

Curriculum report to Governors Maths

October 2022

Subject leader: Kathryn Pagnello

Intent

At Christ Church we recognise that mathematics is an important life skill as well as fundamental to the vast majority of career pathways. Therefore, it is our intent that we provide a high-quality mathematical education which will ensure children move to the next stage of their education being numerate, confident and well-equipped. Through quality first teaching, with our primary aim being mastery of the curriculum for all children, we aim to unlock children's potential in maths and make it a fun, engaging subject which is accessible to all. Our intention is to show children they can master the

maths curriculum and that maths is an area where all children can experience success and is not

something to be anxious about. With this in mind, we recognise the importance of being fluent in the basics and provide a variety of opportunities for children to practise their automatic recall to make it more rapid and accurate.

All children are encouraged and given the opportunity to reason mathematically and solve problems.

With maths being an interconnected subject, children not only need to make connections and links between mathematical concepts but they need to be provided with concrete experiences of using maths outside the maths lesson. Wherever possible, we aim to use maths in our other subject areas so that children have the opportunity to experience interwoven learning and also to understand the importance of everyday maths in other areas.

Children who are working at greater depth in each year group receive input which challenges their reasoning and problem solving skills using the content which has been taught. Only once a rich offer has been provided where children can demonstrate they can make connections and use and apply their skills broadly would we consider moving on to what might potentially be new content.

A Spiral Curriculum

The manner in which the National Curriculum Programmes of Study are set out leads to spiralled learning between each year group. The children revisit the same mathematical concepts but each time they are introduced to new and more challenging learning which builds upon what has gone before. This not only happens between each year group but also within a year group where teachers design a year group curriculum which spirals back to the main, key areas.

Teaching for Mastery

At Christ Church we do not use any mastery scheme, instead, our view of mastery is aligned with that of Derek Haylock (2019) and the National Centre for Excellence in the Teaching of Mathematics (NCETM):

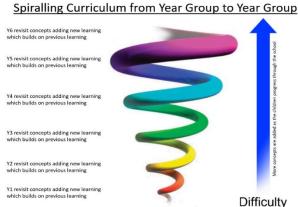
Mastering maths means pupils acquiring a deep, long-term, secure and adaptable understanding of the subject. The phrase 'teaching for mastery' describes the elements of classroom practice and school organisation that combine to give pupils the best chances of mastering maths. Achieving mastery means acquiring a solid enough understanding of the maths that's been taught to enable pupils to move on to more advanced material.

Through quality first teaching we aim for all children to acquire mastery in maths. Teachers use the progression document for each strand in maths to ensure learning is built cumulatively. It is important that we check children's understanding of the methods they use and calculations they can do. This is because many of the children are capable, for numerous reasons, of using the most efficient methods quickly and with ease, but there may be underlying gaps.

Key points relating to our intent

Although as a general rule we endeavour to follow the National Curriculum in terms of how it has divided the programme of study for each key stage, we may also choose to teach content earlier or later depending on the cohort. This is done for many reasons and it is specific to our context to ensure the needs of each cohort are met. The National Curriculum helpfully highlights that the set programmes of study are to be met by the end of the relevant key stage.

Children who have learnt different written calculation methods outside school will have their understanding checked through practising our set methods in each year group to ensure their understanding of number is secure (with teaching for mastery in mind). If this is secure, then they will be able to continue to use either method.



<u>Implementation</u>

- Maths is taught by class teachers with the support of SLT and the subject leader.
- Maths is taught every day when possible to ensure not only curriculum coverage, but also mastering maths so that pupils have a deep and secure understanding of the subject.
- Yearly overviews, which incorporate the 'Ready to Progress' criteria, are used to ensure curriculum coverage across the school.
- CPD is attended by the subject leader and other staff members and fed back to colleagues
 in meetings and training. The subject leader liaises with other Camden Maths subject leaders and
 other mastery specialists to learn new practice to share with colleagues.
- Ongoing assessment of children occurs during maths lessons to monitor progress and lessons are planned and adapted to meet children's varying needs.
- Termly assessments are also used to monitor progress (PUMA) and end of year outcomes are reported to parents in children's reports based on teacher assessments informed by both tests and ongoing achievements in class.
- Some children are closely monitored using fine tracking if teachers and leadership believe they will not reach the
 end of year expectation in the subject. These children are often also supported with short-term or long-term
 interventions to ensure progress.
- Adaptations are made as and when necessary for disadvantaged children and children with SEN. Teachers set high
 expectations for all pupils and aim to set work that provides universal provision, reducing the number receiving
 targeted and specialist support. However, there are some circumstances where some children do require a targeted
 or specialised curriculum.
- Parents' understanding of how maths is taught and the key calculations is supported by parent workshops in Reception, Year 2 and Year 4 and our termly curriculum leaflets.
- From Year 2 upwards, children take part in the 'Times Table Challenge'. This endeavours to aid teaching to ensure children are fluent in their times tables by the end of Year 4. To support this, children are tested on their times tables weekly from Year 2 to Year 4. (This sometimes continues in Year 5 depending on the needs of the class). In Y6, times tables are consolidated with weekly 'Bringing Down the Minutes' tests that aim to increase speed and fluency when recalling times table facts.
- Times tables are taught in a specific order to ensure children have a chance to consolidate their understanding of one before moving onto another.
- In Years 4, 5 and 6, children complete arithmetic tests weekly to rehearse key skills. Their results are closely monitored by teachers so that gaps can be addressed and feedback on tests is also shared with parents.
- Book scrutiny and learning walks are carried out by SLT and the subject leader.
- When possible, opportunities are used to make maths cross-curricular so that children are able to use skills they are already secure with in a different context (e.g. use of statistics in Science or Geography).
- Children who exceed expectations have the opportunity to take part in the UK Maths Challenge each year and some Year 5 and 6 children are invited to take part in weekend classes at the Royal Institute for Mathematics.

<u>Impact</u>

- Consistently high percentage of pupils in KS1 and KS2 reaching and exceeding national expectations.
- 100% of children in KS2 were working at the expected standard at the end of the year with 67% reaching greater depth. Both of these figures are significantly higher than local and national results.
- 96% of children in KS1 were working at the expected standard at the end of the year with 25% reaching greater depth.
- Positive progress score of 4.4 for KS2 pupils in 2022 (significantly above average)
- Children talk about maths positively and are eager to be challenged.
- Children take part in a range of problem solving activities that draw out their ability to reason about maths.
- Use of morning work and other spaced retrieval activities to rehearse prior learning reinforces our spiralling curriculum.





Whole school standards (three-year trend)	

End of KS1 results

Percentage of pupils reaching the expected standard or above

	Ma	athemat	ics
	2020	2021	2022
Christ Church	93%	86%	96%
Camden	-	-	71%
National	-	-	68%

	Mathematics					
	2020	2021	2022			
Christ Church	29%	29%	25%			
Camden	ı	-	21%			
National	-	-	15%			

Percentage of pupils reaching the higher standard

End of KS2 results

Percentage of pupils reaching the expected standard or above

	Mathematics					
	2020	2021	2022			
Christ Church	96%	92%	100%			
Camden	-	-	84%			
National	-	-	71%			

Percentage of pupils reaching the higher standard

	М	athema	tics
	2020	2021	2022
Christ Church	65%	54%	67%
Camden	-	-	29%
National	-	-	22%

Average scaled score

	Mathematics				
	2020	2021	2022		
Christ Church	1	1	111.5		
Camden	ı	ı	106		
National	-	-	104		

Progress score

	Mathematics						
	2020	2021	2022				
Christ Church	-	-	+4.4				
Camden	-	-	+2.3				
National	-	-	0				

Last year's key developments and successes in 2021/22

- Ensure participation in extra-curricular maths events are part of recovery plans to ensure enrichment is back to (or above) pre-COVID levels (2021/22 target achieved) Children in Year 5 took part in the Royal Institute for Maths sessions in person in the spring term. Children in Year 4 also took part in the Spring Slam a new borough-wide times table competition with other schools.
- Supporting teachers to identify topics for booster and learning recap, using White Rose scheme to support this.
 (2021/22 target achieved) Subject leader delivered CPD through staff meetings, support of ECT in classroom and in the form of informal support for a variety of teachers to aid identification of topics to recap. The use of White Rose to support revisiting and sequencing meant that any gaps were addressed.
- Finalise and deliver a times table parent workshop. (2021/22 target carried forwards) Subject leader to continue to work on this this year.
- New Ruby level for the times tables challenge was developed by subject leader and the Year 6 teacher. (additional successful development) in response to a very high achieving cohort and to further deepen and develop understanding of times tables, an additional award was developed which includes scaling and decimals.
- Successful completion of an NCETM developing mastery workgroup. (additional successful development) Subject leader and the Year 4 teacher successfully took part in a mastery workgroup and shared their learning in the form of CPD for all other teachers. This year we have entered the embedding stage of this programme. Additionally, the subject leader applied for and is now successfully training to become a mastery specialist with NCETM.

Approach to assessment in Maths

Ongoing assessment:

Assessment takes place continuously as part of everyday teaching practice. Teachers check prior knowledge before introducing new content and then plan lessons according to this. Teachers check children's knowledge on the carpet through targeted questioning and work on individual whiteboards and then through marking in lessons once children are completing work independently. Misconceptions are identified within lessons and children who are identified as needing further input are supported with adaptations within the lesson or supported through interventions, booster and further teaching from the class teacher. Learning is revisited through the use of morning work and low stakes quizzes throughout the year to ensure understanding is embedded.

Summative assessment:

Key learning for each year group is identified in our progression documents and is focused on the 'Ready to Progress' criteria. These areas are assessed by teachers before moving onto the next year group. Written assessments also take place termly to monitor progress and results from these assessments inform future teaching.

Review of our recovery curriculum provision

No major adaptations to our Maths curriculum were made for the 21/22 school year, however class teachers gave more time to recapping skills from the previous year where necessary if they had assessed there are gaps in the class. Where gaps were evident for a small number of children, after school booster sessions were used successfully for a second year to ensure children kept up. The DfE recovery curriculum document suggests it is crucial to take time to practise rather than moving through the curriculum too quickly and that an emphasis needs to be placed on ensuring children are fluent and confident. This continues to be the model we are following in all maths teaching.

Response to the Ofsted Curriculum Research Review for Mathematics (published May 2021)

• The Ofsted Research Review for Mathematics emphasizes the importance of sequencing learning to build on prior knowledge and skills as well as the importance of knowing what comes before. Learning is carefully sequenced within and across year groups. Teachers use curriculum overviews, RTP criteria alongside White Rose and NCETM materials to plan a well-sequenced curriculum, responding to the needs of the class. Skills in the key areas of maths are also mapped out for each year group as are calculations and the teaching of times tables. Teachers are aware of what came before and often recap this before introducing new content.

- The review also highlights that anxiety around maths is one of the biggest factors in gaps in attainment and states that children who struggle should be given more time and not different work. Our inclusive classroom environment means teachers aim to catch more children with a wider universal provision which in turn means children are given the time needed to make good progress. Where further time is needed for children to embed learning, interventions in the classroom are used as well as booster sessions and targeted teacher support during independent learning time.
- Vocabulary is key to understanding. Vocabulary needs to be taught explicitly and recapped constantly. Key
 vocabulary is identified and taught in each maths lesson. Vocabulary is displayed in lessons and on maths displays.
 Children's understanding of vocabulary is checked in lessons.
- Importance of facts and knowledge coming before problem solving and then being applied in tandem is also highlighted; the review states strategies for problem solving need to be explicitly taught. The sequencing and design of our curriculum ensures that facts and knowledge are taught first and that time is given to practise and embed these. Problem solving is explicitly taught by teachers.
- A focus is placed on the **importance of balancing new/old content**. Low stakes quizzes being helpful is also mentioned. Spaced retrieval is part of our pedagogical approach to teaching maths. Morning work, lesson starters, games etc. are all used daily to recap old content and ensure this is embedded. Maths displays in y2-6 are focused on the prior learning which has taken place. Low stakes quizzes are used not only as a tool for ongoing assessment, but also to recap old content.

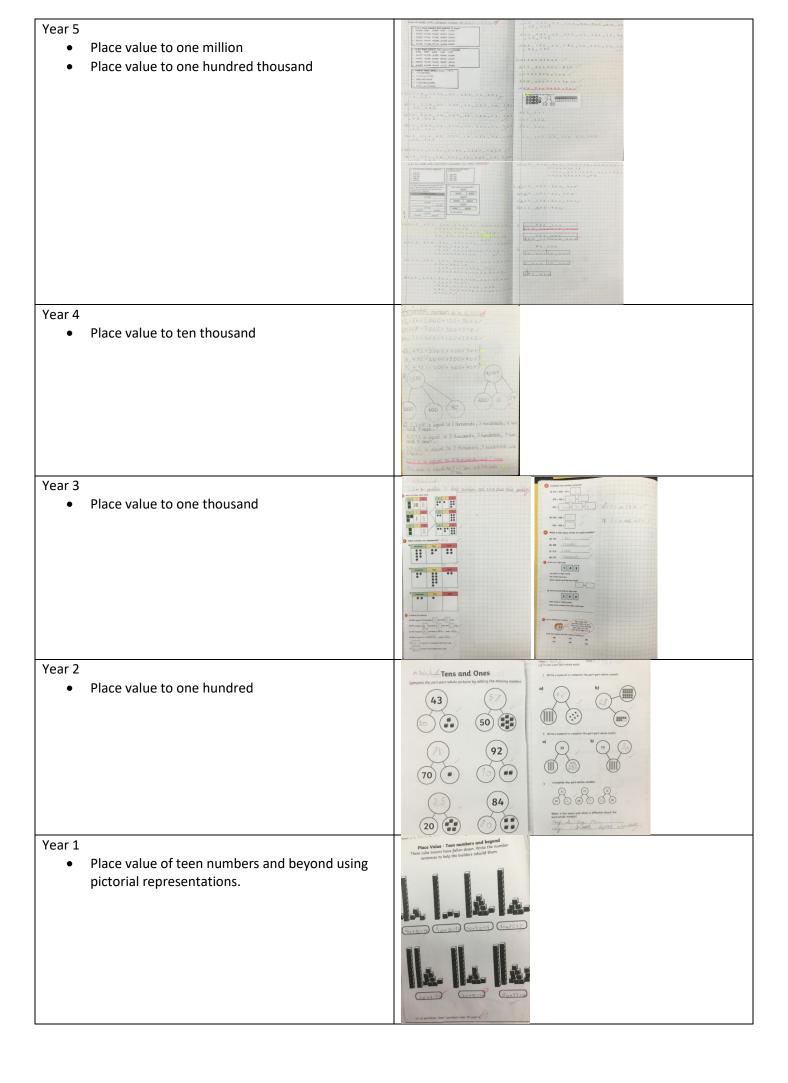
Key targets and actions moving forward (development priorities for 2022/23):

ney targets and detions moving for ward (development priority	
Target and intended outcome	Planned actions (including dates where applicable)
1. Subject leader to successfully complete the mastery specialist	Subject leader to attend three residential training
programme with NCETM and the embedding master workgroup	sessions for the NCETM mastery specialist
alongside the Year 1 teacher, with relevant learning shared with	programme and work with other professionals from
staff.	across the country to share good practice.
Subject leader to continue to refine and develop own subject	Subject leader and Year 1 teacher to attend six
knowledge and use this as a tool to continue to provide CPD for	NCETM 'embedding mastery' sessions and to
staff.	continue to provide CPD based on this approach for
	all teachers.
2. Children to take part in a maths day in the summer term to	Subject leader to discuss with SLT and deliver staff
increase even further children's enjoyment of maths and their	meeting in spring term to introduce idea to
understanding of the wide range of applications for maths skills.	teachers.
All children to experience enrichment of maths at school (as well	Subject leader to investigate potential external
as ongoing maths enrichment for some pupils through outside	providers to support with workshops on the day.
and additional opportunities).	
3. Parent workshops to take place in school again for Y2 and Y4,	Subject leader to finalise the parent workshops
focused on the calculation policy, as well as a times tables	during the autumn term.
workshop for all parents from Y2 up.	Parent workshops to be promoted and delivered in
Parents to have a deeper understanding of how to help support	the spring/summer term.
their children and feel confident in doing so.	

Work sampling 2021/22

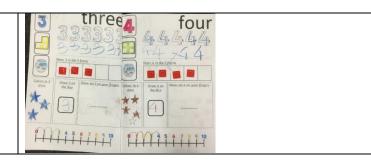
*the pieces of work shown here show a progression of place value knowledge and skills from Reception to Year 6. At the end of this report, there is an additional set of work showing our progression in addition.

Year 6	E. See substituting the same of the Section of the
 Place Value to ten million 	7 A 18 5 5 1980 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	1. 5 1 5 10 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	The state of the s



Reception

Numbers to 10 (formation, ordering)



Pupil voice

Summer 2022/Autumn 2022- children from Y1-6

Pupil voice discussions demonstrated that:

Children could talk confidently about what they were currently learning about:

'We are learning about numbers to one million: the place value of the digits, rounding and comparing.' (Year 5 pupil) 'We have been learning about powers of 10.' (Year 5 pupil)

'We have been learning how to add and subtract 50 and we answered some true and false questions.' (Year 3 pupil)

'I'm learning my 6 times tables in class and we have been learning how to round numbers to 10 and 100.' (Year 4 pupil) 'We've been working on the KFC (keep flip change) method to divide fractions.' (Year 6 pupil)

Children could answer questions based on what they had been learning about:

- Can you partition 1465?
 - o 1000 + 400 + 60 + 5?
- How could you use flexible partitioning to partition this number?
 - 1200 + 265 (Year 4 pupil)
- Can you count in 50s from 0 to 300?
 - o 0, 50, 100, 150, 200, 250, 300 (Year 3 pupil)

Children could explain how their current learning built on learning they had done previously:

'Last year we did fractions and we did multiplying so now we know that we can do dividing.' (Year 6 pupil)

'In Year 5 we did learn about fractions and it was tricky but now we're doing it again it helps me.' (Year 6 pupil)

'We did two digit numbers in Year 2 and three digit numbers in Year 3' (Year 3 pupil)

'In Reception we learnt to count so now that I've learnt to count I can count to 100!' (Year 1 pupil)

'Number bonds to 10 help you to do number bonds within 10 and that helps you bridge.' (Year 2 pupil)

Children were able to talk about our spiralled curriculum:

'We do spaced retrieval in morning work and homework.' (Year 6 pupil)

'Fractions for example – you do it one year and then you do it again the next year and you build up on it.' (Year 6 pupil) 'The maths display can help us because it reminds us of what we're learning.' (Year 5 pupil)

'In the year 1 classroom that says maths on it and it has different ways of counting in 10s 5s 2s and 1s and looking at that helps me to count.' (Year 1 pupil)

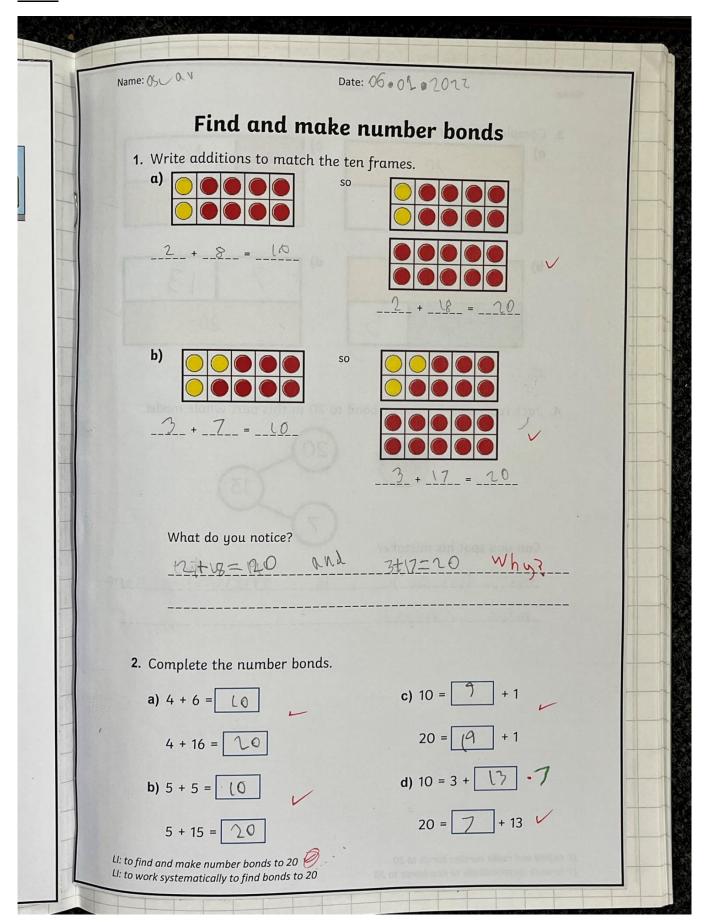
What makes our curriculum provision for Maths exceptional and beyond the expected?

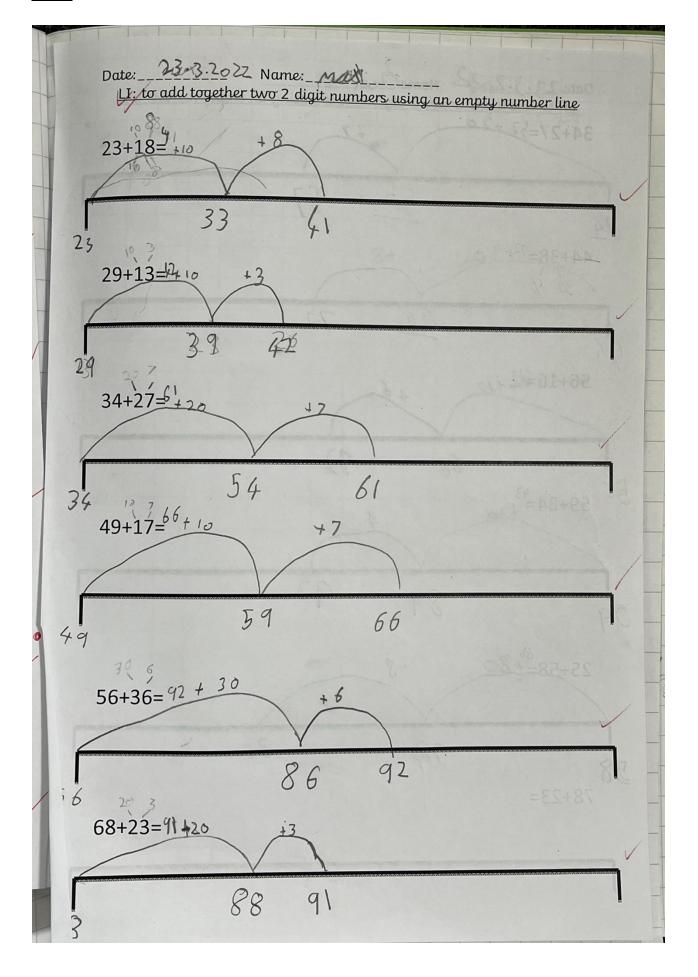
- Exceptional outcomes for children across the school.
- Enrichment opportunities for children for whom maths is a particular strength, for example participation in the UK Maths Challenge, borough-wide competitions for times tables for Year 4 and Saturday sessions for Year 5 children with the Royal Institute for Mathematics.

Key points for discussion with governors about this report

- Participation in NCETM mastery workgroups and wider impact of this for other staff members and maths teaching across the school.
- Importance of our 'keep up not catch up' pedagogical approach.
- Successes of the Camden Spring Slam Times Table challenge.







2 L]		2021 5 e expan	ided col	um add	tion.	
11 1 5 6 2. 1 3 3. 9 3	+.	3 3 3 5 5 1 8 1	37 10 70 180 43 37	4)16 + 5	2	159126
5. 6. Q 2 6 1 7. 3	3 . 1 1	1 1 1 1 2 0 2	10 70 00 80			
1) 1 + 1	75	HT 0 2) 2 4 6 + 1 3 5 1 1 7 0 3 0 0 3 8 1	5	TO 17 57 14 60 00	4)48	
H T 5 5 9 6 9 6	9	HTO 1256 +233 11 80 491	7) 2 -	300	8) 4 6 + 2 4 1 6 0	7 7 0 0

11,2021				Aditio	m.dl			
3214 5122								
8 3 3 6 /								
122								
200	5)	Th	Н	T	0			
409					6			
			7	9	0			
69		8	7	9	6	_	*	
47 9 70 00	0 +	632689	25065					
	3 2 1 4 5 1 2 2 6 3 0 3 0 0 8 0 0 0 8 3 3 6 1 2 2 6 0 5 7 2 0 7 0 0 2 0 0 6 0 7 0 0 6 0 7 0 0 6 0 7 0 0 8 3 2 8 7 0 8 0 0 8 0 0 9 0 0	3 2 1 4 D 5 1 2 2 6 3 0 0 8 0 0 0 8 3 3 6 D 1 2 2 D 6 0 5 7 2 0 7 0 0 D 9 6 0 9 7 0 9 7 0 9 8 3 2 D 9 8 3 2 D 9 8 3 2 D 9 8 9 0 9 0	3 2 1 4	3 2 1 4 3 0 0 4 5 6 6 3 5 6 6 3 5 6 6 3 5 6 6 3 5 6 6 6 3 5 6 6 6 9 7 8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 2 1 4	300 8000 1550 1002 2552 1323 1553 1553 1553 1553 1553 1553 1553 1700 1553 1700 1	3 2 1 4	3 2 1 4

	13.12.21
-	LE To use inverse operations (1/)
1	Work out the answer using column addition and subtraction and then use an inverse operation to check your working out.
	a. 305,737 + 299390 b. 243,685 + 188,556
1	c. 424,512 — 236,678
	d. 833, 128 — 548,199
1	2. I'm thinking of a number. After I add 5,241 and subtract 352, my number is 9,485
	What was my original number?
	3. Eva and Dexter are playing a computer game.
	Eva's high score is 8,524 Dexter's high score is greater than Eva's.
1	The total of both of their scores is 19,384 What is Dexter's high score?
	4. Here is a bar model.
1	20,000
	3,729 8,451 Think of two different ways that you can find the missing part.
	What is the missing part?
	3651737 6969127
la:	+294390 - 294390
	608127 305737
16	12 14 13 16 18 5 14 18 12 12 13 1
	+ 188 5 5 6 - 188 5 5 6
	432241 743685
16	3/ Z 3/ 1/5 X 12 11/8/7/8/3 4
	-236678 + 236678
-	187834 424512 7hhbb
Id	8 3 3 9 2 18 12 18 4 19 12 9
	-548 199 + 548 199 284429 933 128

4/10/2021 U:10 add decimals life sterarios.	with up to 3.d.P and apply it to to
BOTH: 30/80-	2 mino next week
Question 3: Complete	e these additions
) 0.56 + 1.6 (c) 2.45 + 7.8 (d) 8.67 + 3.9
) 1.08 + 2.6 (g) 20.6 + 15.84 (h) 41.8 + 5.35 0.018 + 2.39 (k) 9.224 + 8.89 (l) 0.293 + 9.815
	.4 (j) 0.94 + 4.8 + 12.09 + 5.63
a) 6.5 0	
8.23	
1) 3.50	
b) 0:5 6 1.6 0 +	9)20.60 1)6.293
12.16	3 9 6, 44 10.10)
0)2.45	1)41.80 1)9.52
10 12 5	5-33 0.30
	1.40
9,67	1)7.400 7.21
3.90	7)0.99
e) q.20	5)0.018 12.09
14.07	2-403
	k) 9.224 8.390
3)1.08	18.114
3.68	Ð