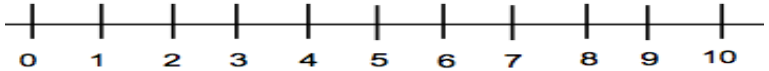
La Mare de Carteret Primary School

Whole School Written Calculation Policy
Concrete, Pictorial, Abstract
Level 1 – 5

Updated:
Review Date :
Written by: Miss Abi Mills - Maths Subject Leader

PROGRESSION OF NUMBERLINES

Pre-national curriculum level	**Number track**	Has the numbers inside the sections, rather than on the divisions	
Low Level 1	**Calibrated, numbered numberline**	Equal divisions marked on the numberline and each division is numbered	
Secure Level 1	**Calibrated, unnumbered numberline**	Equal divisions are marked, but left unnumbered for children to add relevant numbers to	
Level 2	**Blank numberline**	No divisions or numbers marked for the children	

Models and Images		Key Vocabulary			
Models	Images	Addition	Subtraction	Multiplication	Division
Number Tracks Cuisenaire Rods Base 10 Place Value Counters Counting Sticks Tens Frames Numicon Place Value Arrow cards Counting objects	Number Lines Part Whole Models Bar Model	Ones and tens Number bonds, number line. Add, more, plus, make, sum, total, altogether. Inverse Double, near double Half Equals, same as Difference How many more to make ….? How many more is ….? Hundreds Partition Recombine Hundred more/less Column addition Column subtraction Tenths, hundredths, decimal places Round Thousand more/less Roman numerals Count through zero	Half Difference How many more is ….? Subtract, take away, minus How many fewer is … ? How much less is ….?	Count on in twos, three and fives Count on in tens (forwards from/backwards from) How many times? Lots of, groups of Once, twice, three times, five times Times, multiply, multiply by Repeated addition Double Multiple of Division facts Product Multiples Inverse Derive Factor pairs Composite numbers Prime numbers Prime factors Square number Cubed number	Halve Share, share equally Groups in pairs, groups in threes Equal groups of … Divide, divided by, left, left over

		Negative numbers		Order of operations Common factors, common multiples	

Number at Pre Level 1

Number is taught through a variety of practical contexts:

- exploring numbers in the world around us
- number in role-play
- number rhymes
- counting objects
- games
- number stories

Addition

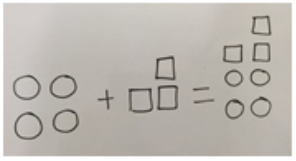
Have an understanding of what "more" means and be able to say what is one more than a given number, at first to 10 and then to 20.

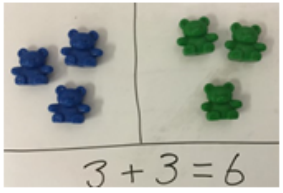


Begin to combine groups of objects or pictures using a variety of concrete apparatus.



Make a record in pictures, Numicon shapes or symbols of addition activities.



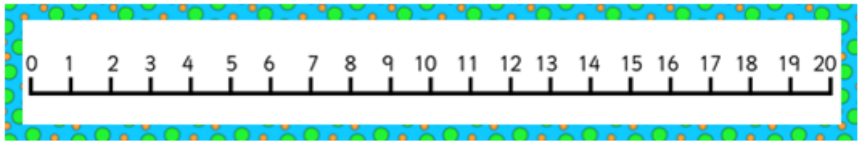




Children are encouraged to read number sentences aloud in different ways: e.g. "Three add two equals 5" "Four plus 3 makes 7"

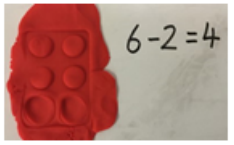
Subtraction

Have an understanding of what "less" means and be able to say what is one less than a given number, at first from 10 and then from 20.

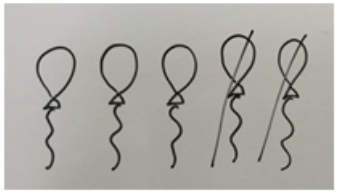


Begin to use objects, pictures and concrete apparatus to relate subtraction to taking away and counting how many objects are left.





Make a record in pictures, words, Numicon shapes or symbols of subtraction activities.



6 - 1 = 5

Children are encouraged to read number sentences aloud in different ways e.g. "Five subtract one leaves four" "Six take away 3 equals 3".

Multiplication

The link between addition and multiplication can be introduced through doubling and reinforced through repeated addition of the same number.



Children begin with pictorial representations. Use real life contexts and practical equipment to count in repeated groups of the same size.

Extending to count in twos, fives and tens, both aloud and with objects, such as Numicon or other concrete apparatus.





Children are encouraged to read number sentences aloud in different ways

e.g. "Five groups of two makes ten" "Three lots of two makes six".

Children are given multiplication problems set in a real life context and are encouraged to visualise the problem.

e.g. "How many fingers on two hands?" "How many sides on three triangles?"

"How many wheels are there altogether?"



Division

Division can be introduced through halving or sharing an equal amount into 2 groups.



"6 gingerbread men shared between 2 people means they get 3 each"

"6 shared between 2 equals 3"

Children begin with mostly pictorial representations linked to real life contexts, recording their work using these objects such as the example above.

Children need to see and hear representations of division as both grouping and sharing, although the focus at this stage is on division as sharing.



Grouping Model
Mum has 6 socks. She grouped them into pairs. How many pairs did she make?

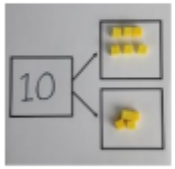
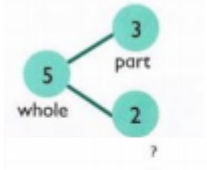
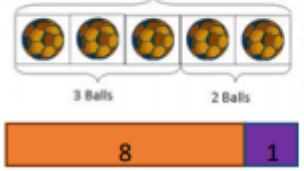
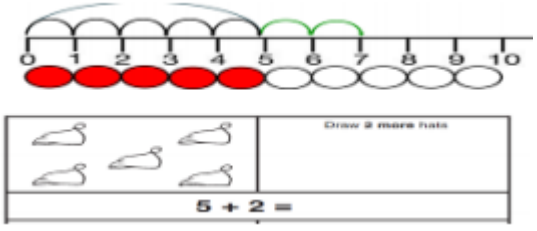
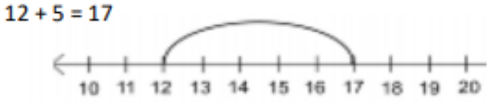


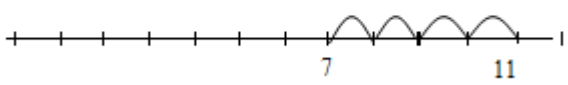
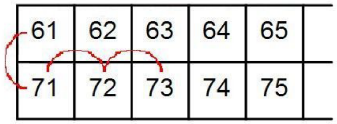
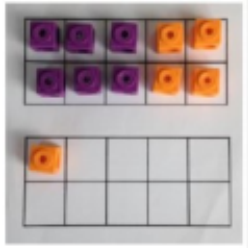
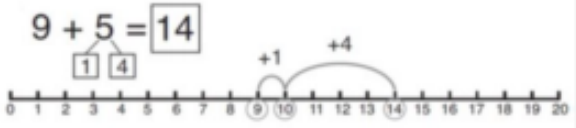
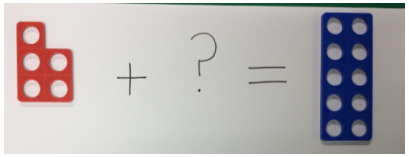
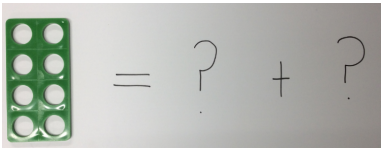
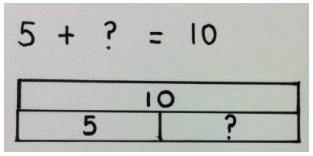
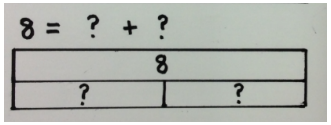
Sharing Model
I have 10 sweets. I want to share them with my friend. How many will we have each?

Addition

Guernsey Curriculum - Early Phase (E1g)

- To understand concepts of more than and less than, progressing onto concepts of addition and subtraction.
- To use appropriate written methods of addition and subtraction with whole numbers

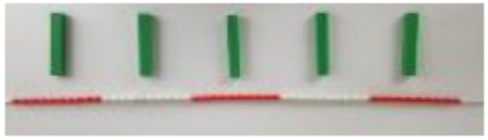
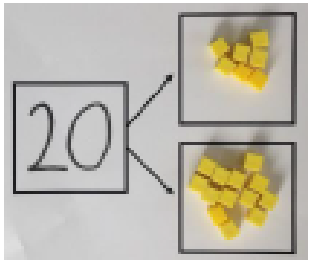
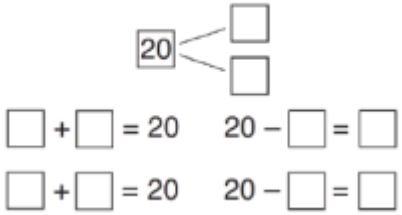
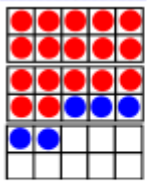
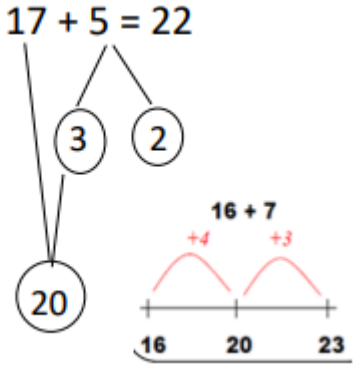
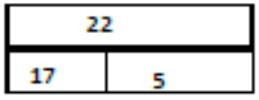
LEVEL 1	Objective and strategy	Concrete *APP – Pupils should record their work, e.g.* *- record their work with objects, pictures or diagrams* *- begin to use the symbols '+' and '='*	Pictorial	Abstract
	Combining two parts to make a whole: part-whole model	   Use part part whole model. Use cubes to add two numbers together as a group or in a bar.  **Numicon**  Numicon is used to support addition and further understand the equivalence in a number sentence e.g. 3 + 4 is the same as 7. Numicon should be used alongside other resources to learn bonds of all numbers to 10.	   Use pictures to add two numbers together as a group or in a bar. 	4 + 3 = 7  10= 6 + 4 Use the part-part whole diagram as shown above to move into the abstract.
	Starting at the bigger number and counting on	 Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer.	**Number lines** Using calibrated number numberlines (low Level 1). Equal divisions marked on the numberline and each division is numbered.  Start at the larger number on the number line and count on in ones or in one jump to find the answer. Progressing to calibrated unnumbered numberlines. Equal divisions are marked, but left unnumbered for children to add relevant numbers to.	12 + 5 = 17 Place the bigger number in your head and count on the smaller number to find your answer.

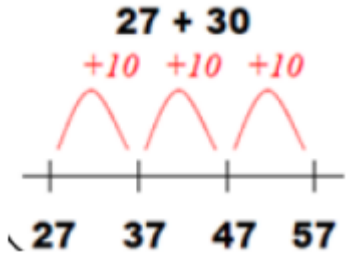
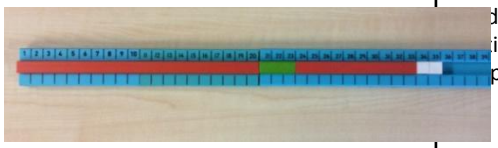
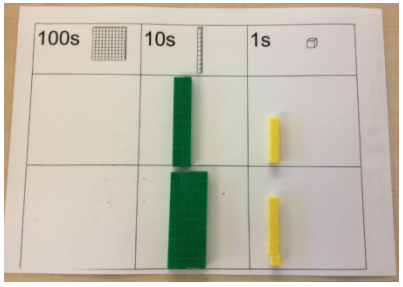
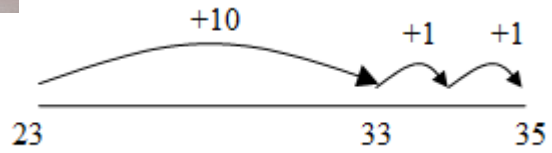
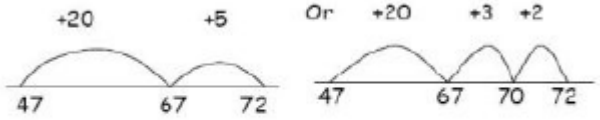
			7 + 4 = 11 Children go up in 1s  Number grids  **100 square** (*61 + 12 = 73*)	
Regrouping to make 10	 Start with the bigger number and use the smaller number to make 10. Use ten frames. 6+5=		 Use pictures or a number line. Regroup or partition the smaller number using the part part whole model to make 10.  	3 + 9 = 12 If I am at nice, how many more do I need to make 10? How many more do I add on now?
+ and = signs and missing numbers	  		  	**+ = signs and missing numbers** 3 + 4 = □ □ = 3 + 4 3 + □ = 7 7 = □ + 4 □ + 4 = 7 7 = 3 + □ □ + ∇ = 7 7 = □ + ∇ Move onto covering up of operations and numbers in practical contexts.

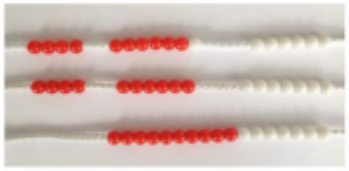
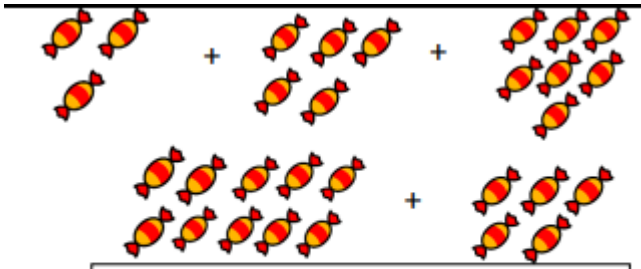
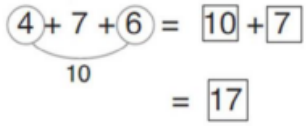
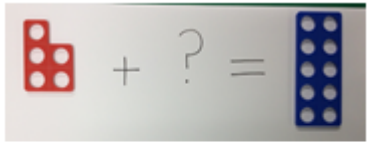
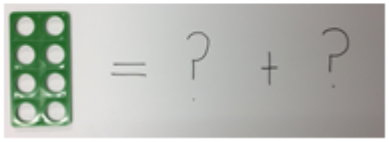
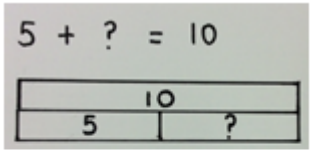
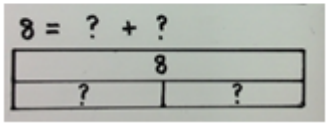
Addition

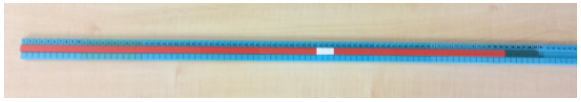
Guernsey Curriculum - Early Phase (E1g)

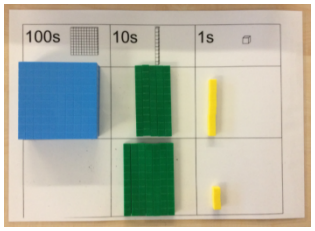
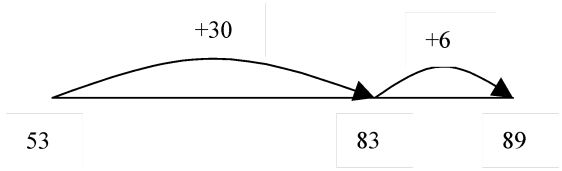
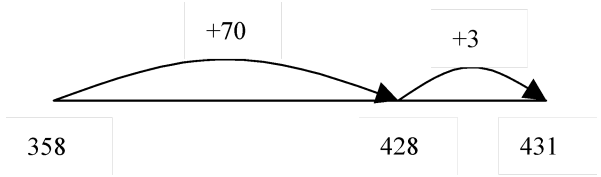
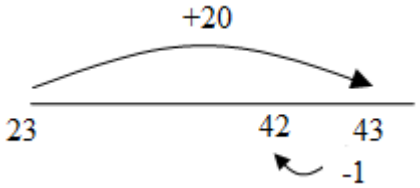
- To understand concepts of more than and less than, progressing onto concepts of addition and subtraction.
- To use appropriate written methods of addition and subtraction with whole numbers

LEVEL	Objective and strategy	Concrete *APP - Pupils should record their work in writing e.g. record their mental calculations as number sentences.*	Pictorial .	Abstract
2	**Adding multiples of 10**	50= 30 = 20  Model using dienes and bead strings	 3 tens + 5 tens = _____ tens 30 + 50 = _____ Use representations for base ten.	20 + 30 = 50 70 = 50 + 20 40 + □ = 60
	Use known number facts **Part, part, Whole**	 Children explore ways of making numbers within 20.	 20 □ + □ = 20 20 − □ = □ □ + □ = 20 20 − □ = □	□ + 1 = 16 16 − 1 = □ 1 + □ = 16 16 − □ = 1
	Add a two digit number and ones	 17 + 5 = 22 Use ten frame to make 'magic ten Children explore the pattern. 17 + 5 = 22 27 + 5 = 32	**Use part, part whole and number line** Use part part whole and number line to model.  17 + 5 = 22 3 2 20 16 + 7 +4 +3 16 20 23	Explore related facts 17 + 5 = 22 5 + 17 = 22 22—17 = 5 22—5 = 17  22 17 5

	Add a two digit number and tens	 25 + 10 = 35 Explore that the ones digit does not change		27 + 10 = 37 27 + 20 = 47 27 + ? = 57
	Adding two 2-digit numbers	Model using Base 10 and numicon  	**Number lines** Blank number lines- no divisions or numbers marked for the dren. Children encouraged to start with the larger number and ition the smaller number into tens and ones. Show these ps on the blank number line going **ABOVE** the line.   Use number line and bridge ten using part whole if necessary.	23 + 12 = 35 23 + 12 10 2 OR 25 + 47 = 20 + 5 40 + 7 20 + 40 = 60 5 + 7 = 12 60 + 12 = 72

	Add three 1 digit numbers	**4 + 7 + 6= 17** Put 4 and 6 together to make 10. Add on 7.  Following on from making 10, make 10 with 2 of the digits (if possible) then add on the third digit.	 Add together three groups of objects. Draw a picture to recombine the groups to make 10.	 Combine the two numbers that make 10 and then add on the remainder.
	+ and = signs and missing numbers	 	 	**+ = signs and missing numbers** 14 + 5 = 10 + □ 30 + □ = 100

Addition				
Guernsey Curriculum – Middle Phase (M1g) • To use appropriate written methods of addition and subtraction with whole numbers up to 1000				
L E V E L	**Objective and strategy**	**Concrete**	**Pictorial**	**Abstract**
	Blank numberlines Continue to use blank numberlines using 2 and 3 digit numbers that involve bridging 10 or 100. Ensure children are jumping in groups of tens and ones e.g. 36 + 53 = 89			
	Adding two 2-digit numbers		**Partition into tens and ones and recombine** Partition both numbers and recombine. Refine to partitioning the second number only e.g. 36 + 53 = 53 + 30 + 6 = 83 + 6 = 89	**36 + 53 =**

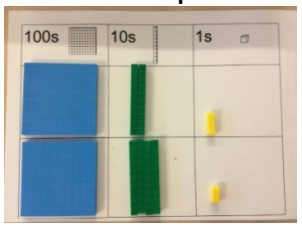
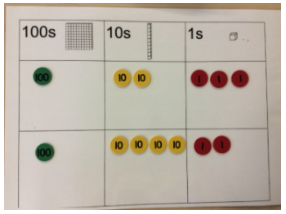
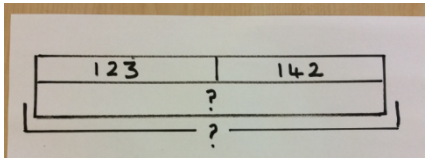
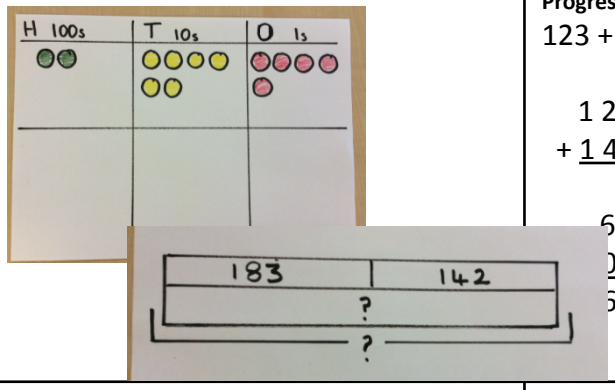
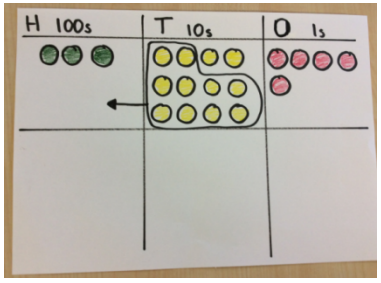
3 (low)			 358 + 73 = 	**358 + 73 =**
	Adding a near multiple of ten to a two digit number		**<u>Add a near multiple of 10 to a two-digit number</u>** Mental strategies to be modelled by class teacher using a number line e.g. 23+19 = 	**23 + 19 = 42**
	+ and = signs and missing numbers			**<u>+ = signs and missing numbers</u>** Continue using a range of equations as in L1 and L2 but with appropriate larger numbers.

Addition

Guernsey Curriculum – Middle Phase (M1g)

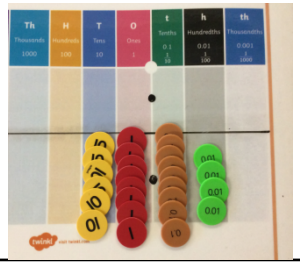
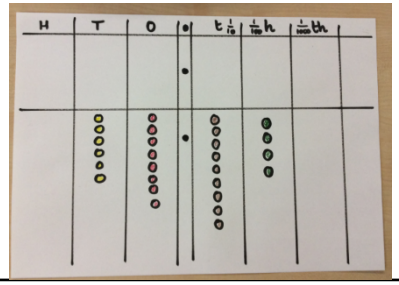
- To use appropriate written methods of addition and subtraction with whole numbers up to 1000

LEVEL 3 (secure & high)

Objective and strategy	Concrete	Pictorial	Abstract
	APP - Pupils should add and subtract three digit numbers using written methods, e.g. - Use written methods that involve bridging 10 or 100 - Add and subtract decimals in the context of money, were bridging is not required.	.	
Adding 3-digit numbers **No regrouping**	**Make both numbers on a place value grid.**  	 	123 + 142=265 100 + 20 + 3 + 100 + 40 + 2 200 + 60 + 5 **Progressing to…** 123 + 142 = 265 1 2 3 + 1 4 2 5 6 0 0 0 6 5
Adding 3 digit numbers **With regrouping**	**Make both numbers on a place value grid.** 		183+142 = 325 100 + 80 + 3 + 100 + 40 + 2 200 + 120 + 5

				Progressing to… 183 + 142 = 325 1 8 3 + 1 4 2 5 1 2 0 2 0 0 3 2 5

Addition				
Guernsey Curriculum – Bridging Phase (B1g) • To use appropriate written methods of addition and subtraction to numbers with whole numbers and decimals				
L E V E L 4	**Objective and strategy**	**Concrete** *APP - Pupils should use efficient written methods of addition* - Add decimals to 2 decimal places	**Pictorial** .	**Abstract**
	Efficient column method	**Make both numbers on a place value grid.** **Base 10 /place value counters as per level 3**	**Pictorial as per level 3**	**Formal method, showing numbers carried underneath** 358 + 173 = 3 5 8 + 1 7 3 5 3 1 1 1 Start adding with the units and ensure digits are lined up correctly **Extend to numbers with 4 digits** 3587 + 675 = 4262 3 5 8 7 + 6 7 5 4 2 6 2 1 1 1

		 	**Base 10 /place value pictorial as per level 3** 	Extend to adding several different numbers with different number of digits 3425 + 169 + 56 = 3 4 2 5 1 6 9 + 5 6 3 6 5 0 1 2 **Extend to decimals (to two decimals places)** 45.71 + 23.23 = 4 5 . 7 1 + 2 3 . 2 3 6 8 . 9 4

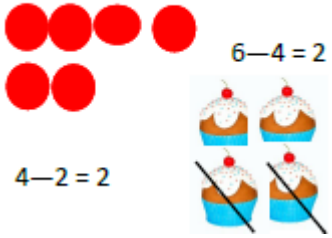
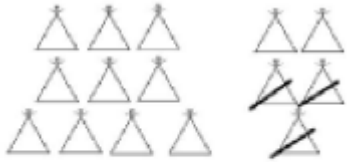
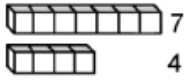
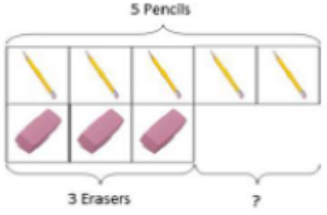
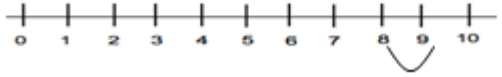
Addition				
Guernsey Curriculum – Bridging Phase (B1g) • To use appropriate written methods of addition and subtraction to numbers with whole numbers and decimals				
LEVEL 5	**Objective and strategy**	**Concrete** *APP – Use all four operations with decimals to two decimal places* - Add and subtract numbers that do not have the same number of decimal places	**Pictorial** .	**Abstract**
	Efficient column method	**Place value counters as per level 4**	**Pictorial as per level 4**	**Formal method, showing numbers carried underneath. Add numbers with any number of digits and that do not have the same number of decimal places.** 124.9 + 117.25 = 242.15 1 2 4 . 9 0 + 1 1 7 . 2 5 ← Ensure decimal points add up and add in a zero to keep the place value. 2 4 2 . 1 5 1 1

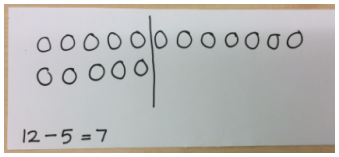
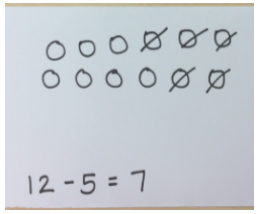
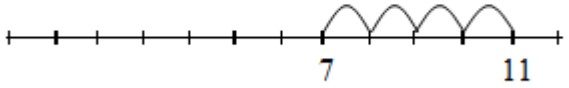
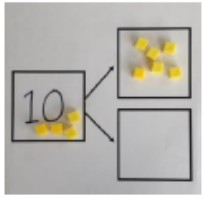
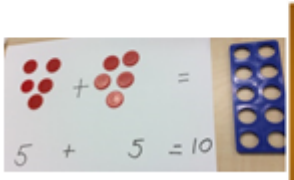
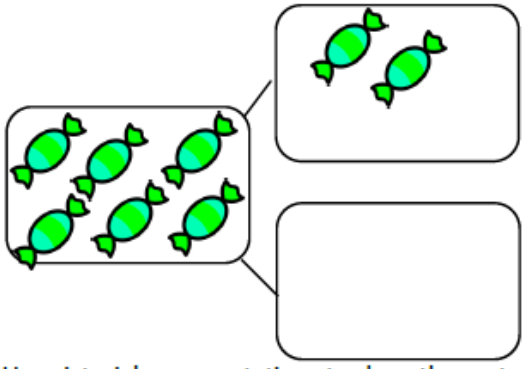
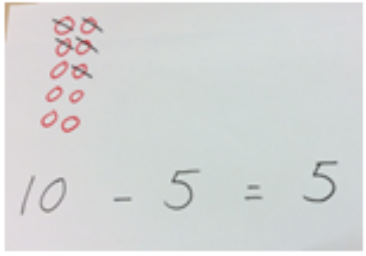
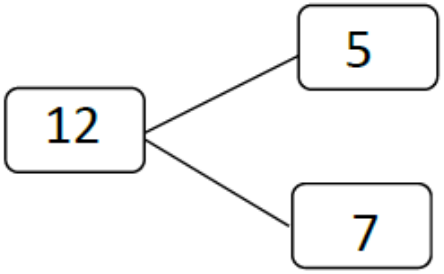
Subtraction

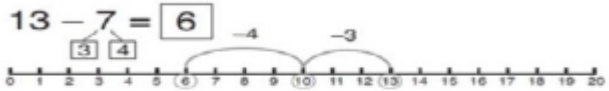
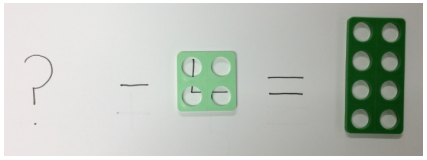
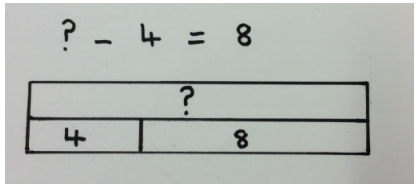
Guernsey Curriculum – Early Phase (E1g)

- To understand the concepts of more than and less than, progressing onto concepts of addition and subtraction
- To use appropriate written methods of addition and subtraction with whole numbers

LEVEL 1

Objective and strategy	Concrete *APP –pupils should record their work e,g,* - Record with objects, pictures or diagrams - Begin to use the symbols – and =	Pictorial .	Abstract
Taking away ones	Use physical objects, counters , cubes etc to show how objects can be taken away.  6—4 = 2 4—2 = 2	 15 – 3 = 12 Cross out drawn objects to show what has been taken away.	7—4 = 3 16—9 = 7
Taking away from a set and finding how many are left using objects/pictures / marks	Sam spent 4p. What was his change from 10p? 		Sam spent 4p. What was his change from 10p?
Begin to progress from understanding subtraction as 'taking away' to finding a small difference	 7 'Seven is 3 more than four' 4 'I am 2 years older than my sister'  Lay objects to represent bar model.	Using calibrated number numberlines (low Level 1) Equal divisions marked on the numberline and each division is numbered 9-1=8  	**Hannah has 12 sweets and her sister has 5. How many more does Hannah have than her sister?**

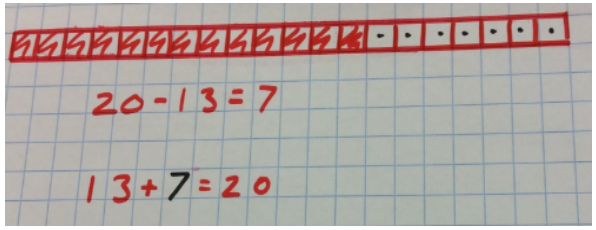
			  Progressing to-the difference between 7 and 11 (Counting on) To reinforce concept. Practical strategies essential to see 'difference'.  Recording by - drawing jumps on prepared lines.	
Represent and use number bonds and related subtraction facts	 Link to addition. Use PPW model to model the inverse. If 10 is the whole and 6 is one of the arts, what s the other part? 10—6 = 4    	 Use pictorial representations to show the part. 	Move to using numbers within the part whole model.  **5 + 5 = 10** **10 – 5 = 5**

	Make 10	14—9  Make 14 on the ten frame. Take 4 away to make ten, then take one more away so that you have taken 5.	13—7  Jump back 3 first, then another 4. Use ten as the stopping point.	16—8 How many do we take off first to get to 10? How many left to take off?
	= signs and missing numbers			**- = signs and missing numbers** 7 - 3 = □ □ = 7 - 3 7 - □ = 4 4 = □ - 3 □ - 3 = 4 4 = 7 - □ □ - ∇ = 4 4 = □ - ∇

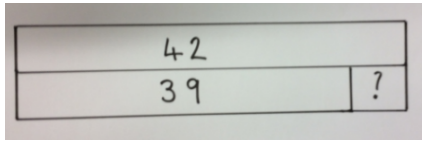
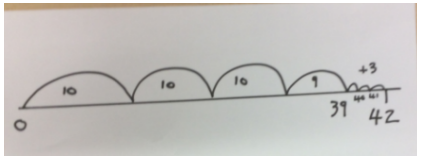
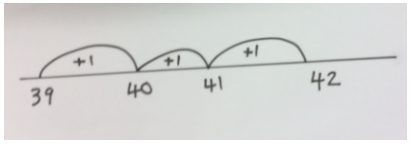
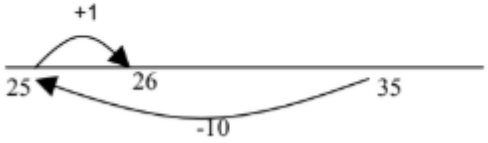
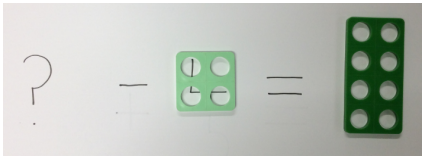
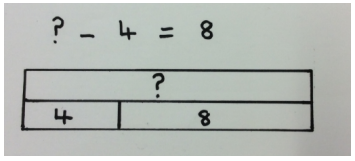
Subtraction

Guernsey Curriculum – Early Phase (E1g)

- To understand the concepts of more than and less than, progressing onto concepts of addition and subtraction
- To use appropriate written methods of addition and subtraction with whole numbers

LEVEL	**Objective and strategy**	**Concrete** *APP – Pupils should record their work in writing e.g. record their mental calculations as number sentences.*	**Pictorial** .	**Abstract**
	Understand subtraction as the inverse of addition			**20 – 13 = 7** **13 = 7 = 20**

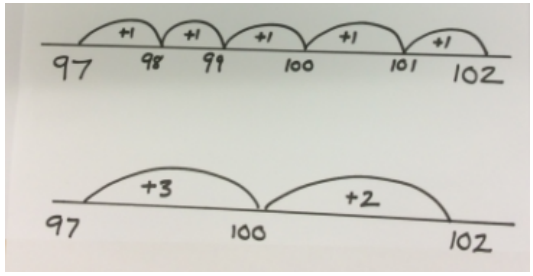
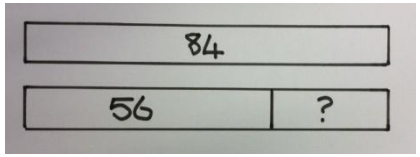
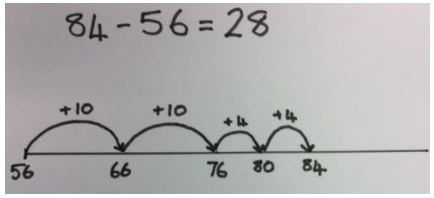
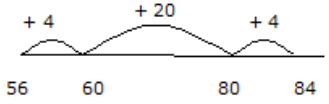
2

Find a small difference by counting up		  	**42 – 39 = 3**
Subtracting 9 or 11 by adjusting		**Subtracting 9 or 11 by adjusting** *Mental strategies* to be modelled by class teacher using a number line e.g. 35 – 9 = 	**35 – 9 = 26**
= signs and missing numbers			**- = signs and missing numbers** 7 - 3 = □ □ = 7 - 3 7 - □ = 4 4 = □ - 3 □ - 3 = 4 4 = 7 - □ □ - ∇ = 4 4 = □ - ∇

Subtraction

Guernsey Curriculum – Middle Phase (M1g)

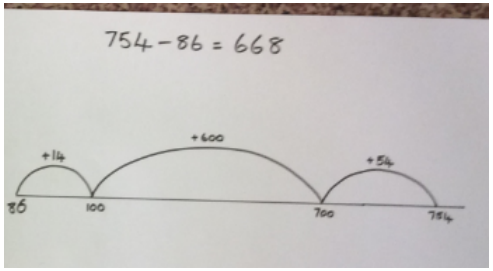
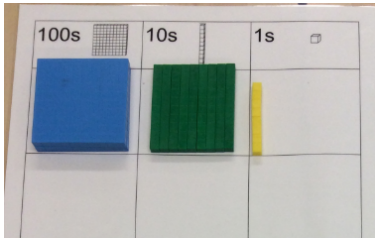
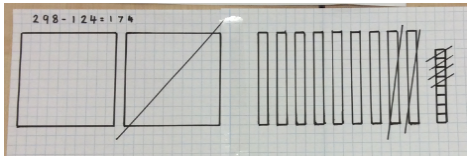
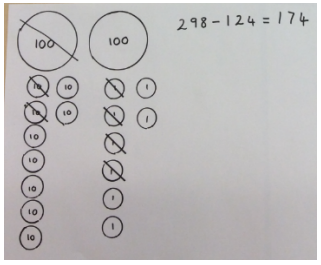
- To use appropriate written methods of addition and subtraction up to 1000

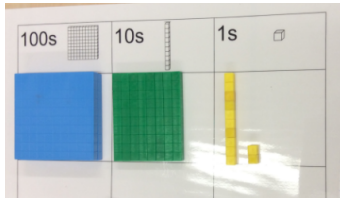
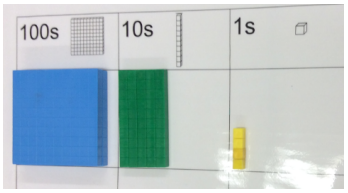
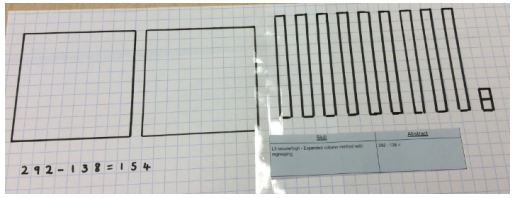
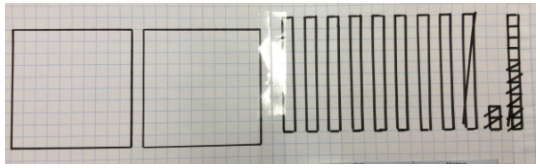
	Objective and strategy	Concrete *APP – Pupils should record their work in writing e.g. record their mental calculations as number sentences.*	Pictorial .	Abstract
LEVEL 3 (Low)	**Find a small difference by counting up**			**102 – 97 = 5**
	Complementary Addition		  	**84 – 56 = 28**

Subtraction

Guernsey Curriculum – Middle Phase (M1g)

- To use appropriate written methods of addition and subtraction up to 1000

LEVEL 3 (Secure & High)	Objective and strategy	Concrete *APP – Pupils should add and subtract 3 digit numbers using written methods e.g.* - Use written methods that involve bridging 10 or 100 - Add and subtract decimals in the context of money, where bridging is not required	Pictorial .	Abstract
	Complementary addition			**754 – 86 = 668**
	Expanded column method		 	**298 – 124 =** **200 + 90 + 8** **-100 + 20 + 4** **100 + 70 + 4 = 174**

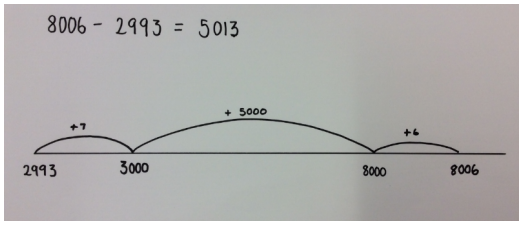
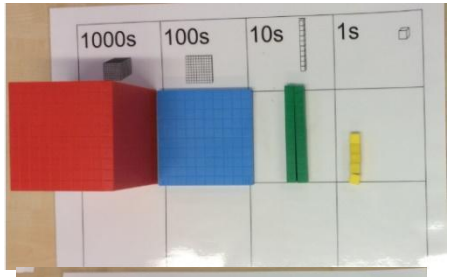
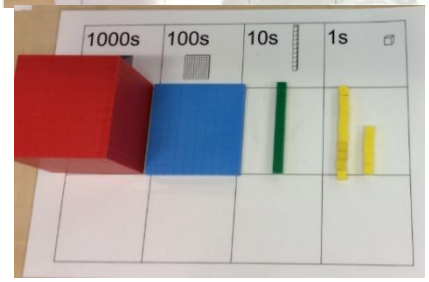
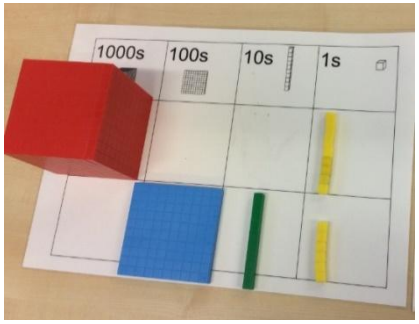
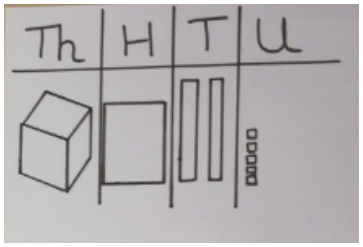
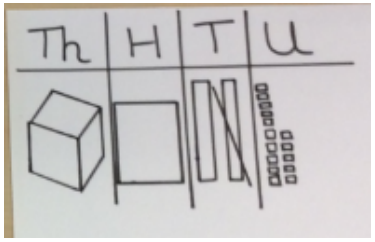
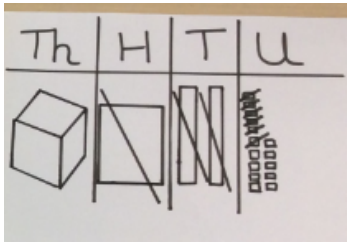
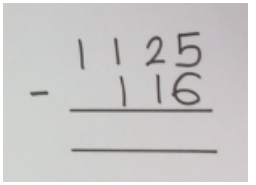
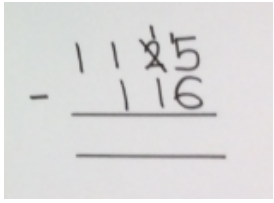
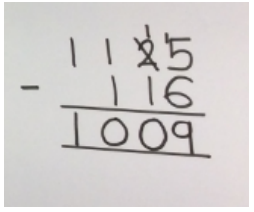
	Expanded column method with borrowing	  	 	292 – 138 = 80 12 200 + 90 + 2 -100 + 30 + 8 100 + 50 + 4 = 154

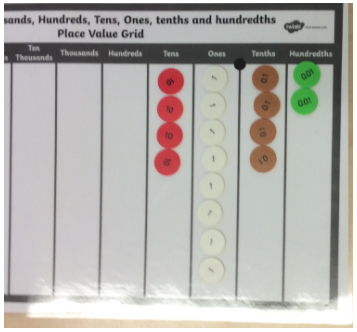
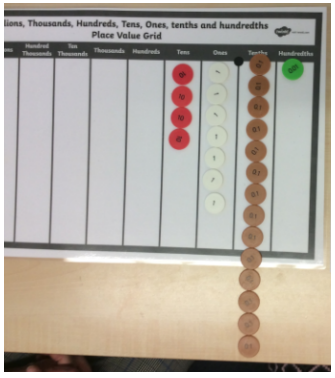
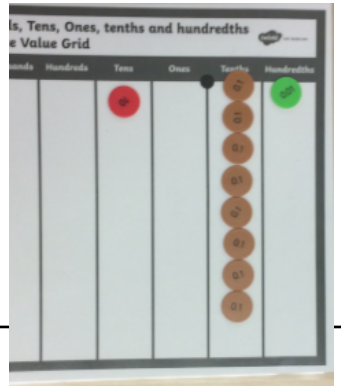
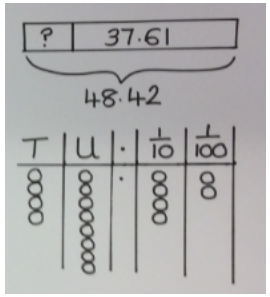
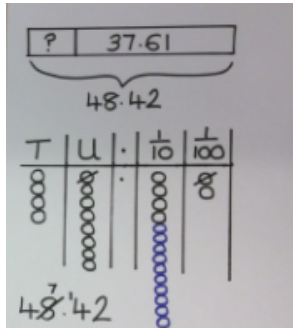
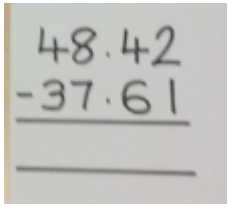
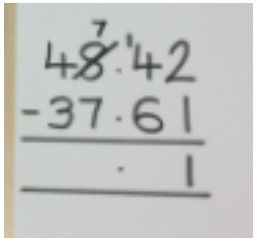
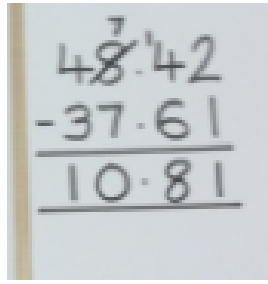
Subtraction

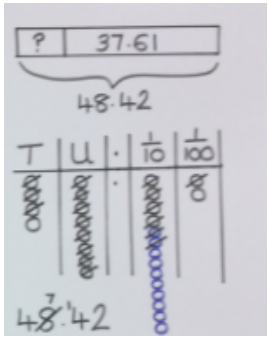
Guernsey Curriculum – Bridging Phase (B1g)

- To use appropriate written methods of addition and subtraction to numbers with whole numbers and decimals

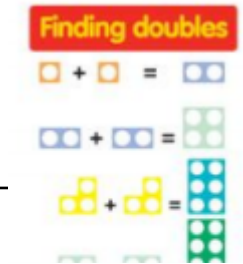
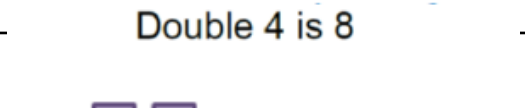
	Objective and strategy	**Concrete**	**Pictorial**	**Abstract**
LEVEL 4		*APP – Pupils should use efficient written methods of subtraction e.g. 1025 -336* - Subtract decimals to two places	.	

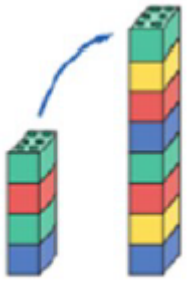
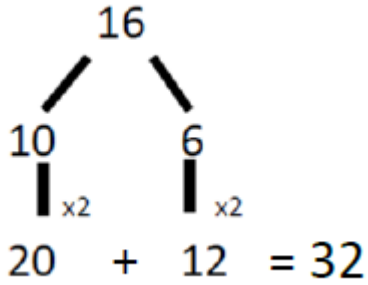
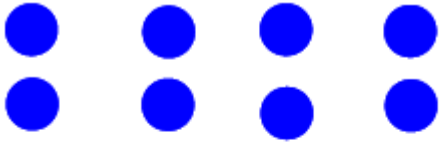
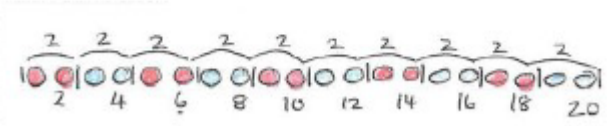
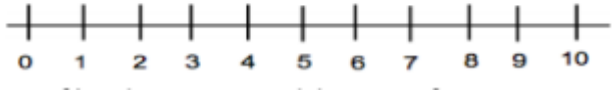
	Finding the difference by counting on (Mental method)			**8006 – 2993 = 5013**
	Efficient column method	  	  	**1125 – 116 = 1009**   
	Introducing Zero			

		Base 10/place value counters as per above	**Pictorial as per above**	1025 – 336 = 0 9 11 1 1 0 2 5 - 3 3 6 6 8 9 4 9 9 1 5 0 0 0 - 4 5 7 4 5 4 3
	To two decimal places	   	  	  

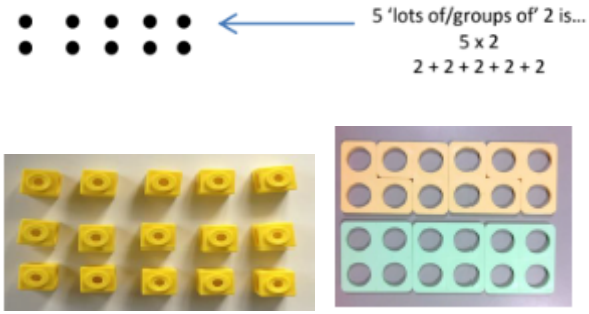
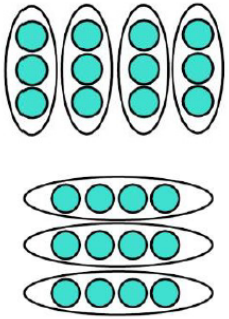
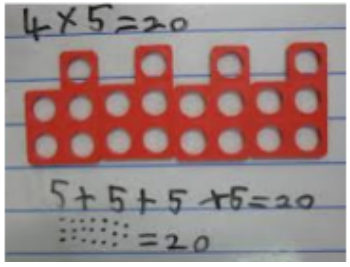
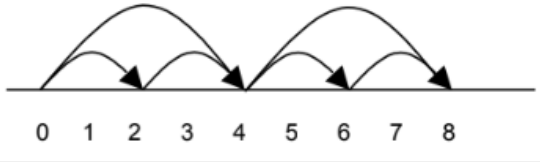
				

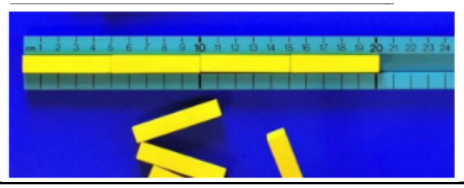
Subtraction				
Guernsey Curriculum – Bridging Phase (B1g) ● To use appropriate written methods of addition and subtraction to numbers with whole numbers and decimals				
LEVEL 5	**Objective and strategy**	**Concrete** *APP – Pupils should use efficient written methods of subtraction e.g. 1025 -336* - Subtract decimals to two places	**Pictorial** .	**Abstract**
	Efficient column method	**<u>Place Value counters as per Level 4</u>**	**<u>Pictorial as per Level 4</u>**	Extend to add numbers with any number of digits and that do not have the same number of decimal places. e.g. 302.63 – 178.124 = 2 9 1 ~~3~~ ~~0~~ ~~2~~ . 6 ~~3~~ ~~1~~ 0 - 1 7 8 . 1 2 4 1 2 4 . 5 0 6 ← *Ensure decimal points line up and add in a zero to keep the place value.*

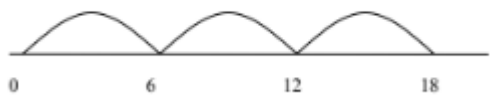
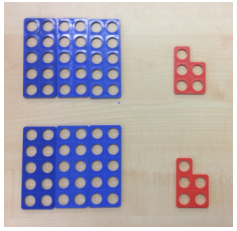
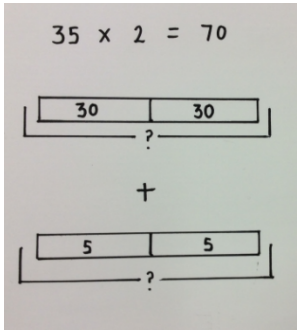
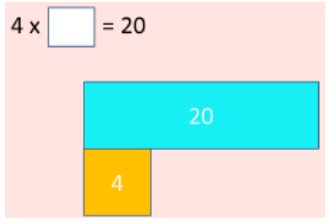
Multiplication				
Guernsey Curriculum – Early Phase (E1i) ● To understand the concept of multiplication as repeated addition through arrays, diagrams and pictures				
LEVE	**Objective and strategy**	**Concrete** *APP – Pupils should use efficient written methods of subtraction e.g. 1025 -336* - Subtract decimals to two places	**Pictorial** .	**Abstract**
	Finding doubles		Draw pictures to show how to double numbers 	Partition a number and then double each part before recombining

L 1		 double 4 is 8 4 × 2 = 8		
	Counting in multiples	 	 Children make representations to show counting in multiples.  	Count in multiples of a number aloud. Write sequences with multiples of numbers. 2, 4, 6, 8, 10 5, 10, 15, 20, 25 , 30
	Finding lots of/groups of	There are 3 sweets in one bag. How many sweets are there in 5 bags? 	*Class teacher to begin to model recording on a number line when solving problems.*  	**2 groups of 5 equals 10** **2 x 5 = 10**

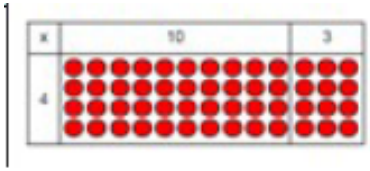
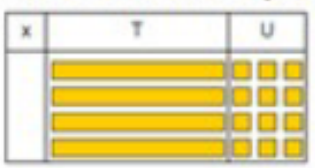
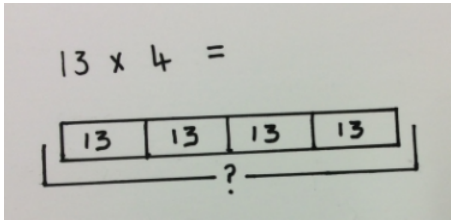
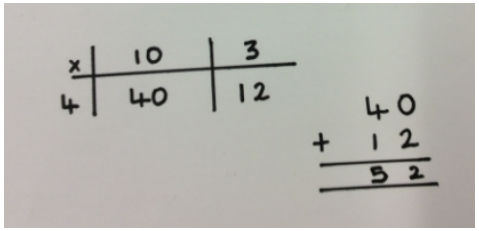
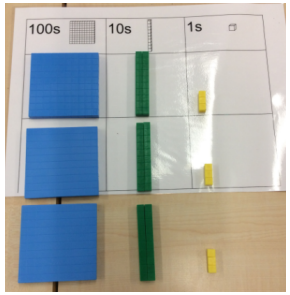
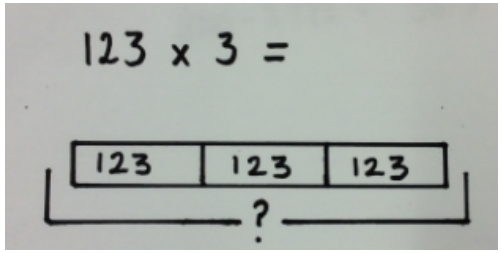
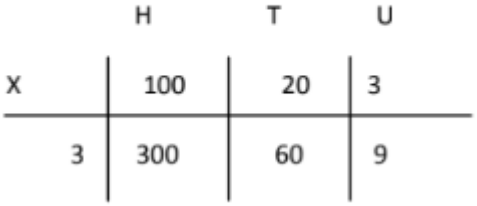
Multiplication				
Guernsey Curriculum – Early Phase (E1i) ● To understand the concept of multiplication as repeated addition through arrays, diagrams and pictures				
L E	**Objective and strategy**	**Concrete** *APP – count sets of objects reliably e.g. group objects into tens, twos, or fives to count them* - Use repeated addition to solve multiplication problems	**Pictorial** .	**Abstract**

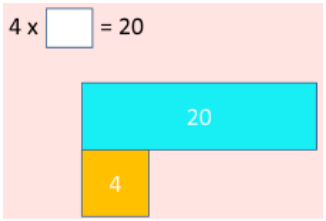
V E L 2	**Counting sets of objects**	Counting in 2s e.g. socks, shoes, 2p coins. Counting in 5s e.g. toes on one foot, fingers on one hand, 5p coins. Counting in 10s e.g. toes on both feet, fingers on both hands, 10p coins.		
	Arrays	Create arrays using concrete materials 	Draw arrays, clearly grouped to show different representations 	Use arrays to record number sentences  5 + 5 + 5 = 15 3 + 3 + 3 + 3 + 3 = 15 5 x 3 = 15 3 x 5 = 15
	Repeated addition		Blank numberlines to show repeated addition 	2 x 4 = 8 2 + 2 + 2 + 2 4 x 2 = 8 4 + 4

Multiplication			
Guernsey Curriculum – Middle Phase (M1i) • To multiply a 2 digit number by a single digit number and 10 using an appropriate written method			
L E V E L	**Objective and strategy**	**Concrete**	**Pictorial**	**Abstract**
	Repeated addition	Use Cuisenaire rods and number tracks to scaffold understanding of multiplication 	Blank number lines to show multiplication as repeated addition	**3 x 6 =** **4 x 5 =**

3 **(Low)**			3 x 6 =  	
	Partitioning	 	 	Multiply a 2 digit number by 2, 3, 4 or 5 35 x 2 = 70 (30 x 2)+ (5 x 2) 60 + 10 =70
	X = signs – missing numbers		 	**x = signs and missing numbers -** Continue using a range of equations but with appropriate numbers.

Multiplication				
Guernsey Curriculum – Middle Phase (M1i) • To multiply a 2 digit number by a single digit number and 10 using an appropriate written method				
L E V	**Objective and strategy**	**Concrete**	**Pictorial**	**Abstract**
	Grid method			

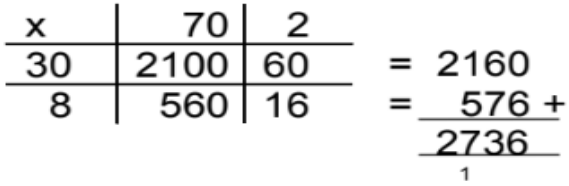
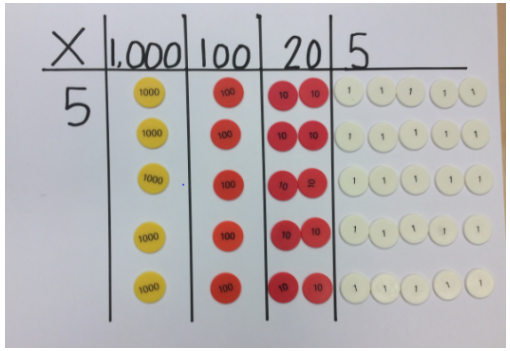
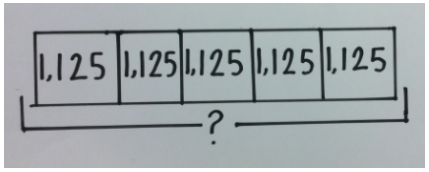
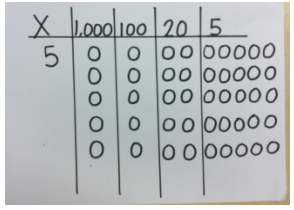
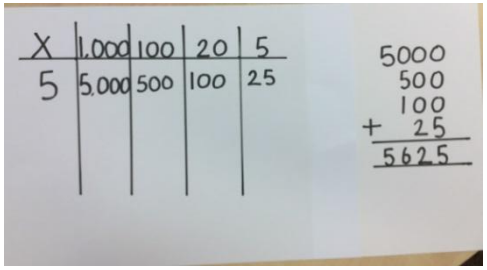
EL 3 (secure and high)	**Multiply a two-digit number by 2, 3, 4, 5, 10**	**Show the links with arrays first to introduce grid method**  4 rows of 10 4 rows of 3 **Move on to base 10 to show a more compact method**  4 rows of 13		
	Grid method Extend to – HTU x U			123 x 3 = 369 

	X = signs – missing numbers			**x = signs and missing numbers -** Continue using a range of equations but with appropriate numbers.

Multiplication

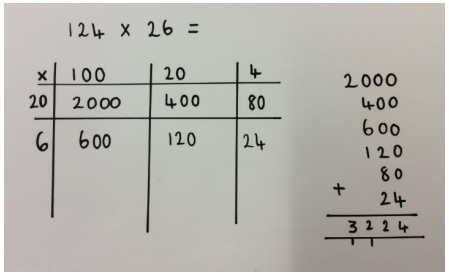
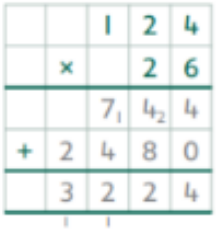
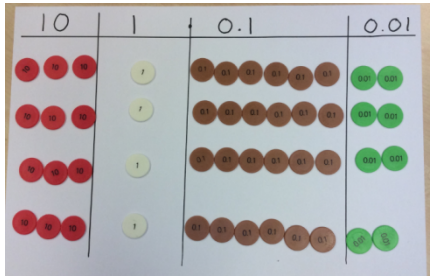
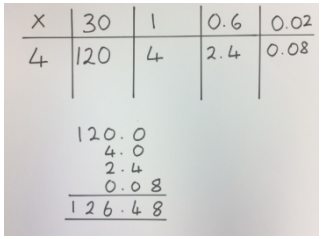
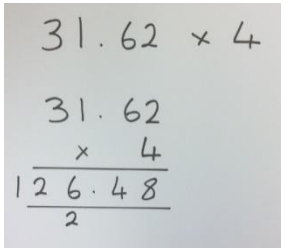
Guernsey Curriculum – Bridging Phase (B1i)

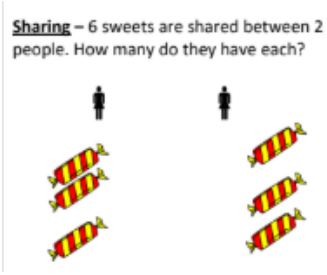
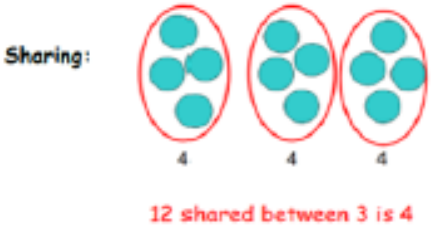
- To use appropriate written methods of multiplication with whole numbers and decimals

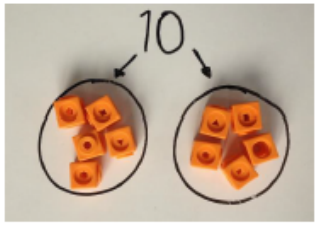
LEVEL 4	**Objective and strategy**	**Concrete** APP – use efficient written methods of multiplication and division - Multiply a simple decimal by a single digit	**Pictorial** .	**Abstract**
	Grid method 2 digit by 2 digit TU X TU			
	Grid method Extend to – ThHTU x U		 	
	Multiply a simple decimal (including 2 dp			

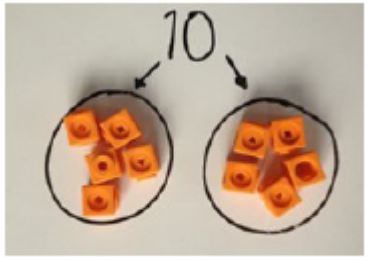
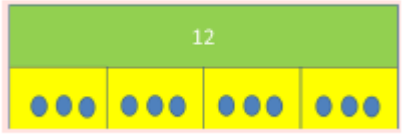
	in the context of money) by a single digit	**Place Value counters as per above**	**Pictorial as per above**	e.g. 36.2 x 8 = x | 30 | 6 | 0.2 | 8 | 240 | 48 | 1.6 | = 289.6
	Short multiplication- multiply by a single digit	**Place Value counters as per above**	**Pictorial as per above**	239 x 4 956 1 3

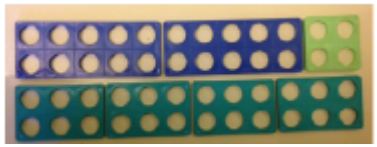
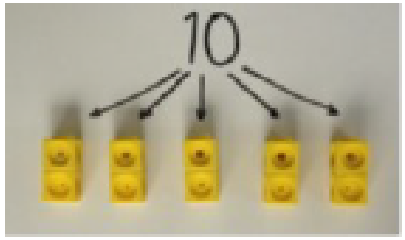
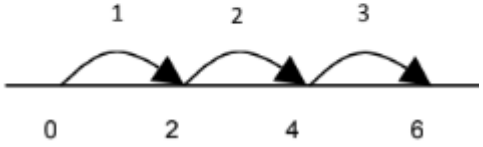
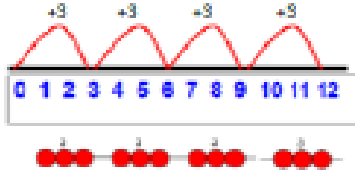
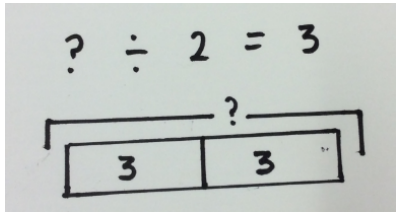
Multiplication				
Guernsey Curriculum – Bridging Phase (B1i) ● To use appropriate written methods of multiplication with whole numbers and decimals				
LEVEL 5	**Objective and strategy**	**Concrete** APP – use all four operations with decimals to two decimal places - Multiply or divide decimal numbers by a single digit - Use an appropriate non-calculator method for solving problems that involve multiplying any three-digit number by an two-digit number	**Pictorial** .	**Abstract**
	Grid method HTU X TU **Estimate using approximations**			372 x 24 is approximately 400 x 20 = 8000 x | 300 | 70 | 2 20 | 6000 | 1400 | 40 4 | 1200 | 280 | 8 6000 1400 1200 280 40 8 8928 1

	Long multiplication			
	Multiply decimal numbers to two decimal places by a single digit			

Division				
Guernsey Curriculum – Early Phase (E1j) • To understand the concept of division through sharing and repeated subtraction				
LEVEL	**Objective and strategy**	**Concrete** APP – begin to use the fraction one half e.g. halve an even number of objects	**Pictorial** .	**Abstract**
	Division as sharing			**12 shared between 3 is 4**

1		 I have 10 cubes, can you share them equally in 2 groups?		

Division				
Guernsey Curriculum – Early Phase (E1j) ● To understand the concept of division through sharing and repeated subtraction				
L E V E L 2	**Objective and strategy**	**Concrete** APP – begin to use repeated subtraction or sharing equally to solve division problems	**Pictorial** .	**Abstract**
	Division as sharing and grouping	 I have 10 cubes, can you share them equally in 2 groups?	**Sharing** – 12 sweets are shared between 2 people. How many do they have each?  12 ÷ 2 = 6 Children use bar modelling to show and support understanding.  12 ÷ 4 = 3	**12 ÷ 4 = 3**

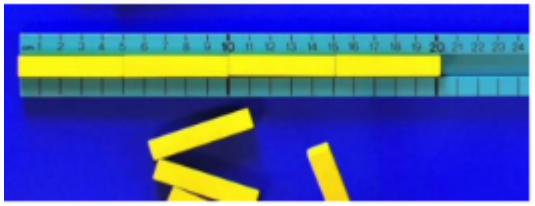
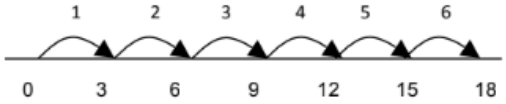
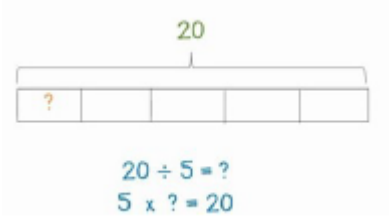
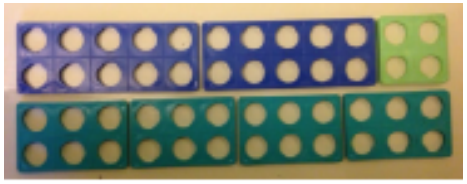
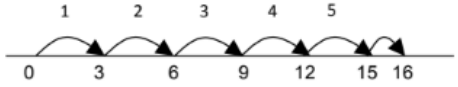
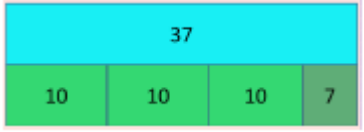
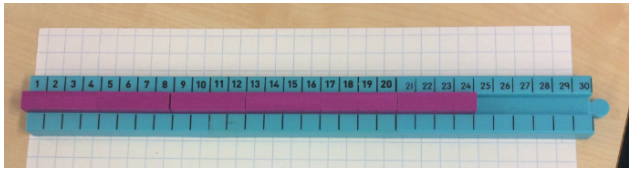
	Grouping on an empty numberline	 	**<u>Grouping using a blank number line</u>** e.g. 6 ÷ 2 = There are 6 sweets. How many people can have 2 each? (How many 2's make 6?)  **Use number lines for grouping** 	28 ÷ 7 = 4 Divide 28 into 7 groups, how many are in each group?
				**<u>÷ = signs and missing numbers</u>** 6 ÷ 2 = □ □ = 6 ÷ 2 6 ÷ □ = 3 3 = 6 ÷ □ □ ÷ 2 = 3 3 = □ ÷ 2 □ ÷ ∇ = 3 3 = □ ÷ ∇

Division

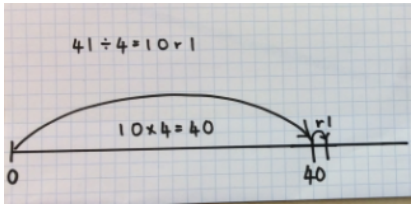
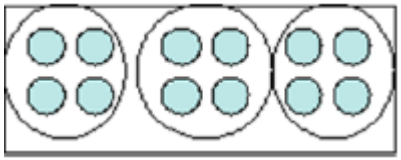
Guernsey Curriculum – Middle Phase (M1j)

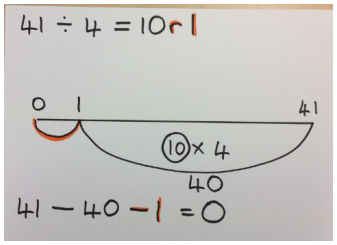
- To understand the concept of division through sharing and repeated subtraction

LEVEL 3 (low)

Objective and strategy	Concrete APP – begin to use repeated subtraction or sharing equally to solve division problems	Pictorial .	Abstract
Understand division as sharing and grouping	 18 ÷ 3 can be modelled as: **Sharing** – 18 shared between 3. See Level 2 diagram. **Grouping** - How many 3's make 18?	  	**18 ÷ 3 =**
Understand division as grouping with remainders		-**Remainders** 16 ÷ 3 = 5 r1 **Sharing** - 16 shared between 3, how many left over? See Level 2 diagram. **Grouping** – How many 3's make 16, how many left over? e.g.   	16 ÷ 3 = 
Understand division as repeated subtraction		Make the connection between repeated subtraction and division. Model on a numberline by counting backwards in groups and jumping under the line as is done with subtraction  	**24 ÷ 4 =**

				÷ = signs and missing numbers Continue using a range of equations as in Level 2 but with appropriate numbers.

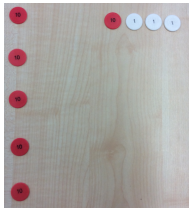
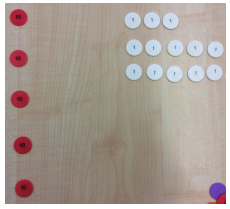
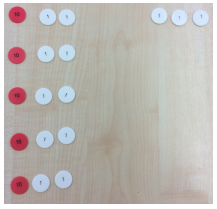
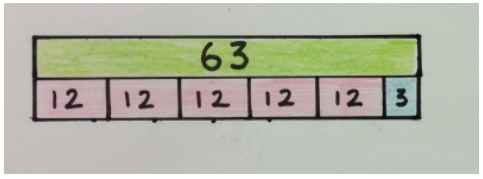
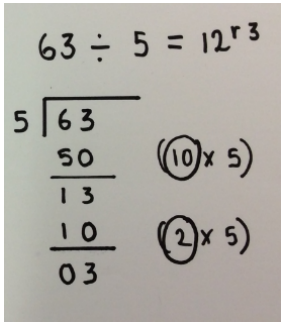
Division				
Guernsey Curriculum – Middle Phase (M1j) • To divide a 2 digit numbers by a single digit number and with remainders, using an appropriate written method				
LEVEL 3 (secure and high)	**Objective and strategy**	**Concrete** APP – pupils should divide 2 digit numbers by 2, 3, 4, or 5 as well as 10 with whole number answers and remainders e.g. 49 ÷3 =	**Pictorial** .	**Abstract**
	Chunking on a blank numberline	 	 OR 41 = (10 x 4) + 1  **OR**	**41 ÷ 4 = 10 r1**

				
				÷ = signs and missing numbers Continue using a range of equations as in Level 2 but with appropriate numbers.

Division

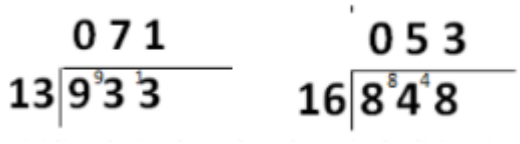
Guernsey Curriculum – Bridging Phase (B1j)

- To use appropriate written methods of division with whole numbers and decimals, expressing remainders as a fraction or decimal

LEVEL 4	Objective and strategy	Concrete APP – use efficient written methods of short multiplication and division	Pictorial .	Abstract
	Chunking method	   		

	Bus stop method for single digit division	**Place Value Counters as per above**	**Pictorial as per above**	$4\overline{)6^{2}3^{3}7}$ = 159 r 1
				÷ = signs and missing numbers Continue using a range of equations as in Level 2 but with appropriate numbers.

Division				
Guernsey Curriculum – Bridging Phase (B1j) ● To use appropriate written methods of division with whole numbers and decimals, expressing remainders as a fraction or decimal				
LEVEL 5	**Objective and strategy**	**Concrete** APP – use all four operations with decimals to two places - Understand and use an appropriate non-calculator method that involves dividing any three-digit number by any two-digit number - Multiply or divide decimal numbers by a single digit	**Pictorial** .	**Abstract**
	Chunking method 3 digit by 2 digit		**Pictorial as per Level 4**	560 ÷ 24 = 23 r 8 24 | 560 - 240 (10 x 24) 320 -240 (10 x 24) 80 -48 (2 x 24) 32 -24 (1 x 24) 8

				Quotients expressed as fractions or decimal fractions **676 ÷ 8 = 84.5** Expressing the remainder as a fraction. $50 \div 4 = 12 \text{ r } 2$ — The remainder $= 12\ 2/4$ — The divisor This can then be converted into a decimal.
	Bus stop method			
	Bus stop method – decimal numbers by a single digit			