

Progression of Addition

Year 1	Year 2	Year 3
Add together Add more Bonds within 10 Related facts within 20 Missing numbers	Add 1s to any number (related facts) Add three 1-digit numbers Add across a 10 Add multiples of 10 Add 10s to any number Add two 2-digit numbers (not across a ten) Add two 2-digit numbers (across a ten) Missing numbers	Add 1s, 10s and 100s to a 3-digit number Add two numbers (no exchange) Add two numbers across a 10 or 100 Complements to 100 Add fractions with the same denominator within 1 whole Calculate the duration of events

Addition

Year 2	Recall and use addition facts to 20 fluently, and derive and use related facts up to 100 Add 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 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	
Add ones to any number (related facts) Make links to known facts.	I know that ... and ... = ... so ... and ... = more than ... is ... so ... more than ... is ...
Add three 1-digit numbers Prompt children to understand that addition can be done in any order and to make links to known facts.	... and ... are a bond to 10 $10 + \dots = \dots$ 	Double ... + ... = ...
Add across a 10 Partition the number being added to make a full ten.	... can be partitioned into ... and ... 	I add ... to get to ... then I add ... $8 + 5 = 13$ $28 + 5 = 33$
Add multiples of 10 Make links to known facts within ten.	... ones + ... ones = ... ones so ... tens + ... tens = ... tens $3 + 2 = 5$ $30 + 20 = 50$	What is the same? What is different?
Add 10s to any number Make links to known facts.	... tens + ... tens = ... tens ... tens and ... ones = ... 	To add ... I need to add 10 ... times.
Add 2-digit numbers (not across a ten) Lining up ones and tens in columns will support with later written methods.	... ones + ... ones = ... ones ... tens + ... tens = ... tens 	I know that ... and ... = ... so ... and ... = ... $30 + 20 = 50$ $34 + 20 = 54$
Add 2-digit numbers (across a ten)	There are ... ones, so I do/do not need to make an exchange. ... ones = ... ten and ... ones	

Begin to exchange 10 ones for 1 ten.		<p>5 ones + 7 ones = 12 ones 12 ones = 1 ten and 2 ones 4 tens + 3 tens + 1 ten = 8 tens 8 tens and 2 ones = 82</p>	
Missing numbers Solve missing number problems and use the inverse to check.	<p>How many more do you need to make ...?</p> <p>$6 + \square = 10$ $10 - \square = 6$</p>	<p>If ... is a whole and ... is a part, then ... is the other part.</p> <p>$\square + 3 = 7$ $7 - 3 = \square$</p>	<p>... can be partitioned into ... and ...</p> <p>$10 + 8 = 12 + \square$</p>

Progression of Subtraction

Year 1	Year 2	Year 3
Find a part Take away Bonds within 10 Related facts within 20 Missing numbers	Subtract 1s from any number (related facts) Subtract across a 10 Subtract multiples of 10 Subtract 10s from any number Subtract two 2-digit numbers (not across a ten) Subtract two 2-digit numbers (across a ten) Missing numbers	Subtract 1s, 10s and 100s from a 3-digit number Subtract two numbers (no exchange) Subtract two numbers across a 10 or 100 Complements to 100 Subtract fractions with the same denominator within 1 whole

Subtraction

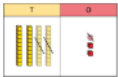
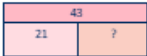
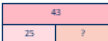




Recall and use subtraction facts to 20 fluently, and derive and use related facts up to 100

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.


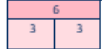



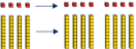








Progression of skills	Key representations	
Subtract ones from any number (related facts)	<p>I know that ... minus ... = ... so ... minus ... = ...</p>	<p>What do you notice? Can you continue the pattern?</p> <p>$8 - 3 = 5$ $18 - 3 = 15$ $28 - 3 = 25...$</p>
Subtract across a 10 Partition the number being subtracted to bridge through a ten.	<p>... can be partitioned into ... and ...</p>	<p>Make links with related facts.</p>
Subtract multiples of 10 Make links to known facts within ten.	<p>... ones = ... ones = ... ones so ... tens = ... tens = ... tens</p> <p>$5 - 2 = 3$ $50 - 20 = 30$</p>	<p>What is the same? What is different?</p>
Subtract 10s from any number Make links to known facts.	<p>... tens = ... tens = ... tens ... tens and ... ones = ...</p>	<p>To subtract ... I need to subtract 10 ... times.</p> <p>I know that ... minus ... = ... so ... minus ... = ...</p> <p>$50 - 20 = 30$ $54 - 20 = 34$</p>
Subtract two 2-digit	<p>... ones = ... ones = ... ones</p>	

numbers (not across a ten)	... 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	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 ... $18 - \square = 12 + 2$ 	

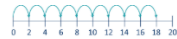
Progression of Multiplication

Year 1	Year 2	Year 3
Count in 2s, 5s and 10s Add equal groups Use arrays Make doubles	Link repeated addition and multiplication Use arrays Double The 2 times-table The 10 times-table The 5 times-table Missing numbers	The 3 times-table The 4 times-table The 8 times-table Related facts Multiply a 2-digit number by a 1-digit number - no exchange Multiply a 2-digit number by a 1-digit number - with exchange Scaling Correspondence problems

Multiplication

Year 2	Recall and use multiplication facts for the 2, 5 and 10 multiplication tables. Calculate mathematical statements for multiplication within the multiplication tables and write them using the multiplication (x) and equals (=) signs. Show that multiplication of two numbers can be done in any order (commutative).		
Progression of skills	Key representations		
Link repeated addition and multiplication Encourage children to make the link between repeated addition and multiplication.	There are ... equal groups with ... in each group. 	There are ... altogether. $3 + 3 = 6$ $2 \times 3 = 6$ 	 $5 + 5 + 5 + 5 = 20$ $4 \times 5 = 20$
Use arrays Encourage children to see that multiplication is commutative.	There are ... rows with ... in each row. There are ... columns with ... in each column. 3 lots of 5 = 15 $5 + 5 + 5 = 15$ 5 lots of 3 = 15 $3 + 3 + 3 + 3 + 3 = 15$		I can see ... x ... and ... x ... $3 \times 5 = 15$ $5 \times 3 = 15$ $3 \times 5 = 5 \times 3$
Double Encourage children to make links with related facts.	Double ... is ... Double 4 = 4 + 4 Double 4 is 8 	Double ... is ... so double ... is ... Double 4 is 8 Double 40 is 80 	
The 2 times-table encourage daily counting in multiples both forwards and back. Notice that all multiples of 2 are even numbers.	... lots of 2 = ... x 2 = 	... times 2 is equal to ... 	 $1 \times 2 = 2$ $2 = 1 \times 2$ $2 \times 2 = 4$ $4 = 2 \times 2$ $3 \times 2 = 6$ $6 = 3 \times 2$
The 10 times-table Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.	... lots of 10 = ... x 10 = 	... times 10 is equal to ... 	 $1 \times 10 = 10$ $10 = 1 \times 10$ $2 \times 10 = 20$ $20 = 2 \times 10$ $3 \times 10 = 30$ $30 = 3 \times 10$
The 5 times-table Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.	... lots of ... x 5 = 	... times ... is equal to ... $\square \times 2 = 18$ $18 = 2 \times \square$	
Missing numbers	... is equal to ... groups of ... 18 socks, how many pairs? 	... times ... is equal to ... $\square \times 2 = 18$	

Make links to known facts.



$18 = 2 \times \square$

Progression of Division

Year 1	Year 2	Year 3
Make equal groups – grouping Make equal groups – sharing Find a half Find a quarter	Divide by 2 Divide by 10 Divide by 5 Missing numbers Unit fractions Non-unit fractions	Divide by 3 Divide by 4 Divide by 8 Related facts Divide a 2-digit number by a 1-digit number - no exchange Divide a 2-digit number by a 1-digit number - with remainders Unit fractions of a set of objects Non-unit fractions of a set of objects

Division

Year 2	Recall and use division facts for the 2, 5 and 10 multiplication tables. Calculate mathematical statements for division within the multiplication tables and write them using the division (÷) and equals (=) signs. Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a quantity.	
Progression of skills	Key representations	
Divide by 2 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts and halving.	There are ... equal groups of 2 ... ÷ 2 = shared equally between 2 is ... Half of ... is ÷ 2 = ...
Divide by 10 Encourage children to division and to make links with times-table facts. compare the grouping and sharing structures of division and to make links with times-table facts.	There are ... equal groups of 10 ... ÷ 10 = shared equally between 10 is ÷ 10 = ...
Divide by 5 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.	There are ... equal groups of 5 ... ÷ 5 = shared equally between 5 is ÷ 5 = ...
Missing numbers Bar models are useful to show the link between multiplication and division.	divided by 2/5/10 is equal to ... 	
Unit fractions In Y2 the focus is on finding 1/2, 1/4, 3/4 Bar models are useful to show the link between division and finding a fraction.	The objects have been shared fairly into ... groups. 1/4 of ... is .. 	There are ... equal parts. There is ... part circled.
Non-unit fractions In Y2 the focus is on finding 2/4 and 3/4 Prompt children to notice that 2/4 is equivalent to 1/2	The objects have been shared fairly into ... groups. 	There are ... equal parts. There are ... parts circled.