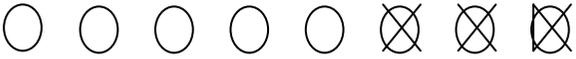


Hillside Primary Calculation Policy: SUBTRACTION



FS	Calculating strand: SUBTRACTION		Y1 MUST
SHOULD End of year expectations	<p>Begin to relate subtraction to 'taking away' (FS)</p> <p>In practical activities and discussion begin to use the vocabulary involved in subtracting (FS)</p> <p>Say which number is one less than a given number</p>		
<p style="text-align: center;">methods</p>		<p style="text-align: center;">Vocabulary</p>	
<p>Solve simple subtraction problems. Use pictorial representation, bead strings, number tracks and fully marked & fully numbered number lines to support calculations. See examples of strategies below; (this is not an exhaustive list.) Model number sentences using the signs + - =.</p> <p><u>Drawing objects and crossing out, counting back</u></p> <p>There were 8 cakes on a plate. Mary ate 3 of them. How many were <u>left</u>? $8 - 3 = 5$</p> <div style="text-align: center;">  </div>		<p>Add, more, and, make, sum, total, altogether, score, double, one more, two more, ten more... how many more to make... ? how many more is... than...? take (away) leave, how many are left/left over? how many have gone? one less, two less... ten less... how many fewer is... than...? difference between, is the same as</p>	
<p>22 - 36 Months</p> <p>Begin to make comparisons between quantities</p> <p>Use the language of quantity such as more and a lot</p> <p>Knows that a group of things changes in quantity when something is taken away</p>		<p style="text-align: center;">Test Questions</p>	
<p>30 - 50 Months</p> <p>Show an interest in number problems</p> <p>Compare two groups of objects, saying when they have the same number</p>		<p>There are four cups on the table. Put two more cups on the table. How many cups altogether are on the table now?</p> <hr/>	<p>Find all the dominoes that have a total of six spots.</p> <hr/>
<p>40 - 60 + Months</p> <p>In practical activities, begin to use the vocabulary involved in subtracting</p> <p>Begins to identify own mathematical problems based on own interests and fascinations</p> <p>Use language such as 'more' or 'fewer' to compare two numbers</p>		<p>There are nine biscuits on this plate. Take three of the biscuits to eat. How many biscuits are left on the plate?</p> <hr/>	<p>Count 5 small toys into this cloth bag. How many objects in the bag? Now count 2 more small toys into the bag. How many small toys in the bag now?</p> <hr/>
<p>Early Learning goals</p> <p>Say which number that is one less than a given number.</p> <p>Using quantities and objects they add or subtract single digit numbers and count on or back to find the answer</p>		<p>[Count 5 pennies into a purse and shut it. Show 2 more pennies in your hand.] How many pennies are there altogether?</p> <hr/>	<p>Show me 5 fingers on one hand. Show me 2 fingers on the other hand. How many fingers altogether?</p> <hr/>
		<p>We have four easels. There are seven children who want to paint. How many more easels do we need?</p> <hr/>	<p>I have hidden two cubes in this box. There are three cubes on the table. How many cubes are there altogether?</p> <hr/>
		<p>Hop three spaces on this number track. Now hop two more. Where are you now?</p> <hr/>	<p>There are six toys in a box. I take away three of the toys. How many toys are left in the box?</p> <hr/>
		<p>Start with two. Hold it in your head. Count on to five.</p> <hr/>	<p>How many grey rabbits are there? How many white rabbits are there? How many rabbits are there altogether?</p>
		<p>I have two toys in a box. I add four more toys to the box. How many toys are there in the box now?</p> <hr/>	<div style="text-align: center;">  </div>
		<p>John has four books. Lisa has one book. How many more books has John than Lisa?</p> <hr/>	<p>What is the difference between the number of grey rabbits and the number of</p>

Year 1

Number: SUBTRACTION

FS COULD / Y2 MUST

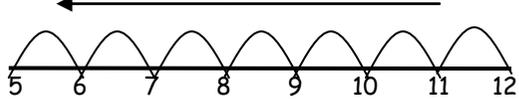
SHOULD

- Read, write and interpret mathematical statements involving subtraction (-) and equals (=)
- Represent and use subtraction facts within 20
- Subtract one digit and two digit numbers to 20 including zero
- Solve one step problems involving subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$

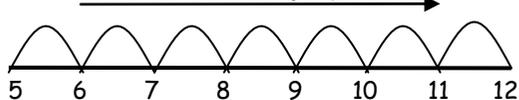
Written Methods

Use a marked, partially marked or empty number line to **count back** (take away) or to **count on** (find the difference) and record number sentences.

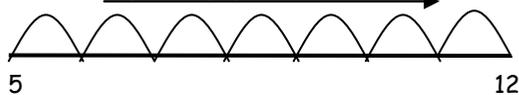
12 - 7 (counting back) - marked line - when multiple of 10 - counting back the answer is the number 'landed' on (5)



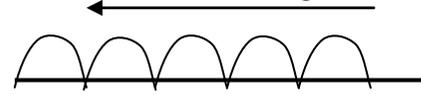
What is the difference between 5 and 12? (counting up) - marked line - when counting on, the answer is the number of 'jumps' (7)



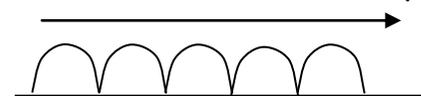
What is the difference between 5 and 12? (counting up) - empty line



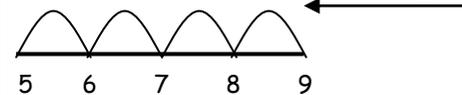
Children need to begin to understand when it is sensible to count back e.g. $18 - 5$



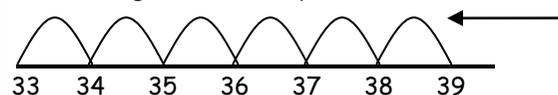
And when it is sensible to count up e.g. $18 - 13$



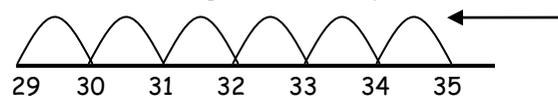
1-digit number - 1-digit number e.g. $9 - 4 = 5$



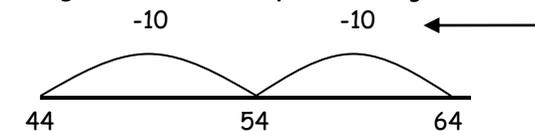
2-digit number - 1-digit number e.g. $39 - 6 = 33$
not crossing tens boundary



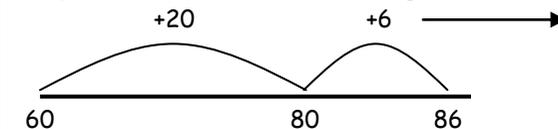
2-digit number - 1-digit number e.g. $35 - 6 = 29$
extend to crossing tens boundary



2-digit number - multiple of 10 e.g. $64 - 20 = 44$



2 digit number - multiple of 10 e.g. $86 - 60 = 26$



Be able to complete number sentences where a missing number is shown by a symbol eg.
 $6 - 2 = \Delta$ $\Delta = 6 - 2$ $6 - \Delta = 4$

Vocabulary

problem, solution, calculate, calculation, number sentence, answer, method, explain, money, coin, pence, penny, pound, pay, change, buy, sell, price, spend how many more to make...? how many more is... than...? **how much more is...?** -, **subtract**, take (away), **minus**, leave, how many are left/left over? how many are gone? one less, two less, ten less... how many fewer is... than...? **how much less is...?** difference between **half, halve =, equals, sign,** is the same as

Test Questions

I'm giving each of you two number cards [from 0 to 5].

What is the difference between your two numbers? KS1 1999 level 1 [oral, adapted]

15 ducks are on the pond. 11 of them go away. How many are left? KS1 1999 level 2c

What is the difference between twelve and sixteen? KS1 1998 level 2b [oral]

What is left if five is subtracted from twelve? Y4 optional test Mental test level 2

Work out the difference between 80 and 20. KS1 2000 level 2a [adapted]

Find the answer. $72 - 8 =$ KS1 1999 level 2c

Write the answer. $65 - 40 =$ KS1 1998 level 2c [adapted]

Look at the numbers. 15 7 16 8
Use two of these numbers to make this correct. $\square - \square = 7$

KS1 2004 level 2c

Write a number in the box to make this correct.

$16 - \square = 10$

KS1 2000 level 2c

Write the answer.

$25 - 12 =$

KS1 2005 level 2c

Match each subtraction to its answer.

$16 - 6$	<input type="checkbox"/> 8
$15 - 10$	<input type="checkbox"/> 9
$19 - 11$	<input type="checkbox"/> 13
$18 - 9$	<input type="checkbox"/> 10
	<input type="checkbox"/> 5

KS1 1999 level 2c

Year 2

Number: SUBTRACTION

Y1 COULD / Y3 MUST

SHOULD

- Solve problems with subtraction using concrete and pictorial representations, including those involving numbers, quantities and measures
- Apply increasing knowledge of mental and written methods
- Recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100
- Subtract two-digit numbers and ones
- Subtract two digit numbers and tens
- Subtract two two-digit numbers
- Show that subtraction cannot be done in any order
- Recognise the inverse relationship between addition and subtraction and use to check calculations and solve missing number problems

Written Methods

Explain mental methods and reasoning orally e.g.

- 85 - 7 'I subtracted 5 from 85 to get 80, then I took away 2 and I got 78.'
- 45 - 9 'I subtracted 10 from 45 which was 35 -that was too much so then added 1 to get 36'
- 63 - 20 'I counted back in tens -63 take away 10 is 53 - take away another 10 is 43.'
- 84 - 60 'I counted up from 60 to 84. 60 and 20 is 80 and 4 more is 84.'

Recognise the use of symbols such as \square or ∇ to stand for unknown numbers or signs and complete number sentences.

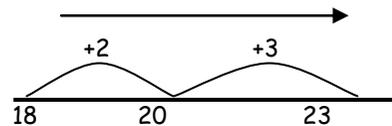
$13 - \Delta = 9$ $\Delta - 4 = 9$ $\Delta - \diamond = 9$
 Extend to: $13 + 5 = \Delta - 10$, $24 \square 2 \square 22$

For mental calculations children need to understand when it is sensible (more efficient) to count back and when to count up e.g.

- 93 - 5 (count back)
- 93 - 88 (count up)

2-digit number - 2-digit number

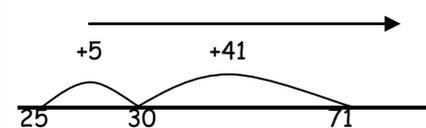
Bridge through a multiple of 10 e.g. $23 - 18 = 5$ (counting up)



Develop into crossing 10s e.g. $71 - 25$ (counting up)



Reduce the number of steps by combining steps



Where children are ready, recording in columns will support place value and prepare for formal written methods with larger numbers

$$\begin{array}{r} \text{TU} \\ 39 \\ - 7 \\ \hline 32 \end{array}$$

Vocabulary

calculate, calculation, inverse, answer, explain, method, sign, operation, symbol, number sentence, number line, mental calculation, written calculation, informal method, jottings, diagrams, pictures, images

how many more to make...? how many more is... than...? how much more is...? -, subtract, take away minus leave how many are left/left over? one less, two less... ten less... **one hundred less**, how many less is... than...?

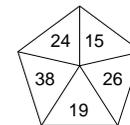
how much fewer is...? difference between, half, halve =, equals, sign, is the same as, **tens boundary**

Test Questions

Find the answer. $72 - 8 =$
 KS1 1999 level 2c

Write the answer. $30 - 15 =$
 KS1 2003 level 2b

Tick (✓) the two numbers which total 50.
 KS1 2002 level 2a



Write the answer $79 - 34 =$
 KS1 1996 level 2a

Write the answer. $82 - 45 =$
 KS1 2004 level 3

Write the answer. $63 - 37 =$
 KS1 2002 level 3

Work out the difference between 46 and 18.
 KS1 2000 level 3

What is twenty-seven subtract nine?
 Y3 optional test 2003 Mental test level 3

Write numbers in the boxes to make this correct. $13 + \square + \square = 23$
 KS1 2005 level 2c

Look at these signs. + x - =
 Use one of the signs to make this correct.
 $9 \square 2 = 11$

Now use the signs to make this one correct. $14 \square 2 \square 12$
 KS1 1997 level 2c

Write the number which is 11 less than 40. KS1 2004 level 2a

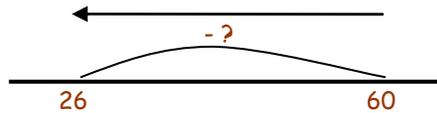
Year 3	Number: SUBTRACTION		Y2 COULD / Y4 MUST
SHOULD End of year expectations	Subtract mentally using A three-digit number and ones A three-digit number and tens A three digit number and hundreds Subtract numbers with up to three digits, using formal methods of column subtraction Estimate the answer to a question and use the inverse to check Solve problems using number facts and more complex subtraction		
<u>Written Methods</u>			<u>Vocabulary</u> problem, solution, calculate, calculation, inverse, answer, method, explain, predict, estimate, reason, operation, symbol, number sentence, equation, mental calculation, written calculation, informal method, jottings, number line, pound (£), penny/pence (p), note, coin, units of measurement and their abbreviations how many more to make ...? how many more is... than ...? how much more is...? -, subtract, take (away), minus, leave, how many are left/left over? one less, two less... ten less... one hundred less, how many fewer is... than ...? how much less is...? difference between half, halve =, equals, sign, is the same as tens boundary, hundreds boundary
<u>Explain mental methods and reasoning orally</u> <ul style="list-style-type: none"> 45 - 9 'I subtracted 10 from 45 which was 35 -that was too much so then added 1 and got 36.' 70 - 32 'I counted back in tens -70 take away 10 is 60 - take away another 10 is 50 less another 10 is 40, then take away 2 to make 38.' 32 - 14 'I took away 10 from 32 to make 22 then I took 2 away to make 20 and another 2 to make 18.' Recognise the use of symbols such as □ or ▽ to	During year3 children should be introduced to the formal written method for subtraction Begin with calculations which have no need for exchange $\begin{array}{r} 245 \\ -132 \\ \hline 113 \end{array}$ 874	<u>Test Questions</u>	

stand for unknown numbers or signs and complete number sentences.

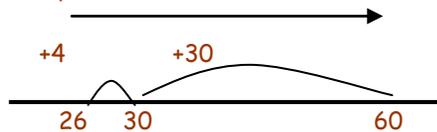
$$36 - 17 = \Delta \quad \Delta - 15 = 19 \quad \Delta - \diamond = 19$$

$$20 - \Delta - \diamond = 5 \quad 60 - \square = 26$$

Use the number line as a model to support empty box questions e.g. $60 - \square = 26$



60, take away what number (?) makes 26...
Recognise the step (?) as the **difference** ...
Count up from 26 to 60 to find the difference



$$60 - \boxed{34} = 26$$

$$\begin{array}{r} - 523 \\ 351 \\ \hline \end{array}$$

What is twenty-seven subtract nine?
Y5 optional test 2003 Mental test level 3

Subtract thirty-two from seventy.
KS2 2004 Mental test level 3

The difference between a number and twenty-nine is ten. What could the number be? KS2 1998 Mental test level 3

In a class there are thirty-two children. If there are twenty-three girls, how many boys are there?

Y4 optional test 1998 Mental test level 3

In a class of thirty-two children, fourteen walked to school and the rest came by bus. How many came by bus? Y4 optional test 1999 Mental test level 3

30	40	
		50
20	40	20

Each side of this square must add up to 80. Write in the missing numbers. KS2 1998 Paper A level 3

Write in the missing numbers.
 $60 - \square = 26$

KS2 1996 Paper A level 3

Write the answer. $176 - 49 =$
KS1 2003 level 3

Write in the missing number.
 $120 - 51 = \square$
KS2 2004 Paper A level 3

Work out the difference between 147 and 205.

Write the answer in the box.
KS1 2005 level 3

Calculate $309 - 198$.
KS2 2003 Paper A level 3

Year 4

Number: SUBTRACTION

Y3 COULD / Y5 MUST

SHOULD
End of year expectations in bold

- Subtract numbers with up to 4 digits using the formal written method of columnar subtraction
- Estimate and use the inverse to check answers
- Solve 2 step subtraction problems in contexts, deciding which operations and methods to use and why.

Written Methods

Explain mental methods and reasoning orally

- 41 - 17 'I subtracted 20 from 41 which was 21 and added on 3 to get 24, because I know the difference between 20 and 17 is 3. I checked my answer using the inverse operation 17 plus 24 is 41.'
- 91 - 35 'I counted on from 35 to 40 which was 5. I counted up from 40 to 91 which was 51. I added 5 and 51 to make 56. I checked by adding 56 and 35 which was 91.'
- Jenny thought of a number. She doubled it and then added four. The answer was eighty-

The formal method should be used by the great majority of children by now

$$\begin{array}{r} 8 \quad 12 \quad 1 \\ 9 \quad 3 \quad 2 \\ -4 \quad 5 \quad 7 \\ \hline 4 \quad 7 \quad 5 \end{array}$$

See appendix p 46 to programme of study

The number line may be used to find the difference in the context of time e.g.

Vocabulary

calculate, calculation, equation, operation, symbol, inverse, answer, method, explain, predict, reason, reasoning, pattern, relationship, decimal, decimal point, decimal place, pound (£), penny/pence (p), units of measurement and abbreviations, degrees Celsius
how many more to make...? subtract, subtraction, take away, minus, decrease, leave, how many are left/left over? difference, between, half, halve, how many more/fewer is... than...? how much more/less is...? is the same as, equals, sign, tens boundary, hundreds boundary, inverse

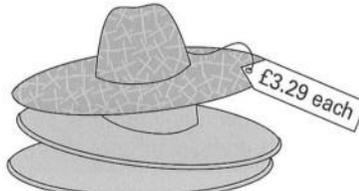
Test Questions

<p>eight. Which number did she think of? I took 4 from 88 to get 84 because subtracting is the inverse of adding. I then halved 84 to get 42, because halving is the inverse of doubling. I checked my answer by doubling 42 to get 84 then adding 4 to get 88.'</p>	<p>Mark got into the pool at 3.30 pm. He was in the pool for 40 minutes. At what time did he get out?</p> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-right: 20px;">3:30</div> <div style="border: 1px solid black; padding: 5px; display: inline-block;">:</div> </div> <p>KS1 1996 level 3</p> <div style="text-align: center;"> <p>3.30pm 4:00pm 4:10pm</p> <p>ensure units of time accompany each step (hr/min)</p> </div>	<p>How many less than forty-one is seventeen? Y4 optional test 2003 Mental test level 3</p> <hr/> <p>Jenny thought of a number. She doubled it and then added four. The answer was eighty-eight. Which number did she think of? KS2 2002 Mental test level 4</p> <hr/> <p>Subtract one hundred and five from two hundred. KS2 2004 Mental test level 3</p> <hr/> <p>Calculate the difference between five hundred and two hundred and thirty. KS2 2000 Mental test level 4</p> <hr/> <p>Calculate 309 -198. KS2 2003 Paper A level 3</p>	<p>Calculate 137 - 65. Y5 optional test 2003 Paper A level 3</p> <hr/> <p>Calculate 438 - 296. KS2 1999 Paper A level 4</p> <hr/> <p>Calculate 808 - 512. KS2 1998 Paper A level 4</p> <hr style="border-top: 1px dashed black;"/> <div style="text-align: center;"> </div> <p>A shop sells three types of sunglasses. What is the difference in price between the most expensive and least expensive sunglasses? KS2 2004 paper A Level 4</p>
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Year 5	Number: SUBTRACTION	Y4 COULD / Y6 MUST
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- | | |
|--|--|
| SHOULD
End of year expectations in bold | <ul style="list-style-type: none"> • Subtract whole numbers with more than 4 digits, including using formal columnar subtraction • Subtract numbers mentally with increasingly large numbers • Use rounding to check answers and to determine, in the context of a problem, the level of accuracy • Solve subtraction multistep problems and decide on operation and method to use and why |
|--|--|

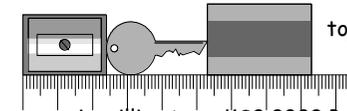
<u>Written Methods</u>		<u>Vocabulary</u>
<p><u>Explain mental methods and reasoning orally</u></p> <ul style="list-style-type: none"> • 4003 - 1994 'I counted on from 1994 to 2000, which was 6. I counted up from 2000 to 4003 which was 2003. I then added 6 to 2003 to make 2009. I checked by adding 2009 and 1994 so 2000 add 1994 is 3994 add 9 is 4003.' • 638 - 299 'I took 300 from 638 to get 338 then I added on 1 to get 339.' To check my answer I need to add 299 and 339...339 plus 300 is 639, minus 1 is 638.' • 6070 - 4097 'I added 3 to 4097 to make 4100 then added 1900 to make 6000 and 70 more makes 6070, so 1900 plus 70 plus 3 is 1973. I 	<p>The formal method should continue to be used by the great majority of children by now</p> <div style="text-align: center;"> $\begin{array}{r} 8 \quad 12 \quad 1 \\ 9 \quad 3 \quad 2 \\ -4 \quad 5 \quad 7 \\ \hline 4 \quad 7 \quad 5 \end{array}$ </div> <p>See appendix p 46 to programme of study</p>	<p>calculate, calculation, equation, operation, symbol, inverse, answer, method, strategy, explain, predict, reason, reasoning, pattern, relationship, decimal, decimal point, decimal place, estimate, approximate, pound (£), penny/pence (p), units of measurement and abbreviations, degrees Celsius</p> <p>how many more to make...? subtract, subtraction, take (away) minus, decrease, leave, how many are left/left over? difference between, half, halve, how many more/fewer is... than...? how much more/less is...? equals, sign, is the same as, tens boundary, hundreds boundary, units boundary, tenths boundary, inverse,</p>
<u>Test Questions</u>		

<p>can check by using the inverse operation, 1973 add 4097 I can add 4100 to 1973 to make 6073, then subtract 3 to make 6070.'</p>		<p>What number is two less than nine hundred and one? Y4 optional test 2003 Mental test level 3</p> <hr/> <p>What number is one hundred and ninety-nine more than four hundred and twenty-eight. Y5 optional test 2003 Mental test level 4</p> <hr/> <p>What is one thousand minus one hundred and ten? KS2 2004 Mental test level 3</p> <hr/> <p>What is three thousand subtract ten? Y5 optional test 1998 Mental test level 3</p> <hr/> <p>What is the difference between one thousand nine hundred and ninety-four and four thousand and three? Y5 optional test 2003 Mental test level 4</p>	<p>Calculate $1025 - 336$. KS2 2001 Paper A level 4</p> <hr/> <p>Calculate $6247 - 2752$. Y5 optional test 2003 Paper A level 4</p> <hr/> <p>Calculate $13.6 - 2.8$ KS2 2004 Paper A level 4</p> <hr/> <p>A shop sells sun hats.</p>  <p>Ryan buys some sunglasses for £4.69 and a sun hat. How much change does he get from £10? KS2 2004 Paper A level 4</p>
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Year 6	Number: SUBTRACTION	Y5 COULD
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- | | |
|---|---|
| <p>SHOULD
End of year expectations in bold</p> | <ul style="list-style-type: none"> Perform mental calculations, including with mixed operations and large numbers Use knowledge of the order of operations to carry out calculations involving the four operations Solve multistep problems in contexts, deciding which operation and methods to use and why |
|---|---|

<u>Written Methods</u>		<u>Vocabulary</u>
<p><u>Explain mental methods and reasoning orally</u></p> <ul style="list-style-type: none"> 4003 - 1994, 638 - 299, 6070 - 4097 'see Y5 for explanations of mental methods for these calculations.' 2.7 - 1.9, 'I added 0.1 to 1.9 to make 2.0, then I added 0.7 to 2.0 to make 2.7. I added together 0.1 and 0.7 to find the difference which was 0.8. I checked using the inverse of subtraction, which is addition. 0.8 plus 1.9 equals 2.7.' 6 - 0.75, I know that 0.25 and 0.75 make 1 so 	<p>The test questions on the right refer to the objectives above; however, pupils will also be required to solve both mental and written subtraction calculations in a range of contexts and using negative numbers. E.g.</p> <p>The temperature starts at four degrees and <u>goes down</u> by ten degrees. What is the temperature now? Y5 optional test 1998 Mental test level 4</p> <hr/> <p>The temperature in York is 4°C. Rome is 7 degrees <u>colder</u> than York. What is the temperature in Rome?</p>	<p>calculate, calculation, equation, operation, symbol, inverse, answer, method, strategy, explain, predict, reason, reasoning, pattern, relationship, decimal, decimal point, decimal place, estimate, approximate, pound (£), penny/pence (p), units of measurement and abbreviations, degrees Celsius</p> <p>how many more to make...? subtract, subtraction, take (away) minus, decrease, leave, how many are left/left over? difference between, half, halve, how many more/ fewer is... than...? how much more/less is...? equals, sign, is the same as, tens boundary, hundreds boundary, units boundary, tenths boundary, inverse,</p>
<u>Test Questions</u>		

<p>5.25 plus 0.75 equals 6, so the difference between 0.75 and 6 must be 5.25.'</p> <ul style="list-style-type: none"> Children are required to mentally calculate multi-step problems involving subtraction: A packet of crisps costs thirty-two pence. Josh buys three packets. How much change does he get from one pound? 'Three lots of thirty are ninety and three twos are six. Ninety plus six is ninety six. The difference between ninety six pence and one pound is four pence.' 	<p>KS2 2000 Paper A level 4 Note the use of the word 'colder' here to indicate a decrease in temperature, compared to 'goes down' in the previous question.</p> <hr/> <p>Megan makes a sequence of numbers starting with 100. She subtracts 45 each time. Write the next two numbers in the sequence. 100 55 10 <input type="checkbox"/> <input type="checkbox"/></p> <p>KS2 1999 Paper A level 5 Here the subtraction extends to negative numbers for both parts of the answer. Pupils are required to subtract an integer from a positive number where the answer is negative and also to subtract an integer from a negative number, where the answer is obviously negative.</p> <hr/> <p>Circle two numbers which have a difference of 2 -1 -0.5 0 0.5 1 1.5</p> <p>KS2 2001 Paper B level 4 Note the question does not ask 1 - 2 or 1.5 - 2.</p> <hr/> <p>Here are a pencil sharpener, a key and a rubber. What is the length of all three things together? Give your answer in millimetres. What is the length of the key? Give your answer in millimetres.</p>  <p>KS2 2002 Paper A level 4</p>	<p>Subtract one point nine from two point seven. KS2 2003 Mental test level 4</p> <hr/> <p>Subtract nought point seven five from six. KS3 2003 Mental test level 4</p> <hr/> <p>In a café I buy two cups of coffee and a sandwich. Altogether I pay three pounds. The sandwich costs one pound sixty. What is the cost of one cup of coffee? Y7 progress test 2003 Mental test level 3</p> <hr/> <p>A packet of crisps costs thirty-two pence. Josh buys three packets. How much change does he get from one pound? KS2 2005 Mental test level 4</p> <hr/> <p>A magazine costs one pound forty pence. I buy two of them and pay with a five pound note. How much change should I get? KS3 2003 Mental test level 4</p>	<p>Calculate 15.05 - 14.84. KS2 2002 Paper A level 5</p> <hr/> <p>Calculate 8.6 - 3.75. KS2 2000 paper A level 5</p> <hr/> <p>In the chart any three numbers in a line, across or down, have a total of 18.45. Write the missing number.</p> <table border="1" data-bbox="1859 351 2139 550"> <tr> <td>2.46</td> <td>8.61</td> <td>7.38</td> </tr> <tr> <td>11.07</td> <td></td> <td>1.23</td> </tr> <tr> <td>4.92</td> <td>3.69</td> <td>9.84</td> </tr> </table> <p>KS2 1997 Paper A level 4</p>	2.46	8.61	7.38	11.07		1.23	4.92	3.69	9.84
2.46	8.61	7.38										
11.07		1.23										
4.92	3.69	9.84										

Year 6+	Number: SUBTRACTION	
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- | | |
|---|--|
| <p>COULD
End of year expectations in bold</p> | <ul style="list-style-type: none"> Understand how the commutative, associative and distributive laws, and the relationships between operations, including inverse operations, can be used to calculate more efficiently; use the order of operations, including brackets (Y6 / Y7) <i>Pupil learning outcomes (changes depending on unit) e.g.:</i> Consolidate and extend mental methods of calculation to include decimals, fractions and percentages (Y6 / Y7) <i>Pupil learning outcomes (changes depending on unit) e.g.:</i> |
|---|--|

Rules & Laws of arithmetic summary		Test Questions
Rules of arithmetic	Instructions	
Brackets	Always carry out first any calculations that are within brackets	Calculate ten minus four point three five. KS2 2001 Mental test level 5
Multiplication and division	After working out those calculations in the brackets do the multiplication and division calculations next before addition and subtraction. If the expression involves only multiplication and division calculations work from left to right or reorder moving a number with its associated operation.	Subtract nought point seven five from six. KS3 2003 Mental test level 4 What is half of six point three? KS3 2001 Mental test level 5 -----
	Examples	
	$40 - (3 + 2) = 40 - 5 = 35$ $20 \div (18 - 13) = 20 \div 5 = 4$	
	$5 \times 2 - 8 \div 2 = 10 - 4 = 6$ $9 \times 8 \div 3 = 72 \div 3 = 24$ $9 \times 8 \div 3 = 9 \div 3 \times 8 = 3 \times 8 = 24$	

Addition and subtraction	Finally do the addition and subtraction calculations. If the expression involves only addition and subtraction calculations work from left to right or reorder moving a number with its associated operation.	$25 + 19 - 11 - 18 = 44 - 11 - 19 = 33 - 19 = 14$ $25 + 19 - 11 - 18 = 25 - 11 + 19 - 18 = 13 + 1 = 14$
Laws of arithmetic	Description	Examples
Commutative laws for addition and multiplication	When adding two numbers the order of the numbers can be reversed. When multiplying two numbers the order of the two numbers can be reversed.	$4 + 18 = 18 + 4$ $5 \times 7 = 7 \times 5$
Associative laws for addition and multiplication	When adding three or more numbers any adjacent pair of numbers can be added first. When multiplying three or more numbers, any pair of adjacent numbers can be multiplied together first.	$3 + 6 + 4 = (3 + 6) + 4 = 3 + (6 + 4)$ $3 \times 4 \times 5 = (3 \times 4) \times 5 = 3 \times (4 \times 5)$
Distributive laws for multiplication and division over addition and subtraction	When a sum or difference is being multiplied by a number, each number in the sum or difference can be multiplied first and the products are then used to find the sum or difference. When a sum or difference is being divided by a number, each number in the sum or difference can be divided first and the dividends are then used to find the sum or difference.	$(30 + 8) \times 7 = (30 \times 7) + (8 \times 7)$ $(30 - 3) \times 9 = (30 \times 9) - (3 \times 9)$ $(20 + 8) \div 4 = (20 \div 4) + (8 \div 4)$ $(60 - 12) \div 3 = (60 \div 3) - (12 \div 3)$

Write the correct sign $>$, $<$ or $=$ in each of the following.

$(10 + 5) - 9$ $(10 + 9) - 5$
 $3 \times (4 + 5)$ $(3 \times 4) + 5$
 $(10 \times 4) \div 2$ $10 \times (4 \div 2)$

KS2 2005 Paper A level 4

Put a tick (✓) in the correct box for each calculation. Use a calculator.

	less than 1000	equal to 1000	more than 1000
$8.9 \times 9.9 \times 11.9$			✓
$(786 - 387) \div 0.41$			
$95.4 + (91 \times 9.95)$			
$12.5 \times (21.1 + 58.9)$			

KS2 2000 Paper B level 5