x1=6
2x2=4	2x3=6	3x2=6	4x2=8	5x2=10	6x2=12
3x3=9	3x4=12	4x3=12	5x3=15	6x3=18	7x3=21
4x4=16	4x5=20	5x4=20	6x4=24	7x4=28	8x4=32
5x5=25	5x6=30	6x5=30	7x5=35	8x5=40	9x5=45
6x6=36	6x7=42	7x6=42	8x6=48	9x6=54	10x6=60
7x7=49	7x8=56	8x7=56	9x7=63	10x7=70	11x7=77
8x8=64	8x9=72	9x8=72	10x8=80	11x8=88	12x8=96
9x9=81	10x9=90	11x9=99	12x9=108	13x9=117	14x9=126
10x10=100	11x10=110	12x10=120	13x10=130	14x10=140	15x10=150
11x11=121	12x11=132	13x11=143	14x11=154	15x11=165	16x11=176
12x12=144	13x12=156	14x12=168	15x12=180	16x12=192	17x12=204

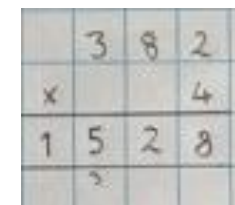
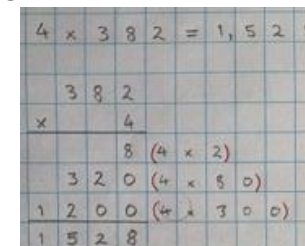
Representations

The key representations used are blank number lines, bar models and place value grids.



Procedural knowledge

The key method is the expanded method and formal column multiplication. It is suggested that the children write the calculation alongside the number line to secure conceptual understanding.

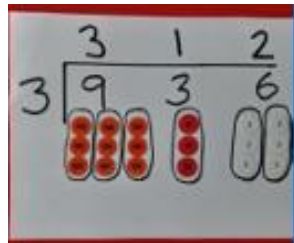




YEAR 4 DIVISION

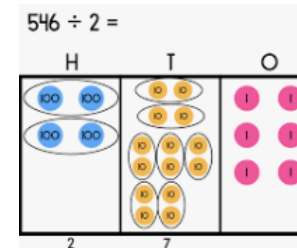
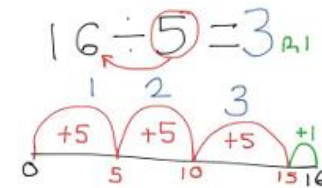
Manipulatives

The recommended manipulatives (physical resources) for Division are place value counters and Numicon.



Representations

The key representation is repeated subtraction on a number line. And continue to group and share concrete objects, use pictorial representations and arrays.



Factual knowledge

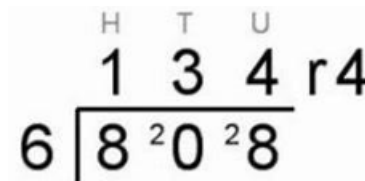
The key factual knowledge includes recall of 2, 3, 4, 5, 8 and 10 multiplication tables and counting in multiples of 50 and 100. Find effect of dividing 1 or 2 digit number by 10 or 100.

1x	2x	3x	4x	5x	6x
1	2	3	4	5	6
2	4	6	8	10	12
3	6	9	12	15	18
4	8	12	16	20	24
5	10	15	20	25	30
6	12	18	24	30	36
7	14	21	28	35	42
8	16	24	32	40	48
9	18	27	36	45	54
10	20	30	40	50	60
11	22	33	44	55	66
12	24	36	48	60	72
13	26	39	52	65	78
14	28	42	56	70	84
15	30	45	60	75	90
16	32	48	64	80	96
17	34	51	68	85	102
18	36	54	72	90	108
19	38	57	76	95	114
20	40	60	80	100	120
21	42	63	84	105	126
22	44	66	88	110	132
23	46	69	92	115	138
24	48	72	96	120	144
25	50	75	100	125	150
26	52	78	104	130	156
27	54	81	108	135	162
28	56	84	112	140	168
29	58	87	116	145	174
30	60	90	120	150	180
31	62	93	124	155	186
32	64	96	128	160	192
33	66	99	132	165	198
34	68	102	136	170	204
35	70	105	140	175	210
36	72	108	144	180	216
37	74	111	148	185	222
38	76	114	152	190	228
39	78	117	156	195	234
40	80	120	160	200	240
41	82	123	164	205	246
42	84	126	168	210	252
43	86	129	172	215	258
44	88	132	176	220	264
45	90	135	180	225	270
46	92	138	184	230	276
47	94	141	188	235	282
48	96	144	192	240	288
49	98	147	196	245	294
50	100	150	200	250	300
51	102	153	204	255	306
52	104	156	208	260	312
53	106	159	212	265	318
54	108	162	216	270	324
55	110	165	220	275	330
56	112	168	224	280	336
57	114	171	228	285	342
58	116	174	232	290	348
59	118	177	236	295	354
60	120	180	240	300	360
61	122	183	244	305	366
62	124	186	248	310	372
63	126	189	252	315	378
64	128	192	256	320	384
65	130	195	260	325	390
66	132	198	264	330	396
67	134	201	268	335	402
68	136	204	272	340	408
69	138	207	276	345	414
70	140	210	280	350	420
71	142	213	284	355	426
72	144	216	288	360	432
73	146	219	292	365	438
74	148	222	296	370	444
75	150	225	300	375	450
76	152	228	304	380	456
77	154	231	308	385	462
78	156	234	312	390	468
79	158	237	316	395	474
80	160	240	320	400	480
81	162	243	324	405	486
82	164	246	328	410	492
83	166	249	332	415	498
84	168	252	336	420	504
85	170	255	340	425	510
86	172	258	344	430	516
87	174	261	348	435	522
88	176	264	352	440	528
89	178	267	356	445	534
90	180	270	360	450	540
91	182	273	364	455	546
92	184	276	368	460	552
93	186	279	372	465	558
94	188	282	376	470	564
95	190	285	380	475	570
96	192	288	384	480	576
97	194	291	388	485	582
98	196	294	392	490	588
99	198	297	396	495	594
100	200	300	400	500	600

Tens	Ones	tenths
2	3	
23 ÷ 10 =		

Procedural knowledge

The key method is short division.



$$423 \div 3 =$$

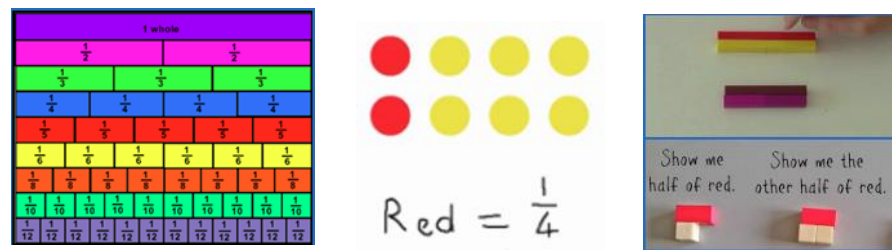
HUNDREDS	TENS	ONES

KEY VOCABULARY: quotient, dividend, divisor, divide, repeated subtraction, related facts

YEAR 4 FRACTIONS

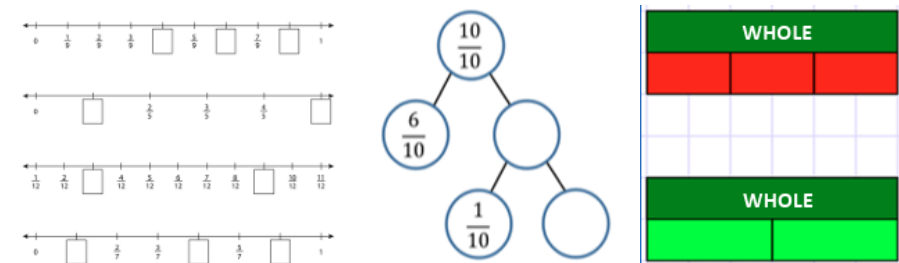
Manipulatives

The recommended manipulatives (physical resources) for Fractions are fraction walls, two-colour counters and Cuisenaire rods.



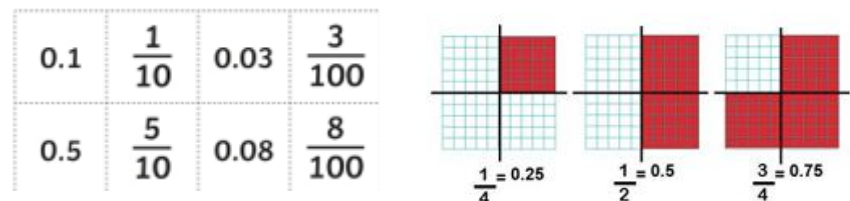
Representations

The key representations are number lines, Part-Part-Whole diagrams and bar models.



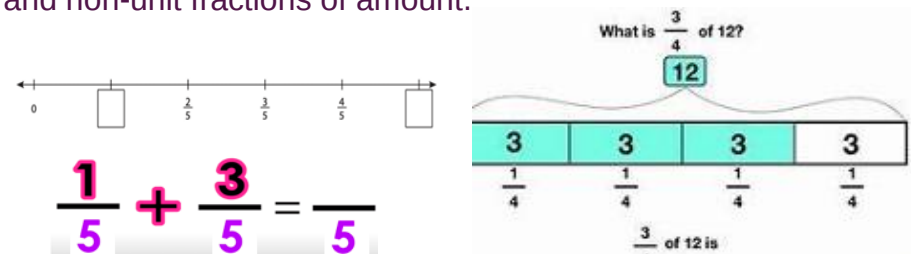
Factual knowledge

The key factual knowledge includes the recall and recognition of decimal equivalents of 1/4, 1/2, 3/4 and decimal equivalents of any number of tenths/hundredths.



Procedural knowledge

The key procedures are counting up/down in fractions on a number line, adding/subtracting fractions and finding fractions and non-unit fractions of amount.



Calculation Policy: Y5

Mathematical Manipulatives

Key Representations

Progression in Procedures



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Key vocabulary



YEAR 5 - Vocabulary

Place value: ones, tens, hundreds, thousands, column, numeral, digit, facts, greater than, less than, equal to, consecutive, tenth, hundredth, decimal

Addition: sum, addend, add, total, altogether, inverse, commutative, partition

Subtraction: difference, subtrahend, minuend, subtract, partition, difference, inverse

Multiplication: product, multiplicand, multiplier, multiply, multiple, repeated addition, factor, scaling, composite number

Division: quotient, dividend, divisor, divide, repeated subtraction, related facts, factor

Fractions: denominator, numerator, equal part, whole, equivalent, ascending, descending, unit fraction, non-unit fraction, tenth, hundredth

Manipulatives: place value counters, Dienes, place value grid

Representations: represent, representation, number line, array, row/column, Part-Part-

Whole diagram, bar model



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YEAR 5 ADDITION

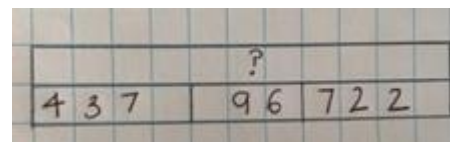
Manipulatives

The recommended manipulatives (physical resources) for adding numbers with more than 4- digits are place value counters and Dienes. This should build on prior knowledge..

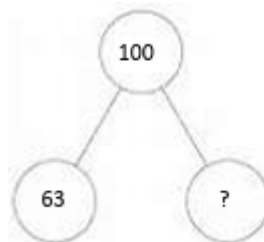
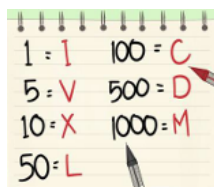
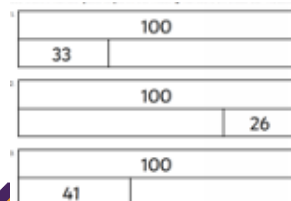
Representations

The key representations used are place value grids, bar models and part-part-whole diagrams (which encourage children to apply their knowledge of place value).

Th	H	T	O
			
			



The key factual knowledge includes recall of addition/subtraction facts to 100 and doubling/halving facts to 100 and Roman Numerals I-M.

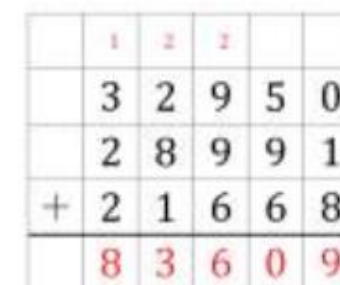
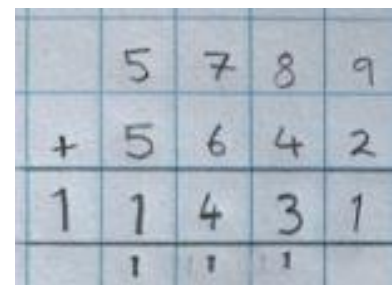


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Learning Trust

KEY VOCABULARY: sum, addend, add, total, altogether, inverse, commutative, partition

The key methods is formal column addition.



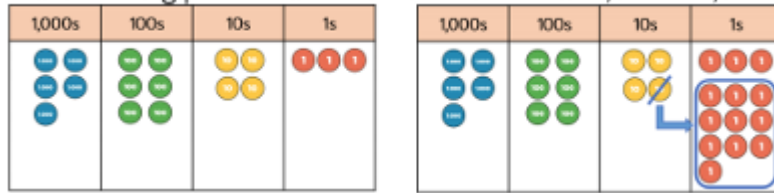
Manipulatives

The recommended manipulatives (physical resources) for subtracting numbers with more than 4-digits are place value counters and Dienes.

The key representations used are blank number lines, place value grids, bar models and part-part-whole diagrams.



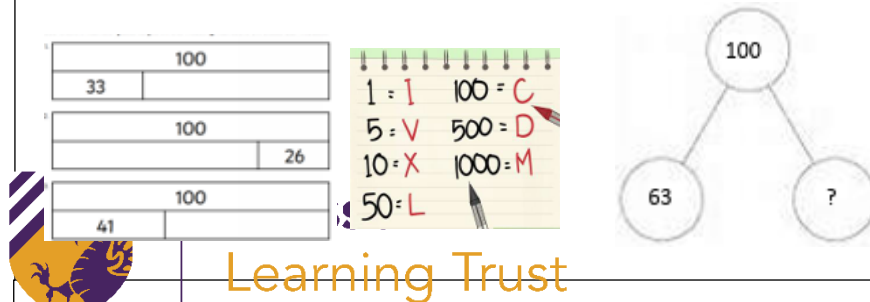
Dexter is using place value counters to calculate $5,643 - 4,316$



8,435		
367	579	?

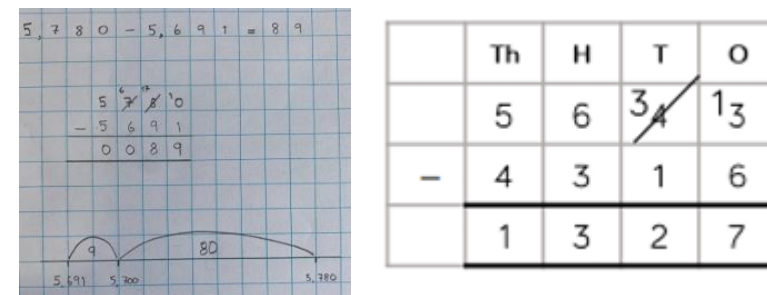
Factual knowledge

The key factual knowledge includes recall of addition/subtraction facts to 100 and doubling/halving facts to 100 and Roman Numerals I-M.



Procedural knowledge

The key methods is formal column subtraction



	Th	H	T	O
	5	6	3	1
-	4	3	1	6
	1	3	2	7

KEY VOCABULARY: difference, subtrahend, minuend, subtract, partition, difference, inverse

YEAR 5 MULTIPLICATION

Manipulatives

The recommended manipulatives (physical resources) for multiplying numbers with up to 4- digits are place value counters and Dienes.

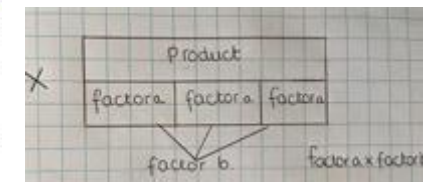
Annie earns £1,325 per week.
How much would he earn in 4 weeks?



Representations

The key representations used are blank number lines, bar models and place value grids.

Rosie adapts the Base 10 method to calculate 44



Factual knowledge

The key factual knowledge includes recall ALL multiplication tables.

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

TIMES TABLES

1x	2x	3x	4x	5x	6x
1	2	3	4	5	6
2	4	6	8	10	12
3	6	9	12	15	18
4	8	12	16	20	24
5	10	15	20	25	30
6	12	18	24	30	36
7	14	21	28	35	42
8	16	24	32	40	48
9	18	27	36	45	54
10	20	30	40	50	60
11	22	33	44	55	66
12	24	36	48	60	72



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KEY VOCABULARY: product, multiplicand, multiplier, multiply, multiple, repeated addition, factor, scaling, composite number, prime, squared, cubed

Procedural knowledge

The key methods are grid method and formal column multiplication.

x	40	4
30	1,200	120
2	80	8

4	x	382	=	1,528
		382		
		8	(4 x 2)	
		320	(4 x 80)	
		1200	(4 x 300)	
		1528		

		382
x		4
		8
		320
		1200
		1528

YEAR 5 DIVISION

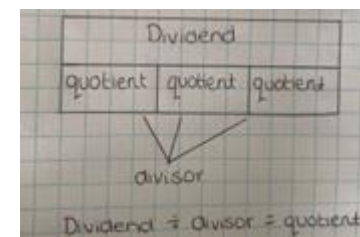
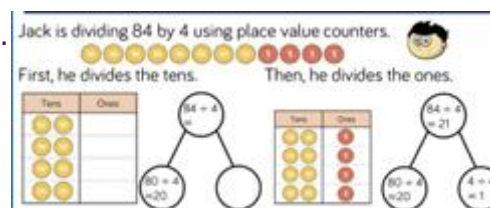
Manipulatives

The recommended manipulatives (physical resources) for Division are place value counters and Dienes.

Thousands	Hundreds	Tens	Ones
4	8	2	0

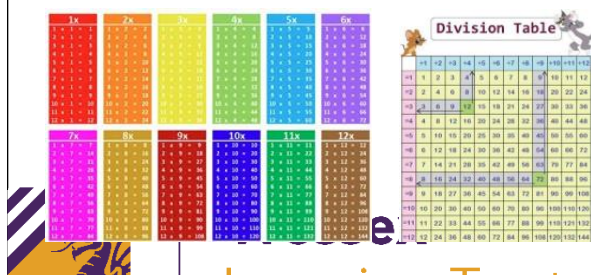
Representations

The key method is repeated subtraction on a number line. And continue to group and share concrete objects, use pictorial representations and arrays.



Factual knowledge

The key factual knowledge includes recall of 2, 3, 4, 5, 8 and 10 multiplication tables and counting in multiples of 50 and 100. Find effect of dividing 1 or 2 digit number by 10 or 100.



KEY VOCABULARY: quotient, dividend, divisor, divide, repeated subtraction, related facts, factor

Procedural knowledge

The key method is short division.

		1	2	2	3	
4		4	8	9	4	12

YEAR 5 FRACTIONS

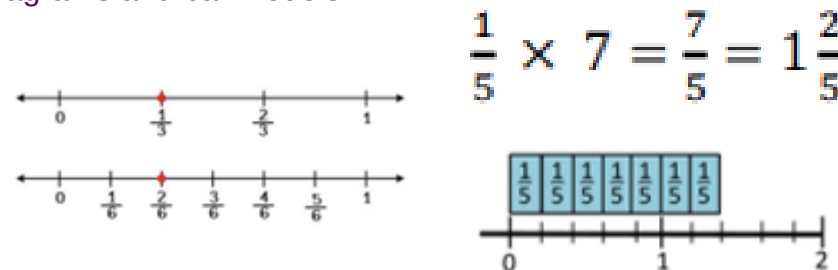
Manipulatives

The recommended manipulatives (physical resources) for Fractions are fraction walls, two-colour counters and Cuisenaire rods.



Representations

The key representations are number lines, Part-Part-Whole diagrams and bar models.



Factual knowledge

Procedural knowledge

$$\begin{aligned} \frac{1}{2} &= \frac{2}{4} = \frac{3}{6} = \frac{4}{8} \\ \frac{1}{3} &= \frac{2}{6} = \frac{3}{9} = \frac{4}{12} \\ \frac{1}{5} &= \frac{2}{10} = \frac{3}{15} = \frac{4}{20} \end{aligned}$$

[for example, $0.71 = \frac{71}{100}$]

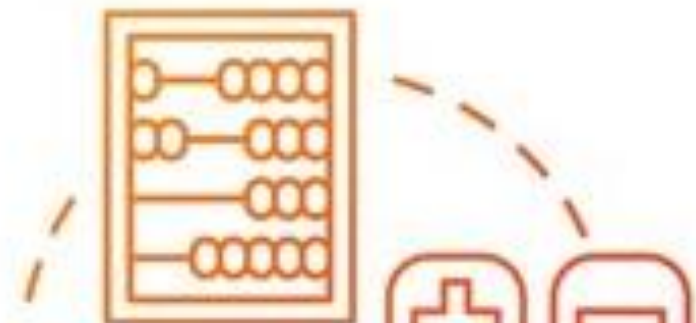
$$\begin{array}{ccc} \frac{3}{4} & + & \frac{4}{5} \\ \times 5 & & \times 4 \\ \hline \frac{15}{20} & + & \frac{16}{20} \\ \hline & = & \frac{31}{20} \end{array}$$

$$2\frac{3}{4} = \frac{(4 \times 2) + 3}{4} = \frac{11}{4}$$



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Calculation Policy: Y6



Mathematical Manipulatives

Key Representations

Progression in Procedures



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YEAR 6 - Vocabulary

Key vocabulary

Place value: ones, tens, hundreds, thousands, column, numeral, digit, facts, greater than, less than, equal to, consecutive, tenth, hundredth, decimal

Addition: sum, addend, add, total, altogether, inverse, commutative, partition

Subtraction: difference, subtrahend, minuend, subtract, partition, difference, inverse

Multiplication: product, multiplicand, multiplier, multiply, multiple, repeated addition, factor, scaling, composite number

Division: quotient, dividend, divisor, divide, repeated subtraction, related facts, factor, bisect

Fractions: denominator, numerator, equal part, whole, equivalent, ascending, descending, unit fraction, non-unit fraction, tenth, hundredth

Manipulatives: place value counters, Dienes, place value grid

Representations: represent, representation, number line, array, row/column, Part-Part-whole diagram, bar model

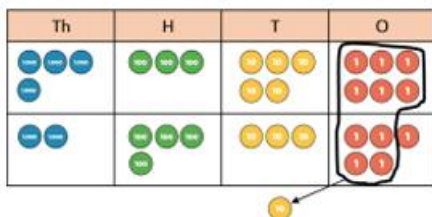


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YEAR 6 ADDITION

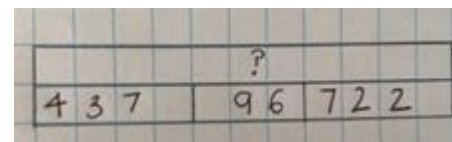
Manipulatives

The recommended manipulatives (physical resources) for adding numbers with more than 4- digits are place value counters and Dienes. This should build on prior knowledge..



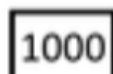
Representations

The key representations used are place value grids, bar models and part-part-whole diagrams (which encourage children to apply their knowledge of place value).



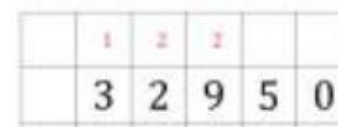
Factual knowledge

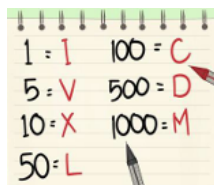
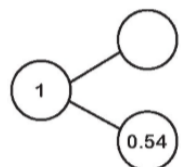
The key factual knowledge includes recall of addition/subtraction facts to 100 and doubling/halving facts to 100 and Roman Numerals I-M.



Procedural knowledge

The key methods is formal column addition.





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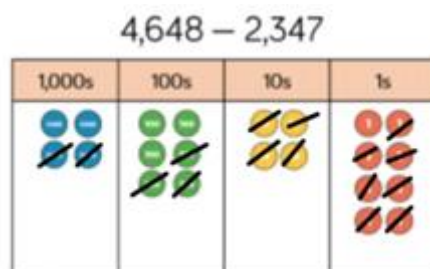
Learning Trust

KEY VOCABULARY: sum, addend, add, total, altogether, inverse, commutative, partition

YEAR 6 SUBTRACTION

Manipulatives

The recommended manipulatives (physical resources) for subtracting numbers with more than 4-digits are place value counters and Dienes.



Representations

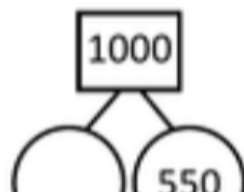
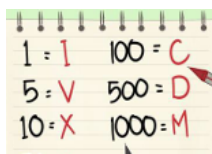
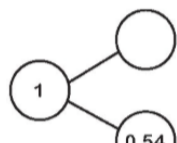
The key representations used are blank number lines, place value grids, bar models and part-part-whole diagrams.



part		part	
34 226		6 099	

Factual knowledge

The key factual knowledge includes recall of addition/subtraction facts to 100 and doubling/halving facts to 100 and Roman Numerals I-M.



Procedural knowledge

The key methods is formal column subtraction

	Th	H	T	O
	5	6	34	13
-	4	3	1	6
	1	3	2	7

Tens	Ones	Tenths	Hundredths
	2	0	0
-	0	8	5

Placeholders



YEAR 6 MULTIPLICATION

Manipulatives

The recommended manipulatives (physical resources) for multiplying numbers with up to 4- digits are place value counters and Dienes.

Annie earns £1,325 per week.
How much would he earn in 4 weeks?

Thousands	Hundreds	Tens	Ones
1	3	2	5
1	3	2	5
1	3	2	5
1	3	2	5

Factual knowledge

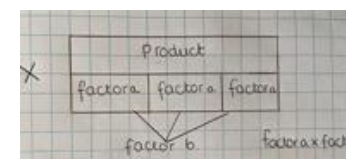
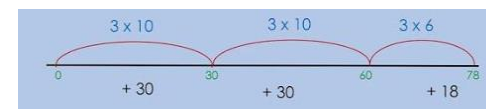
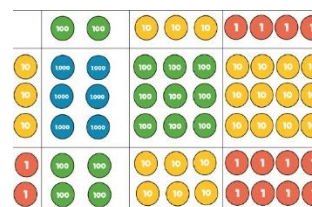
The key factual knowledge includes recall ALL multiplication tables.

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

TIMES TABLES						
1x	2x	3x	4x	5x	6x	7x
1x1=1	2x1=2	3x1=3	4x1=4	5x1=5	6x1=6	7x1=7
1x2=2	2x2=4	3x2=6	4x2=8	5x2=10	6x2=12	7x2=14
1x3=3	2x3=6	3x3=9	4x3=12	5x3=15	6x3=18	7x3=21
1x4=4	2x4=8	3x4=12	4x4=16	5x4=20	6x4=24	7x4=28
1x5=5	2x5=10	3x5=15	4x5=20	5x5=25	6x5=30	7x5=35
1x6=6	2x6=12	3x6=18	4x6=24	5x6=30	6x6=36	7x6=42
1x7=7	2x7=14	3x7=21	4x7=28	5x7=35	6x7=42	7x7=49
2x1=2	2x2=4	2x3=6	2x4=8	2x5=10	2x6=12	2x7=14
3x1=3	3x2=6	3x3=9	3x4=12	3x5=15	3x6=18	3x7=21
4x1=4	4x2=8	4x3=12	4x4=16	4x5=20	4x6=24	4x7=28
5x1=5	5x2=10	5x3=15	5x4=20	5x5=25	5x6=30	5x7=35
6x1=6	6x2=12	6x3=18	6x4=24	6x5=30	6x6=36	6x7=42
7x1=7	7x2=14	7x3=21	7x4=28	7x5=35	7x6=42	7x7=49
8x1=8	8x2=16	8x3=24	8x4=32	8x5=40	8x6=48	8x7=56
9x1=9	9x2=18	9x3=27	9x4=36	9x5=45	9x6=54	9x7=63
10x1=10	10x2=20	10x3=30	10x4=40	10x5=50	10x6=60	10x7=70
11x1=11	11x2=22	11x3=33	11x4=44	11x5=55	11x6=66	11x7=77
12x1=12	12x2=24	12x3=36	12x4=48	12x5=60	12x6=72	12x7=84

Representations

The key representations used are blank number lines, bar models and place value grids.



Procedural knowledge

The key methods are grid method and formal column multiplication.

x	40	4
30	1,200	120
2	80	8

TTh	Th	H	T	O
	2	7	3	9
x			2	8
2	1	9	1	2
5	4	7	8	0
7	6	6	9	2

3	1	9
x	8	
2	5	2
	1	7



Wessex

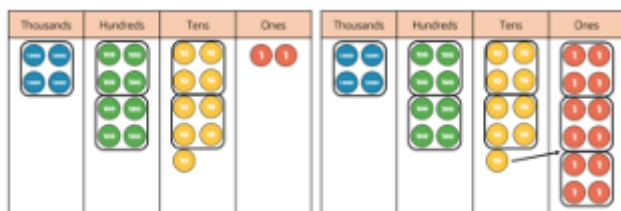
Learning Trust

KEY VOCABULARY: product, multiplicand, multiplier, multiply, multiple, repeated addition, factor, scaling, composite number, prime, squared, cubed

YEAR 6 DIVISION

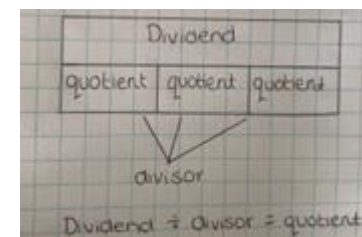
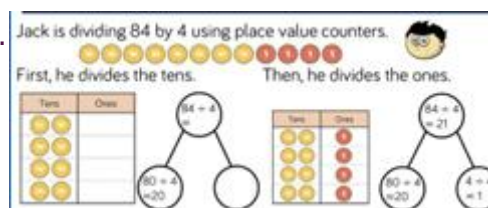
Manipulatives

The recommended manipulatives (physical resources) for Division are place value counters and Dienes.



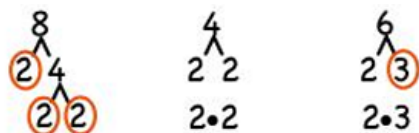
Representations

The key method is repeated subtraction on a number line. And continue to group and share concrete objects, use pictorial representations and arrays.



Factual knowledge

The key factual knowledge includes recall of 2, 3, 4, 5, 8 and 10 multiplication tables and counting in multiples of 50 and 100. Find effect of dividing 1 or 2 digit number by 10 or 100.



If $\frac{1}{2} = 1 \div 2$ then $\frac{1}{4} = 1 \div 4$

Procedural knowledge

The key method is short division.



	0	4	8	9	
15	7	3	3	5	
-	6	0	0	0	(x400)
	1	3	3	5	
-	1	2	0	0	(x80)
		1	3	5	
-		1	3	5	(x9)
				0	

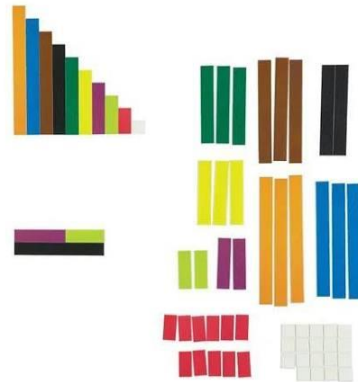
KEY VOCABULARY: quotient, dividend, divisor, divide, repeated subtraction, related facts, factor, bisect



YEAR 6 FRACTIONS

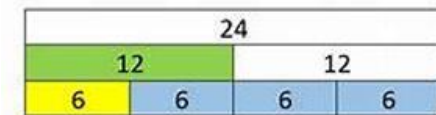
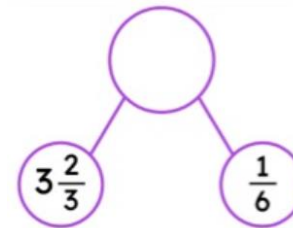
Manipulatives

The recommended manipulatives (physical resources) for Fractions are fraction walls, counters and Cuisenaire rods.



Representations

The key representations are number lines, Part-Part-Whole diagrams and bar models.



$$\frac{1}{2} \text{ of } 24 = 12$$

$$\frac{1}{4} \text{ of } 24 = 6$$

$$\frac{3}{4} \text{ of } 24 = 18$$

Factual knowledge

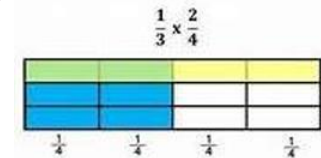
The key factual knowledge includes the recall and recognition of equivalent fractions using common multiples (generation) and common factors (simplification), recall common FDP equivalences and associate a fraction with the division equation.

0.5	50%	$\frac{1}{2}$
0.25	25%	$\frac{1}{4}$
0.1	10%	$\frac{1}{10}$
0.01	1%	$\frac{1}{100}$

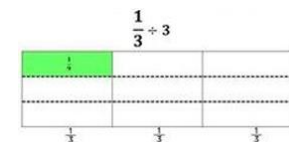
$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6}$$
$$\frac{1}{3} = \frac{2}{6} = \frac{3}{9}$$
$$\frac{1}{5} = \frac{2}{10} = \frac{3}{15}$$

Procedural knowledge

The key procedures are ordering fractions >1 , adding/subtracting fractions including mixed numbers, multiplying pairs of proper fractions, dividing fractions by an integer.



$$\frac{2}{4} \times \frac{3}{6} = \frac{6}{24}$$



$$\frac{5}{3} \div \frac{2}{9} = \frac{5}{3} \times \frac{9}{2} = \frac{45}{6} = \frac{15}{2}$$

KEY VOCABULARY: denominator, numerator, equal part, whole, equivalent, ascending, descending, unit fraction, non-unit fraction, tenth, hundredth