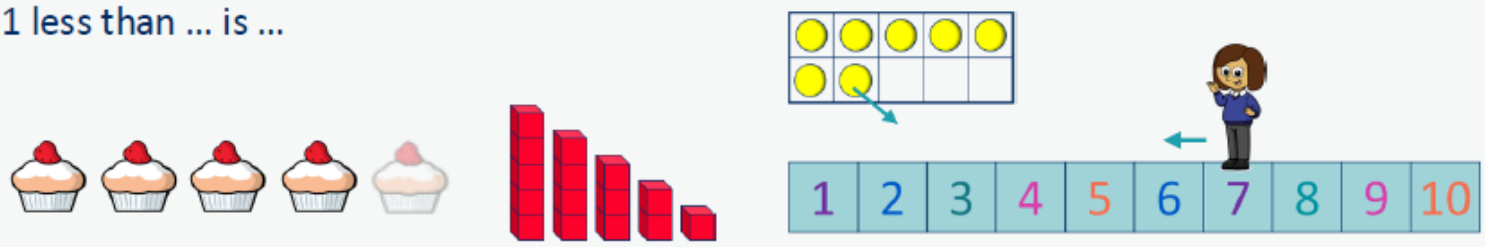
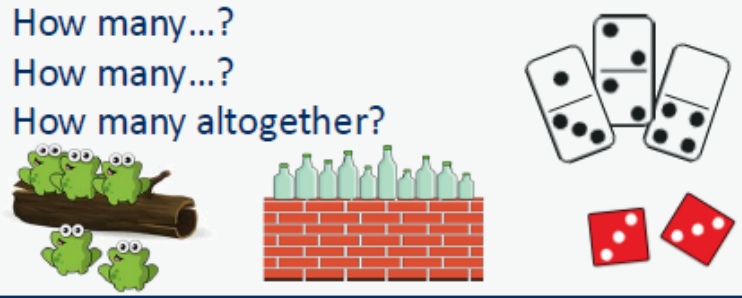
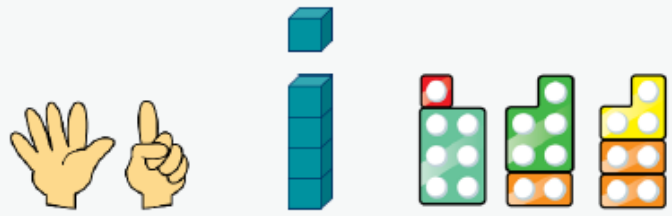
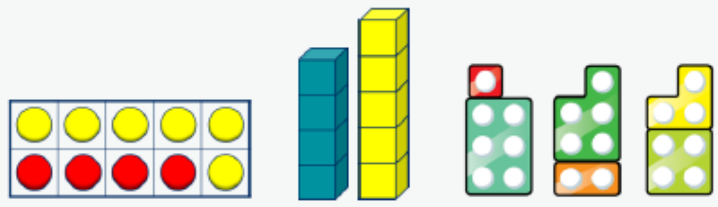
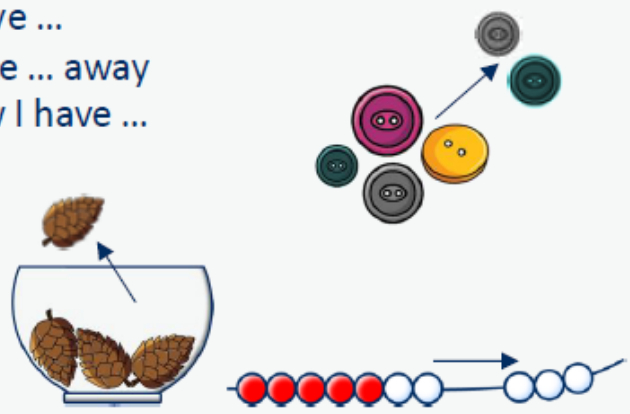
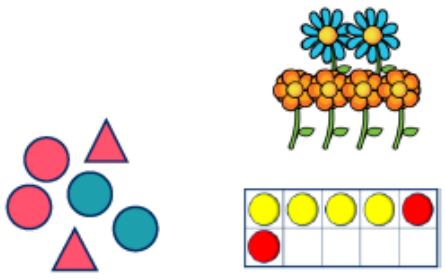
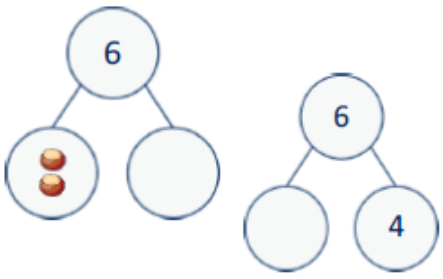
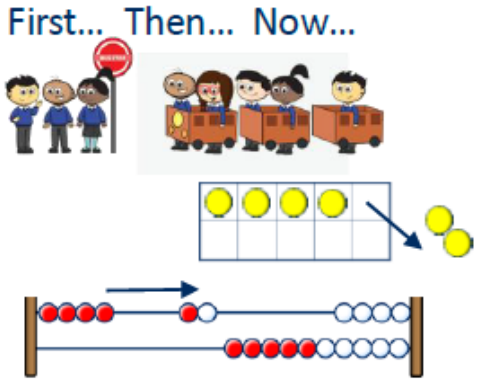
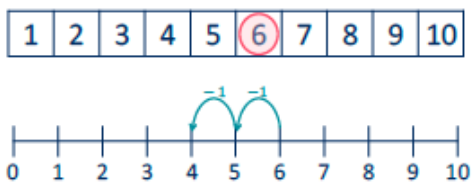
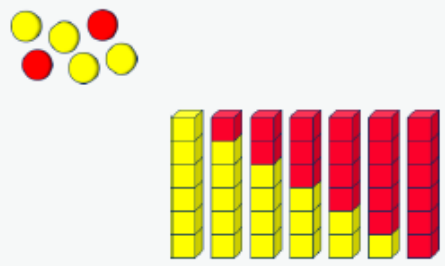
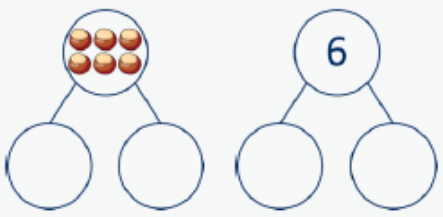
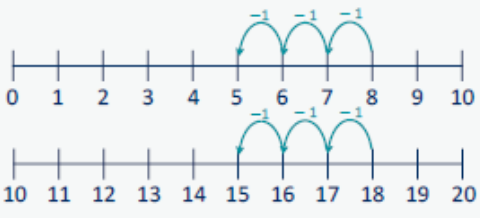
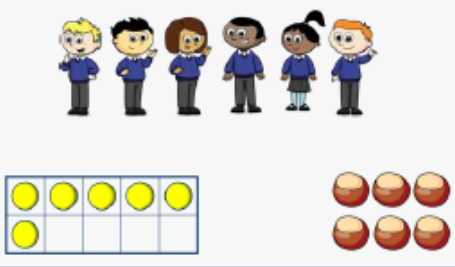
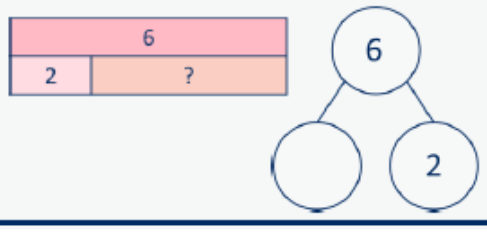
Subtraction

White Rose MATHS

Reception	• Have a deep understanding of number to 10, including the composition of each number. • Subitise (recognise quantities without counting) up to 5 • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (and some subtraction facts) and some number bonds to 10, including double facts.
Progression of skills	**Key representations**
Conceptually subitise to 5 Notice the parts that make up the whole.	What do you see? How do you see it? 
1 less Continue to link to stories, songs and rhymes.	1 less than ... is ... 
Notice the composition of numbers within 10 Link to stories, songs and rhymes.	How many...? How many...? How many altogether?  How many ways can you make...? 
Partition Using objects, explore different ways to partition a number into 2 or more parts.	There are ... altogether. I can see ... here and ... there.  ... and ... make ... 
Take away A quantity is reduced.	First... Then... Now... I have ... I take ... away Now I have ... 

Subtraction

White Rose MATHS

Year 1	• Read, write and interpret mathematical statements involving subtraction (–) and equals (=) signs. • Represent and use number bonds and related subtraction facts within 20 • Subtract one-digit and two-digit numbers to 20, including zero. • Solve one-step problems that involve subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = □ – 9		
Progression of skills	**Key representations**		
Find a part Link to number bonds and known facts. E.g. 2 + 4 = 6 so if 6 is the whole and 4 is a part, the other part must be 2	There are ... in total. ... are ... How many are **not** ...? 	... is the whole. ... is a part. ... is a part. 	... subtract ... is equal to ... ... is equal to ... – ... 6 – 2 = 4 6 – 4 = 2 4 = 6 – 2 2 = 6 – 4
Take away A quantity is decreased.	First... Then... Now... 	I start at ... I jump back ... I land on ... 	... minus ... is equal to ... ... is equal to ... – ... 6 – 2 = 4 6 – 4 = 2 4 = 6 – 2 2 = 6 – 4
Bonds within 10 Focus on subtraction facts. Encourage children to notice patterns.	... is made of ... and ... ... and ... make ... 	... can be partitioned into ... and ... 	... minus ... is equal to ... 6 – 0 = 6 6 – 1 = 5 6 – 2 = 4 6 – 3 = 3 6 – 4 = 2 6 – 5 = 1 6 – 6 = 0
Related facts within 20 Make links to known facts.	I know that ... minus ... = ... so ... minus ... = ... 	... less than ... is ... so ... less than ... is ... 	What patterns do you notice? 8 – 3 = 5 18 – 3 = 15 5 = 8 – 3 15 = 18 – 3
Missing numbers Make links to known facts.	How many do you need to subtract to make ...? 	If ... is the whole and ... is a part, the other part must be... 	... minus ... is equal to ... 6 – □ = 2 2 = 6 – □ 

Subtraction

White Rose MATHS

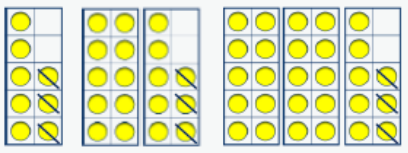
	• Recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100
	• Subtract numbers using concrete objects, pictorial representations, and mentally, including:
	  • a two-digit number and 1s
	  • a two-digit number and 10s
	  • 2 two-digit numbers
	• Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Progression of skills	**Key representations**

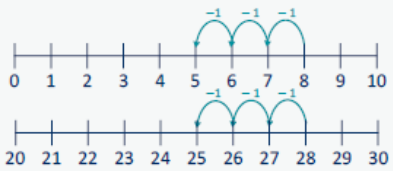
Subtract ones from any number
(related facts)

Make links to known facts.

I know that ... minus ... = ...
so ... minus ... = ...



... less than ... is ...
so ... less than ... is ...



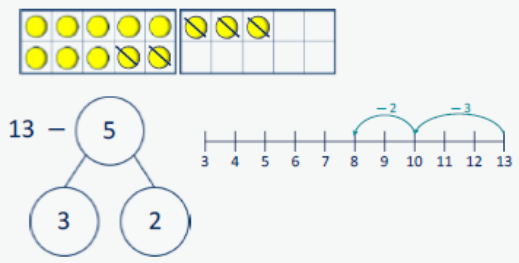
What do you notice?
Can you continue the pattern?

$8 - 3 = 5$
$18 - 3 = 15$
$28 - 3 = 25$...

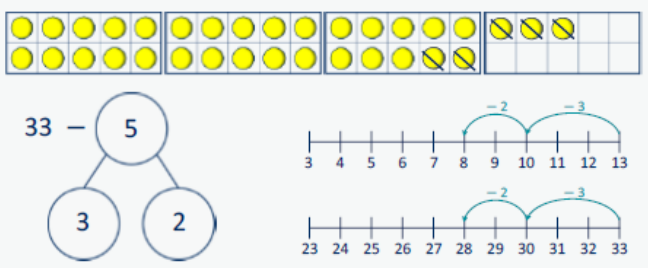
Subtract across a 10

Partition the number being subtracted to bridge through a ten.

... can be partitioned into ... and ...



Make links with related facts.



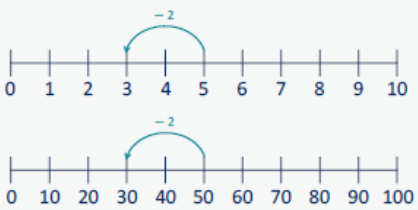
Subtract multiples of 10

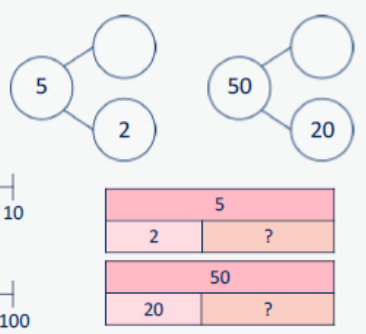
Make links to known facts within ten.

... ones − ... ones = ... ones
so ... tens − ... tens = ... tens

$5 - 2 = 3$
$50 - 20 = 30$

What is the same?
What is different?

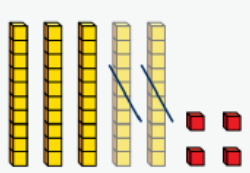




Subtract 10s from any number

Make links to known facts.

... tens − ... tens = ... tens
... tens and ... ones = ...



To subtract ... I need to subtract 10 ... times.

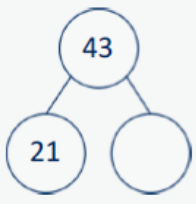
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60

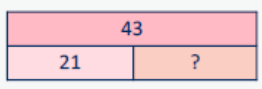
I know that ... minus ... = ...
so ... minus ... = ...

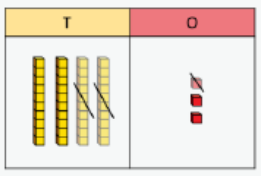
$50 - 20 = 30$
$54 - 20 = 34$

Subtract two 2-digit numbers
(not across a ten)

... ones − ... ones = ... ones
... tens − ... tens = ... tens





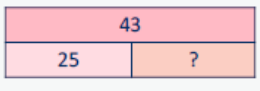


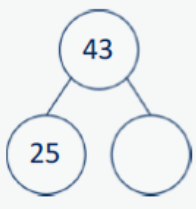
3 ones − 1 one = 2 ones
4 tens − 2 tens = 2 tens
2 tens and 2 ones = 22

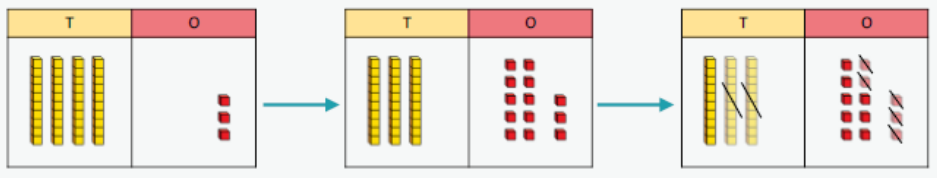
Subtract two 2-digit numbers
(across a ten)

Begin to exchange 1 ten for 10 ones.

I need to make an exchange because I do not have enough ones to subtract ... ones.







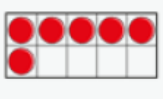
3 ones − 5 ones
(I need to exchange 1 ten for 10 ones)

13 ones − 5 ones = 8 ones
3 tens − 2 tens = 1 ten
1 ten and 8 ones = 18

Missing numbers

Solve missing number problems and use the inverse to check.

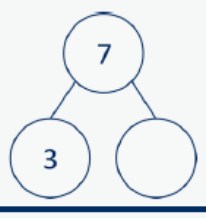
How many do you need to subtract to make ...?



$10 - \square = 6$
$6 + \square = 10$

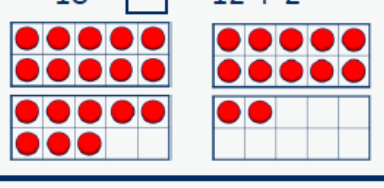
If ... is a whole and ... is a part, then ... is the other part.

$7 - 3 = \square$
$\square + 3 = 7$



... can be partitioned into ... and ...

$18 - \square = 12 + 2$



Subtraction

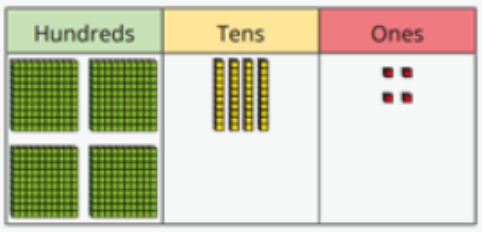
White Rose MATHS

Year 3	• Subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds. • Subtract numbers with up to three digits, using formal written methods. • Subtract fractions with the same denominator within 1 whole.
Progression of skills	**Key representations**

Subtract 1s, 10s and 100s from a 3-digit number

Emphasis on mental strategies including number bonds and related facts. Prompt children to notice which digit changes.

The ones/tens/hundreds column will decrease by ...



$444 - 2 =$
$444 - 20 =$
$444 - 200 =$

$777 - 4 =$
$777 - 40 =$
$777 - 400 =$

What patterns do you notice?

$235 - 3 =$
$235 - 30 =$
$235 - 300 =$

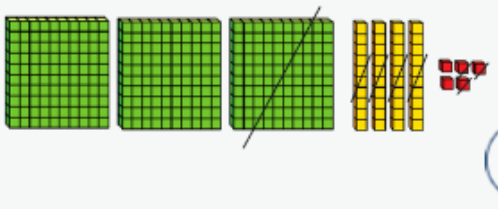
$624 - 20 =$
$654 - 50 =$
$694 - 90 =$

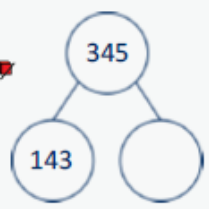
$118 - \square = 111$
$181 - \square = 111$
$811 - \square = 111$

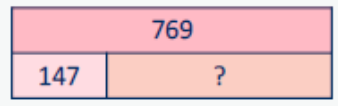
Subtract two numbers (no exchange)

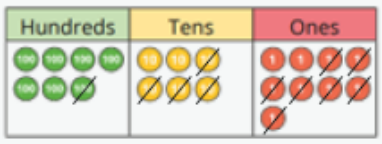
Mental strategies and introduction of formal written method.

... ones − ... ones = ... ones
... tens − ... tens = ... tens
... hundreds − ... hundreds = ... hundreds





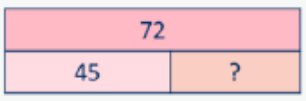


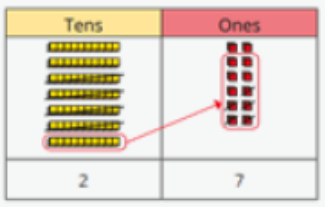


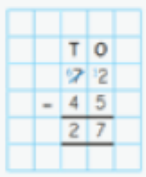
Subtract two numbers across a 10 or 100

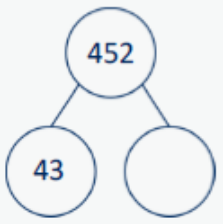
Formal written method involving up to 2 exchanges including 3-digit subtract 2-digit numbers.

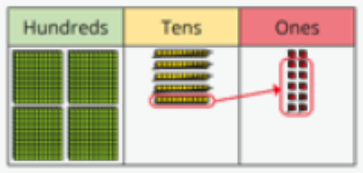
I need to subtract ... ones. I do/do not need to make an exchange.
I need to subtract ... tens. I do/do not need to make an exchange.
I can exchange 1 ... for 10 ...

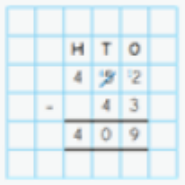










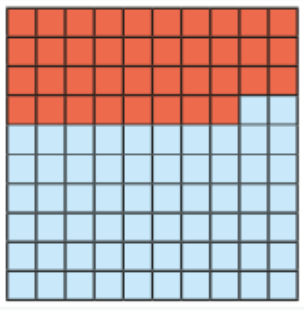


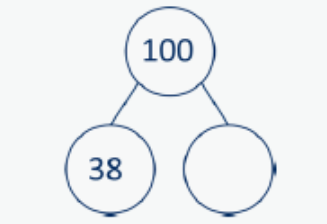
Complements to 100

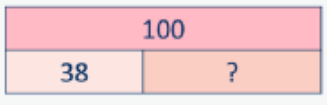
Focus on subtraction facts.

Encourage children to notice patterns.

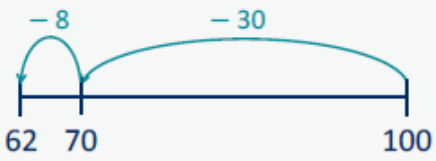
100 minus ... is equal to ...







I subtract ... tens, then I subtract ... ones.



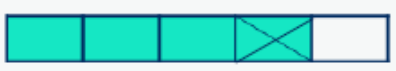
$100 - 38 = 62$
$100 - 62 = 38$
$62 = 100 - 38$
$38 = 100 - 62$

Subtract fractions with the same denominator within 1 whole

Make links with known facts.

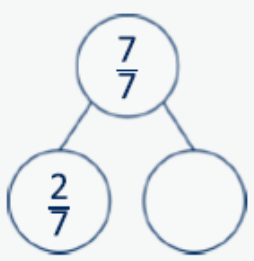
When subtracting fractions with the same denominator, I only subtract the numerator.
... fifths − ... fifths = ... fifths

$\frac{5}{5} - \frac{1}{5}$



$\frac{4}{5} - \frac{1}{5}$

$\frac{3}{5} - \frac{1}{5}$



Subtraction

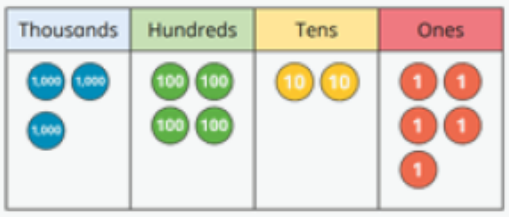
White Rose MATHS

Year 4	• Subtract numbers with up to 4 digits using a formal written method. • Solve simple measure and money problems involving fractions and decimals to 2 decimal places. • Subtract fractions with the same denominator.
Progression of skills	**Key representations**

Subtract 1s, 10s, 100s and 1,000s from a 4-digit number

Emphasis on mental strategies including number bonds and related facts. Prompt children to notice which digit changes.

The ones/tens/hundreds/thousands column will decrease by ...



3,425 − 2 =
3,425 − 20 =
3,425 − 200 =
3,425 − 2,000 =

What patterns do you notice?

4,356 − 3 =
4,356 − 30 =
4,356 − 300 =
4,356 − 3,000 =

6,940 − 200 =
6,940 − 300 =
6,940 − 400 =

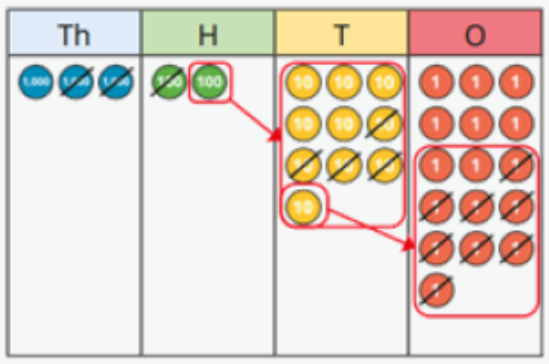
4,433 − ☐ = 4,430
4,433 − ☐ = 4,033
4,433 − ☐ = 4,403

Subtract up to two 4-digit numbers

Formal written method with up to 3 exchanges. Encourage children to estimate and use inverse operations to check answers to calculations.

I need to subtract... ones/tens/hundreds. I do/do not need to make an exchange.

I can exchange 1... for 10...



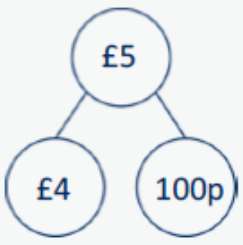
	Th	H	T	O
	3	12	9Ø	16
−	2	1	4	8
	1	0	5	8

Subtract decimal numbers in the context of money

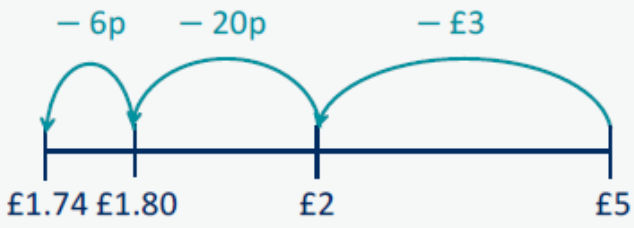
Emphasis here is on partitioning and use of number lines rather than formal written calculations.

I can partition £... into £... and 100p
£... − £... = £...
100p − ...p = ...p

£5 − £3.26
£4 − £3 = £1
100p − 26p = 74p
£5 - £3.26 = £1.74



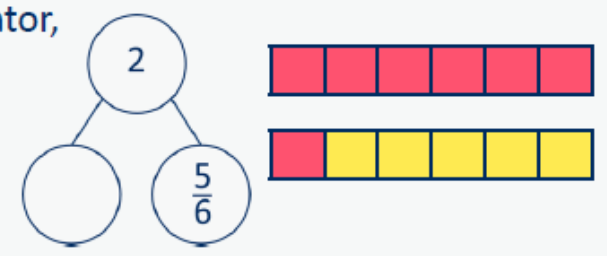
£3.26 can be partitioned into £3 + 20p + 6p

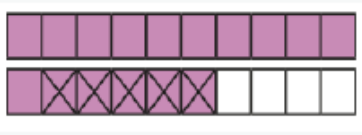


Subtract fractions and mixed numbers with the same denominator

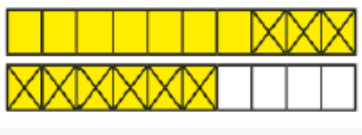
Include subtracting fractions from wholes.

When subtracting fractions with the same denominator, I only subtract the numerator.
... tenths − ... tenths = ... tenths

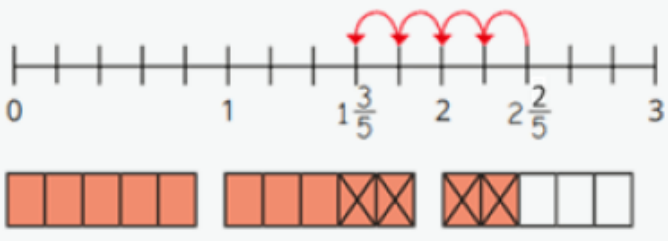




$\frac{16}{10} - \frac{5}{10}$



$\frac{16}{10} - \frac{9}{10}$



Subtraction

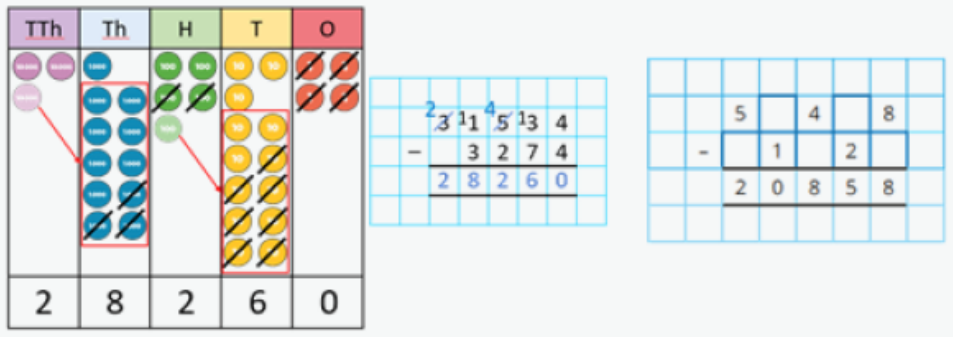
White Rose MATHS

Year 5	• Subtract whole numbers with more than 4 digits. • Subtract numbers mentally with increasingly large numbers. • Subtract decimals, including a mix of whole numbers and decimals, decimals with different numbers of decimal places, and complements of 1 • Subtract fractions with the same denominator, and denominators that are multiples of the same number.
Progression of skills	**Key representations**

Subtract whole numbers with more than 4 digits

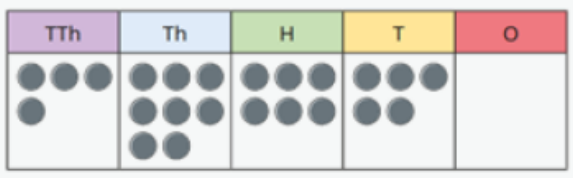
Encourage children to estimate and use inverse operations to check answers to calculations.

I can exchange 1 ... for 10 ...



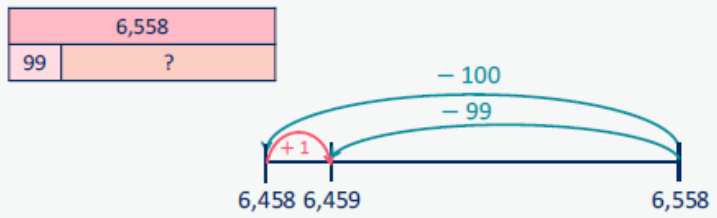
Subtract using mental strategies

Subtract 1s, 10s, 100s etc from any number.
Use number bonds and related facts.



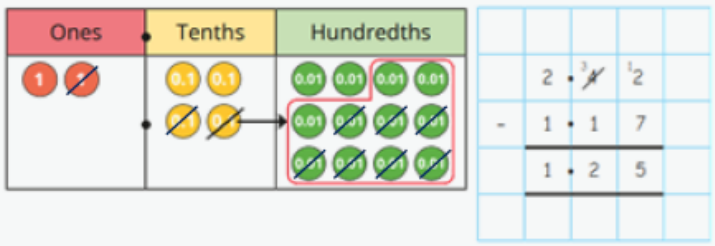
48,650 – 300 =
48,650 – 30,000 =
48,650 – 30 =

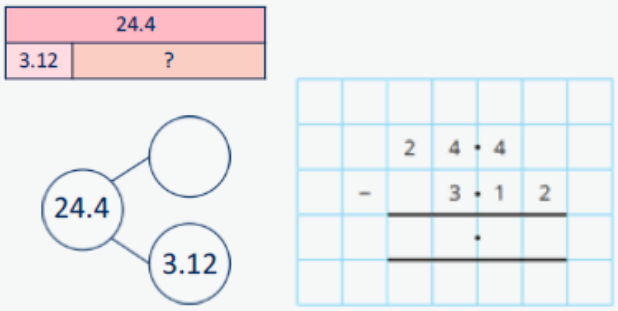
To subtract ..., I can subtract ... then add ...



Subtract decimals with up to 2 decimal places

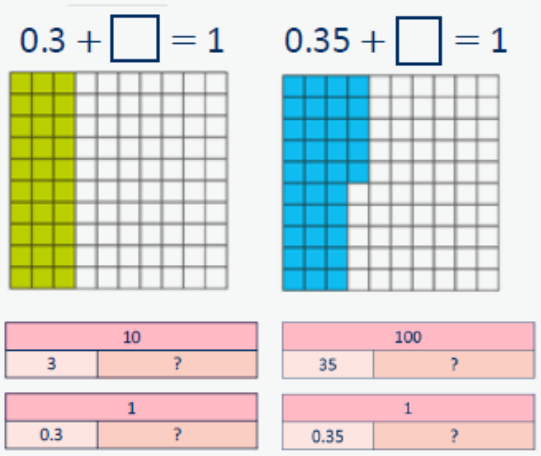
Progress from the same number of decimal places to a different number of decimal places and from no exchange to exchange.





Complements to 1

Encourage children to make links with bonds to 10 and complements to 100 and 1,000 when finding a missing part or subtracting from 1



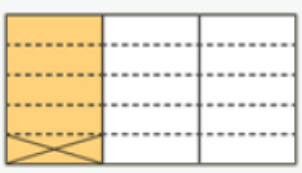
10 – 4 = 6
100 – 44 = 56
1,000 – 444 = 556

1 – 0.4 = 0.6
1 – 0.44 = 0.56
1 – 0.444 = 0.556

Subtract fractions with denominators that are a multiple of one another

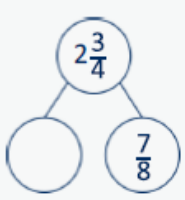
Convert fractions to the same denominator before subtracting. Progress from subtracting fractions within 1 whole to subtracting from a mixed number.

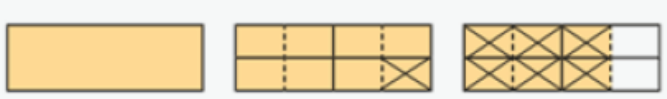
The denominator has been multiplied by ..., so the numerator needs to be multiplied by... for the fractions to be equivalent.



$\frac{1}{3} - \frac{1}{15} = \frac{5}{15} - \frac{1}{15} = \frac{4}{15}$

$\frac{2}{3} - \frac{2}{9} = \frac{6}{9} - \frac{2}{9} = \frac{4}{9}$





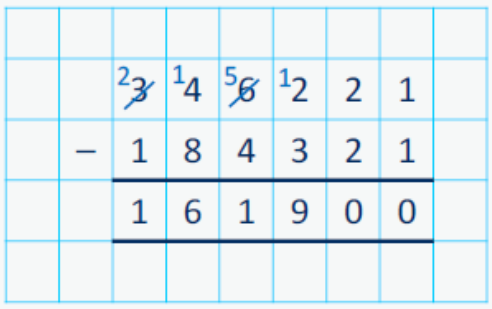
Subtraction

White Rose MATHS

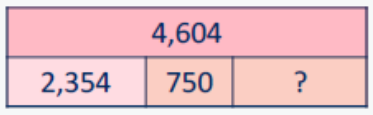
Year 6	• Subtract larger numbers, using the formal written methods of columnar subtraction. • Use their knowledge of the order of operations to carry out calculations involving the 4 operations. • Calculate intervals across zero. • Subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.
Progression of skills	**Key representations**

Subtract integers up to 10 million

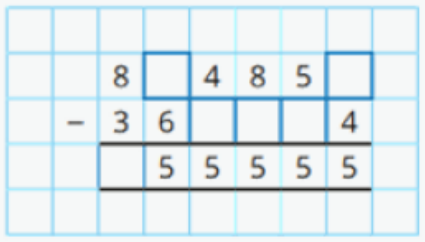
Encourage children to estimate and use inverse operations to check answers to calculations.



		$^{2}\not{3}$	$^{1}4$	$^{5}\not{6}$	$^{1}2$	2	1
	−	1	8	4	3	2	1
		1	6	1	9	0	0



4,604		
2,354	750	?

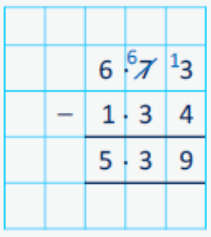


		8		4	8	5	
	−	3	6				4
			5	5	5	5	5

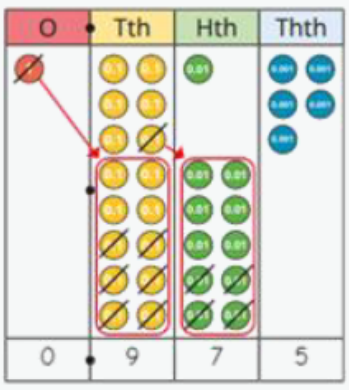
Subtract decimals with up to 3 decimal places

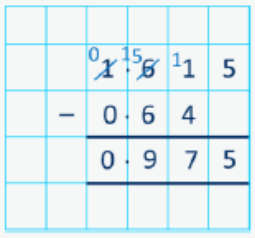
Progress from the same number of decimal and whole number places to a different number of decimal and whole number places.

I do/do not need to make an exchange because …



		6 · $^{6}\not{7}$	^{1}3	
	−	1 · 3	4	
		5 · 3	9	



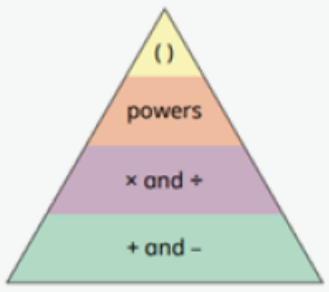


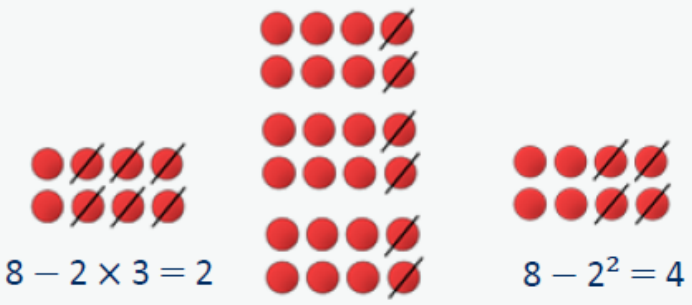
		$^{0}\not{1}$ · $^{15}\not{6}$	^{1}1	5	
	−	0 · 6	4		
		0 · 9	7	5	

Order of operations

Children learn the order of priority for operations in a calculation. Calculations in brackets should be done first. Multiplication and division should be performed before addition and subtraction.

… has greater priority than … , so the first part of the calculation I need to do is …





$8 - 2 \times 3 = 2$

$(8 - 2) \times 3 = 18$

$8 - 2^2 = 4$

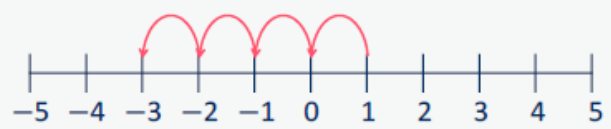
Negative numbers

Children subtract from positive and negative numbers and calculate intervals across 0

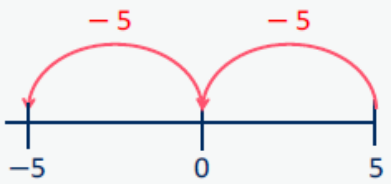
… minus … is equal to …

$-1 - 4 = -5$

$1 - 4 = -3$



The difference between −5 and −1 is 4

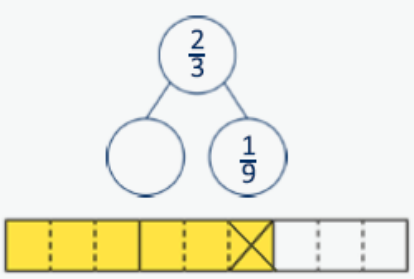


The difference between 5 and −5 is 10

Subtract fractions

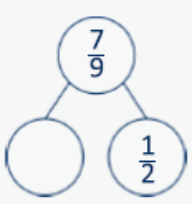
Convert fractions to the same denominator before subtracting. Progress from fractions where one denominator is a multiple of the other, to any fractions and then subtracting from a mixed number.

The denominator has been multiplied by … , so the numerator needs to be multiplied by…



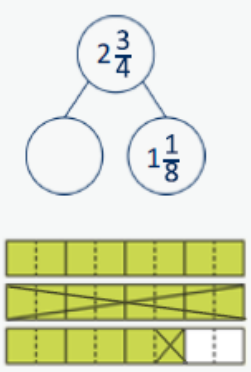
$\frac{2}{3} - \frac{1}{9} = \frac{6}{9} - \frac{1}{9} = \frac{5}{9}$

The lowest common multiple of … and … is …



$\frac{7}{9} - \frac{1}{2} = \frac{14}{18} - \frac{9}{18} = \frac{5}{18}$

… is made up of … wholes and …



$2\frac{3}{4} - 1\frac{1}{8} = 1\frac{5}{8}$