

Chester Diocesan Academies Trust

Year 2

Maths Calculation Policy



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 $\dots = \dots$ so and $\dots = \dots$	more than is so more than is $0 \ 1 \ 2 \ 3 \ 4 \ 5 \ 6 \ 7 \ 8 \ 9 \ 10$ + + + + + + + + + + + + + + + + + + +	What do you notice? Can you continue the pattern? 5+2=7 15+2=17 25+2=27
Add three 1-digit numbers Prompt children to understand that addition can be done in any order and to make links to known facts.	$ \begin{array}{c} \dots \text{ and } \dots \text{ are a bond to 10} \\ 10 + \dots = \dots \\ \hline \\$	Double + = $ \begin{array}{c} ? \\ 4 & 3 & 3 \\ \hline 3 & 4 & 3 \end{array} $	What do you notice? Which addition is the easiest to calculate? 8+9+1= 8+1+9= 9+1+8=

Addition

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Progression of skills	Key representations				
Add across a 10	can be partitioned into and		I add to get to th	ien I add	8 + 5 = 13 28 + 5 = 33
Partition the number being added to make a full ten.					
	8 + 5	+ 3	28 + 5	3 4 5 6	+2 +3 7 8 9 10 11 12 13
	2 3		2 3	23 24 25 26 2	7 28 29 30 31 32 33
Add multiples of 10	ones + ones = ones so tens + tens = tens	What What	t is the same? t is different?	2	20
Make links to known facts within ten.	3 + 2 = 5 30 + 20 = 50	+ 0 1 + 0 10	+2 2 3 4 5 6 7 8 9 +2 20 30 40 50 60 70 80 90		? 30 ? 30
Add 10s to any number	tens + tens = tens tens and ones =	To ac tin	ld I need to add 10 nes.	I know that so and :	and = =
Make links to known facts.		1 11 21 31 41 51	2 3 4 5 6 7 8 9 10 12 13 14 15 16 17 18 19 20 12 13 14 15 16 17 18 19 20 12 13 24 25 26 27 28 29 30 32 33 34 35 36 37 38 39 40 42 43 44 45 46 47 48 49 50 52 53 54 55 56 57 58 59 60	30 34 	- 20 = 50 - 20 = 54

Addition



Progression of skills	Key representations	
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	3 ones + 1 one = 4 ones $4 tens + 2 tens = 6 tens$ $6 tens + 4 ones = 64$ $43 (21)$
Add 2-digit numbers (across a ten) Begin to exchange 10 ones for 1 ten.	There are ones, so I do/do ones = ten and ones $^{T} \circ \circ$	not need to make an exchange. 7 45 37 45 37 $5 ones + 7 ones = 12 ones12 ones = 1 ten and 2 ones4 tens + 3 tens + 1 ten = 8 tens8 tens and 2 ones = 82$
Missing numbers Solve missing number problems and use the inverse to check.	How many more do you need to make? $6 + \boxed{} = 10$ $10 - \boxed{} = 6$	If is a whole and is a part, then is the other part. 7 $+3 = 7$ $7 - 3 = 3$ 3 can be partitioned into and $10 + 8 = 12 + 3$

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Subtraction



	 Recall and use subtraction 100 Subtract numbers using continuing: a two-digit number a two-digit number 2 two-digit number Recognise and use the investion of the second second	n facts to 20 oncrete objo and 1s and 10s s rerse relatio and solve m) fluently, and derive ects, pictorial repres onship between addi hissing number prob	e and use related facts up to sentations, and mentally, tion and subtraction and use lems.
Progression of skills	Key representations			
Subtract ones from any number (related facts) Make links to known facts.	I know that minus = so minus =	$\begin{array}{c} \dots \text{ less tha} \\ \text{so} \dots \text{ less t} \\ \downarrow \\ 0 & 1 & 2 & 3 \\ \downarrow \\ 20 & 21 & 22 & 23 \end{array}$	n is than is 4 5 6 7 8 9 10 24 25 26 27 28 29 30	What do you notice? Can you continue the pattern? 8-3 = 5 18-3 = 15 28-3 = 25
Subtract across a 10	can be partitioned into ar	nd	Make links with rel	ated facts.
Partition the number being subtracted to bridge through a ten.	13 - 5 $3 2$	2 - 3 10 11 12 13	33 - 5 3 2	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

Subtraction

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Progression of skills	Key representations	
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? 5 2 2 20 5 2 20 20 20 20 20 20 20
Subtract 10s from any number Make links to known facts.	tens $-$ tens $=$ tens tens and ones $=$	To subtract I need to subtract 10 times.I know that minus = $1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10$
		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

Subtraction



Progression of skills	Key representations		
Subtract two 2-digit numbers (not across a ten)	$\dots \text{ ones } - \dots \text{ ones } = \dots \text{ ones}$ $\dots \text{ tens } - \dots \text{ tens } = \dots \text{ tens}$ 43 21 43 21	T T 3 ones – 1 one 4 tens – 2 tens 2 tens and 2 on	= 2 ones $= 2 tens$ $= 5 es = 22$
Subtract two 2-digit numbers (across a ten) Begin to exchange 1 ten for 10 ones.	I need to make an exchange b 43 25 43 43 3 ones - (I need to the second seco	ecause I do not have enough or - 5 ones to exchange 1 ten for 10 ones)	hes to subtract ones. T OT
Missing numbers Solve missing number problems and use the inverse to check.	How many do you need to subtract to make? $10 - \boxed{} = 6$ $6 + \boxed{} = 10$	If is a whole and is a part, then is the other part. 7-3 = 2 3 3 3 3 3 3 3 3	can be partitioned into and $18 - \boxed{} = 12 + 2$

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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 (×) 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 grou There are altogether.	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	
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 \times and \times $3 \times 5 = 15$ $5 \times 3 = 15$ $3 \times 5 = 5 \times 3$	
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 4 is 8 Double 40 is 80	

Multiplication



Progression of skills	Key representations	
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 = × 2 =	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
	? 2 2 2 2 2	0 2 4 6 8 10 12 14 16 18 20 22 24
The 10 times-table Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.	$ \begin{array}{c} \dots \text{ lots of } 10 = \\ \dots \times 10 = \\ \end{array} \\ \begin{array}{c} \swarrow & \swarrow & \swarrow & \swarrow & \checkmark & \checkmark & \checkmark & \checkmark & \checkmark & \checkmark &$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

Multiplication



Progression of skills	Key representations	
The 5 times-table Encourage daily counting in multiples both forwards and back. Notice the pattern in the numbers.	$ \begin{array}{c} \dots \text{ lots of 5} = \\ \dots \times 5 = \\ \end{array} \\$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
	5 5 5 5 5 	0 5 10 15 20 25 30 35 40 45 50 55 60
Missing numbers	is equal to groups of	times is equal to
Make links to known facts.	18 socks, how many pairs?	$\square \times 2 = 18$
	0 2 4 6 8 10 12 14 16 18 20	18 = 2 × 🗌

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 $\div 2 =$ $4 \times 2 = 8$ $8 \div 2 = 4$ 0 1 2 3 4 5 6 7 8 9 10	shared equally between 2 is Half of is $\therefore \div 2 = \dots$ $4 \times 2 = 8$ $8 \div 2 = 4$	
Divide by 10 Encourage children to compare the grouping and sharing structures of division and to make links with times-table facts.	There are equal groups of 10 $\div 10 =$ $6 \times 10 = 60$ $60 \div 10 = 6$	shared equally between 10 is $ \div 10 =$ $6 \times 10 = 60$ $60 \div 10 = 6$ 60 6 6 6 6 6 6 6 6	

Division



Progression of skills	Key representations	
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 $\div 5 =$ $6 \times 5 = 30$ $30 \div 5 = 6$ $30 \div 5 = 6$	shared equally between 5 is $ \div 5 =$ $6 \times 5 = 30$ $30 \div 5 = 6$ 30 30
Missing numbers Bar models are useful to show the link between multiplication and division.	divided by 2/5/10 is equal to ? \bigcirc ÷ 2 = 10 10 10 \bigcirc ÷ 5 = 10 10 10 10 \bigcirc ÷ 5 = 10 ? \bigcirc ÷ 5 = 10 10 10 10 10	$\begin{array}{c c} 0 \\ \hline \\ 0 \\ \hline 10 \end{array} \\ \hline \\ 10 = 10 \end{array}$

Division



Progression of skills	Key representations	
Unit fractions In Y2 the focus is on finding $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{3}$ Bar models are useful to show the link between division and finding a fraction.	The objects have been shared fairly into groups. 1 of is	There are equal parts. There is part circled. $\frac{1}{\Box}$ is circled.
Non-unit fractions In Y2 the focus is on finding $\frac{2}{4}$ and $\frac{3}{4}$ Prompt children to notice that $\frac{2}{4}$ is equivalent to $\frac{1}{2}$	The objects have been shared fairly into groups. of is	There are equal parts. There are parts circled. is circled.