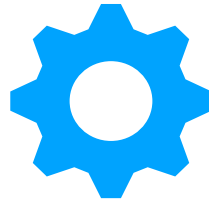
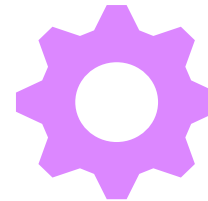


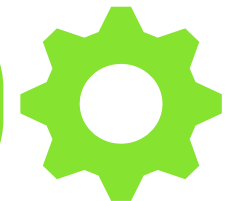
Year 1 - 6



Calculation Policy



Addition and Subtraction



Year 1

National Curriculum

Read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs.

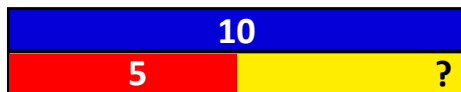
Represent and use number bonds and related subtraction facts within 20.

Add and subtract one-digit and two-digit numbers to 20, including 0.

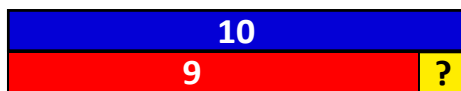
Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = ? - 9$.

Addition

Number bonds 1-10 and 20 (addition and subtraction facts)



$$5 + \square = 10$$

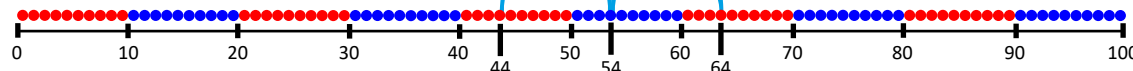


$$10 - \square = 9$$

Add three 1-digit numbers spotting doubles or pairs to 10

+/- 1 by counting on and back in ones from a given 2-digit number.

Count back in tens

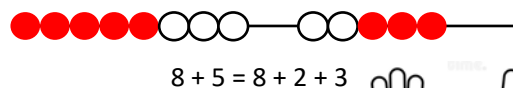


+/- 10 by counting on and back in tens from a given 2-digit number.

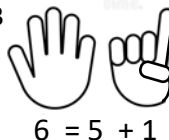
Add and subtract 1-digit numbers using counting on/back and known number facts

Use number facts to add & subtract single-digit numbers to two-digit numbers, e.g. use $4 + 3$ to work out $24 + 3$, $34 + 3$...or $7 - 2$ to work out $27 - 2$, $37 - 2$...

Use number facts to bridge 10 (multiples of ten)

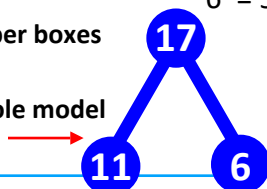


Add by putting the larger number first



Missing number boxes

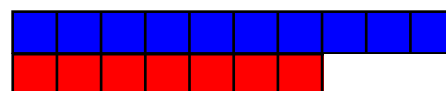
Part-part-whole model



Subtraction



$$10 - 7 = 3$$



$$10 - \square = 7$$

Subtraction:

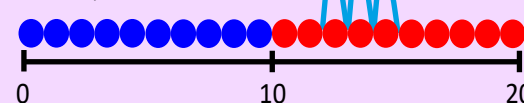
Counting up $13 - 8 =$

Start at 8 and count to 13

difference is 5 (counted 5 beads)

Subtract by taking away - count back in ones

$15 - 3 =$, $25 - 3 =$



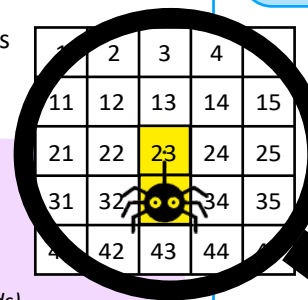
Maths Talk

Fish n chip numbers (7 n 3, ...)

Frog – hopping up from smaller to larger number 'number sense' number non-sense'

Vocabulary:

Subtract
sum, add, total,
altogether, minus,
take away, less,
difference,



Year 2

Addition

Subtraction

Maths Talk

National Curriculum

Solve problems with addition and subtraction:

Using concrete objects and pictorial representations, including those involving numbers, quantities and measures.

Applying their knowledge of mental and written methods.

Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.

Add and 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
- Adding 3 one-digit numbers

Show that addition of 2 numbers can be done in any order (commutative) and subtraction of 1 number from another cannot.

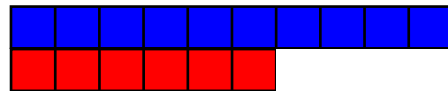
Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Number bonds 5-20 (addition and subtraction facts)

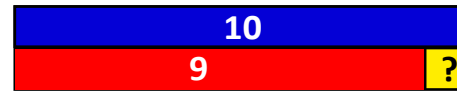
Add several 1-digit numbers spotting doubles or pairs to 10

+/- 1 by counting on and **back** in ones from a given 2-digit number.

+/- 10's by counting on and **back** in tens from a given 2-digit number.



$$6 + \square = 10$$



$$10 - \square = 9$$

Add and subtract 2-digit numbers using counting on/back and known number facts, including bridging multiples of 10, e.g. $56 - 3$, $53 - 5$.

Add and subtract 2-digit numbers using place-value.

Add and subtract 2-digit numbers using partitioning:

e.g. $55 + 37$ as $50 + 30$ and $5 + 7$ then combining the two totals $80 + 12$;

$$50 + 50 = 80 \quad 50 - 30 = 20$$

$$5 + 7 = 12 \quad 5 - 2 = 3$$

$$80 + 12 = 92$$

$$55 - 32 = 23$$

Choosing the 'best' method

Estimate/approximate –

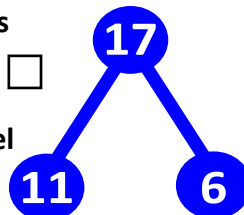
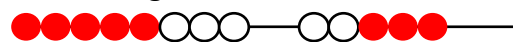
'number sense number non-sense'

Missing number boxes

$$\square - 5 = 15 \quad 15 + 5 = \square$$

Part-part-whole model

Bead String

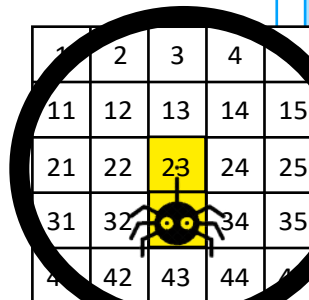


Fish n chip numbers (7 n 3, ...)

Frog – hopping up from smaller to larger numbers

'number sense number non-sense'

Frog – counting up ... to next tens number and on.



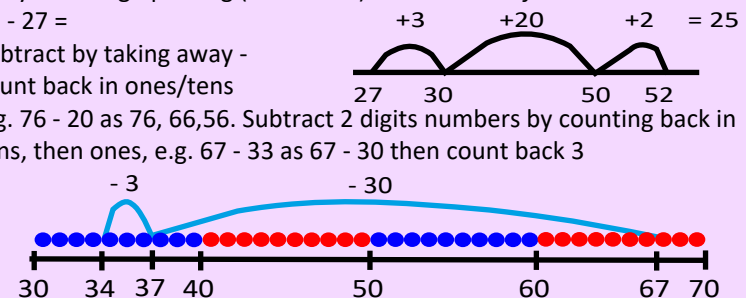
Subtraction:

Subtract any pair of 2-digit numbers by counting back in tens and ones or by counting up - Frog (difference) Main method for subtraction.

$$52 - 27 =$$

Subtract by taking away - count back in ones/tens

e.g. $76 - 20$ as 76, 66, 56. Subtract 2 digits numbers by counting back in tens, then ones, e.g. $67 - 33$ as $67 - 30$ then count back 3



Year 3

Addition

Subtraction

Maths Talk

National Curriculum

Add and subtract numbers mentally, including:

- a three-digit number and 1s
- a three-digit number and 10s
- a three-digit number and 100s.

Add and subtract numbers with up to 3 digits using formal written methods of column addition and subtraction.

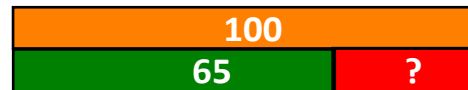
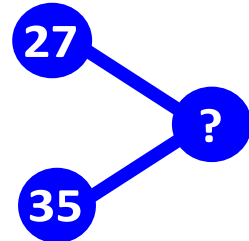
Estimate the answer to a calculation and use inverse operations to check answers.

Solve problems including missing number problems using number facts, place value, and more complex addition and subtraction.

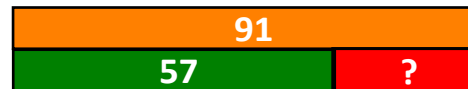
Add and subtract fractions with the same denominator within one whole - for example,

$$\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$$

Know pairs with each total to 20 addition & subtraction facts
Know number bonds to 100 addition & subtraction facts (multiples of 10, 5, 1, e.g. 30+70, 85+15, 51+49)



Add & subtract any two 2-digit numbers using mental strategies (partitioning & counting on, nearly numbers, number facts)



Perform place value subtractions without a struggle. (e.g. 536 - 30 = 506, etc.)
'no-work calculations'

Add & subtract multiples and near multiples of 10 and 100

Add & subtract pairs of 'friendly' 3-digit numbers, e.g. 320 + 450

Choose the 'best' method to solve calculations

Written method:

Use expanded column addition to add two or three 3-digit numbers or three or more 2-digit numbers.

Begin to add like fractions. (e.g. $\frac{3}{8} + \frac{1}{8} + \frac{1}{8}$)

Recognise fractions that add to 1. (e.g. $\frac{1}{4} + \frac{3}{4}$ or $\frac{3}{5} + \frac{2}{5}$)

Begin to add amounts of money using partitioning.



1	2	3	4
11	12	13	14
21	22	23	24
31	32	33	34
41	42	43	44

Fish n chip numbers (30 n 70 ...)

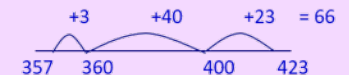
Frog - hopping up from smaller to larger number, bond to 10, bond to next multiple of 10, 100, etc.

'Easy-peasy no-work calculations'

'Number sense number non-sense'

Subtract, when appropriate, by counting back or taking away, using place value and number facts.

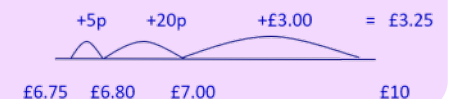
Subtract by counting up - Frog (difference) *main subtraction method* e.g.



Begin to subtract like fractions. (e.g. $\frac{7}{8} - \frac{3}{8}$)

Find change from £1, £5 and £10.

(Frog) e.g. £10 - £6.75



Year 4

Addition

Subtraction

Maths Talk

National Curriculum

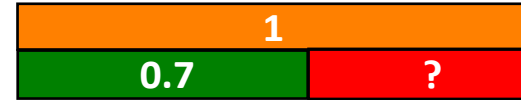
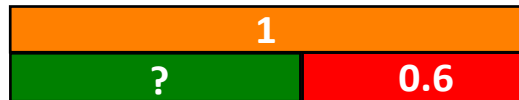
Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.

Estimate and use inverse operations to check answers to a calculation.

Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Solve simple measure and money problems involving fractions and decimals to 2 decimal places.

Know number bonds to multiples of 10 & 100 addition & subtraction facts e.g. $432 + ? = 500$
Use mental strategies to add and subtract
(**whole numbers to 4-digits and decimal numbers to tenths**)



- Place value partitioning (no work calculations) $3050 - 1010$ or $6.5 - 2.3$
- Multiples and near multiples of 10 and 100
- Partitioning
- Near doubles $252 + 250$
- Counting on & back in 0.1s/1s/10s/100s/1000s

Estimate/approximate - Number nonsense/number sense e.g. $432 - 297 = 265?$
(297 is nearly 300!)

Written method: Column addition to add two or three whole numbers with up to 4 digits some answers of 5 digits.

$\begin{array}{r} 1000 \ 400 \ 60 \ 8 \\ + 4000 \ 800 \ 60 \ 6 \\ \hline 1000 \ 100 \ 10 \\ \hline 6000 \ 300 \ 30 \ 4 \end{array}$	$\begin{array}{r} 5 \ 3 \ 4 \ 7 \\ 2 \ 2 \ 8 \ 6 \\ + 1 \ 4 \ 9 \ 5 \\ \hline 1 \ 2 \ 1 \\ \hline 9 \ 1 \ 2 \ 8 \end{array}$
---	--

Add like fractions,
e.g. $\frac{3}{5} + \frac{4}{5} = \frac{7}{5} = 1 \frac{2}{5}$.
Be confident with fractions that add to 1 and fraction complements to 1.
(e.g. $\frac{2}{3} + ? = 1$)

Choose the most efficient method

Subtract by counting up (frog). e.g. $503 - 368$ is done by adding: $368 + 2 + 30 + 100 + 3$ so we added 135. Subtract, when appropriate, by counting back or taking away, using place value and number facts. Subtract £1, 10p, 1p from amounts of money. Find change from £10, £20 and £50.

Written method: Use expanded column subtraction for 3-digit and 4-digit numbers Use complementary addition (frog) to subtract amounts of money,

e.g. $£7.30 - £3.55$ as $\xrightarrow{\quad}$ +5p +40p +£3.30 = £3.75

and for subtractions where the larger number is a near multiple of 1000 or 100

e.g. $2002 - 1865$ is $\xrightarrow{\quad}$ +5 +30 +102 = 137

Subtract like fractions, e.g. $\frac{1}{4} + \frac{1}{8} = \frac{3}{8}$

Use fractions that add to 1 to find fraction complements to 1, e.g. $1 - \frac{2}{3} = \frac{1}{3}$

Choose the most efficient method

Fish n chip numbers
(74 n 26 ...)
Frog – hopping up from smaller to larger number, bond to 10, bond to next multiple of 10, 100, etc.
2, 3 or 4 hops?
'Easy-peasy no-work calculations'
'Number sense number non-sense'
extra tens/hundreds (written addition)
Moving tens (written subtraction)

Year 5

Addition

Subtraction

Maths Talk

National Curriculum

Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).

Add and subtract numbers mentally with increasingly large numbers.

Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why add and subtract fractions with the same denominator, and denominators that are multiples of the same number.

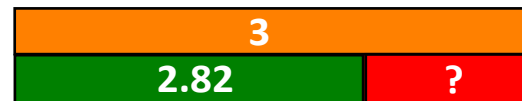
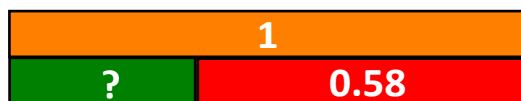
Solve problems involving number up to 3 decimal places.

Know number facts (bonds) to: multiples of 10, 100, and multiple of ten bonds to 1000.
Know decimal number bonds to 1 and to the next whole number.
Add to the next 10 from a decimal number, e.g. $13.6 + 6.4 = 20$



Recognise fraction complements to 1 and to the next whole number. (e.g. $1\frac{2}{5} + \frac{3}{5} = 2$)
Use mental strategies to add and subtract numbers with two significant digits only
e.g. $3.4 + 4.8$ or $23,000 + 47,000$ etc.

(whole numbers to 5/6?-digits and decimal numbers to tenths/hundredths?)



- Place value partitioning (no work calculations) e.g. $82,472 + 30,004$
- Rounding and adjusting including near multiples/near doubles
- Decimal numbers which are near multiples of 1 or 10, including money. (e.g. $6.34 + 1.99$ or $£34.59 - £19.95$)
- Partitioning
- Counting on & back in 0.01s/0.1s/1s/10s/100s/1000s/10,000s/100,000s
- Use counting up subtraction, with knowledge of number bonds to 10/100 or £1, as a strategy to perform mental subtraction. (e.g. $£10 - £3.45$ or $1000 - 782$)

Estimate/approximate - Number non-sense/number sense

Written method: Column addition to add two or three whole numbers with up to 5 digits.

Use column addition to add any pair of two-place decimal numbers including amounts of money.

£14 60p 4p	
£28 70p 8p	
£12 20p 6p	+
£ 1 10p	
£55 60p 8p	= £55.68

Begin to add related fractions using equivalences.

(e.g. $\frac{1}{2} + \frac{1}{6} = \frac{3}{6} + \frac{1}{6}$)

Choose the most efficient method

Written method: Use compact or expanded column subtraction to subtract numbers with up to 5 digits.

Use complementary addition for subtractions where the larger number is a multiple or near multiple of 1000.

e.g. $50,000 - 28,347$

Use complementary addition for subtractions of decimals with up to two places incl. amounts of money:

$£280 - £136.40$

Begin to subtract related fractions using equivalences. (e.g. $\frac{1}{2} - \frac{1}{6} = \frac{2}{6}$)

Choose the most efficient method

Fish n chip numbers (74 n 26 ...)

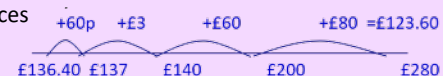
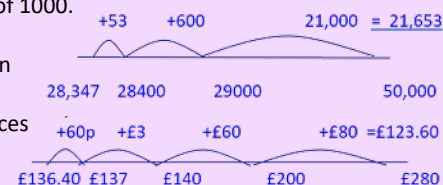
Frog – hopping up from smaller to larger number, bond to 10, bond to next multiple of 10, 100, etc.

2, 3 or 4 hops?

‘Easy-peasy no-work calculations’

‘Number sense number non-sense’ extra tens/hundreds (written addition)

Moving tens and hundreds (written subtraction)



Year 6

Addition

Subtraction

Maths Talk

National Curriculum

Perform mental calculations, including with mixed operations and large numbers.

Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. Solve problems involving addition, subtraction, multiplication and division.

Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions.

Use number bonds to 100 to perform mental addition and subtraction of any pair of integers by complementary addition. (e.g. $1000 - 654$ as $46 + 300$ in our heads)
Use number bonds to 1 and 10 to perform mental addition and subtraction of any pair of one-place or two-place decimal numbers using complementary addition and including money. (e.g. $10 - 3.65$ as $0.35 + 6$, $£50 - £34.29$ as $71p + £15$)

10	
?	3.65

£50	
£31.25	?

Add & subtract small and large whole numbers where the use of place value or number facts makes the calculation possible 'in our heads'. (e.g. $34,000 + 8000$. or $4.63 - 1.02$)
Add and subtract multiples of powers of ten and near multiples of the same.
Add positive numbers to negative numbers, e.g. calculate a rise in temperature, or continue a sequence beginning with a negative number.
Subtract negative numbers in a context such as temperature where the numbers make sense.

Use column addition to add numbers with up to 6 digits answers in 7-digits.

10s	1s	.	0.1s $\frac{1}{10}$ s	0.01s $\frac{1}{100}$ s
9		.	5	4
3		.	2	5
1	2	.	7	9

Use column addition to add decimal numbers with up to 3-digits.

£14. 64	£14 60p 4p	
+ £28. 78	+ £28 70p 8p	
+ £12. 26	+ £12 20p 6p	
£11. 1	£ 1 10p	
£55. 68	£55 60p 8p	£55.68

Add mixed numbers and fractions with different denominators.
e.g. $3\frac{1}{2} + \frac{2}{3} = \frac{21}{6} + \frac{4}{6} = \frac{25}{6} = 4\frac{1}{6}$



Fish n chip numbers (74 n 26 ...)
Frog – hopping up from smaller to larger number, bond to 10, bond to next multiple of 10, 100, etc.
2, 3 or 4 hops?
'Easy-peasy no-work calculations'
'Number sense number non-sense' extra tens/hundreds (written addition)
Moving tens and hundreds (written subtraction)

Use column subtraction to subtract numbers with up to 6 digits.

Use complementary addition for subtractions where the larger number is a multiple or near multiple of 1000 or 10,000.

2	14	7	15
3	4	6	8
1	6	4	5
1	8	2	2

Use complementary addition for subtractions of decimal numbers with up to three places including money.
Subtract mixed numbers and fractions with different denominators.