Westgate Primary School

Calculation Policy June 2023

J.Hattersley

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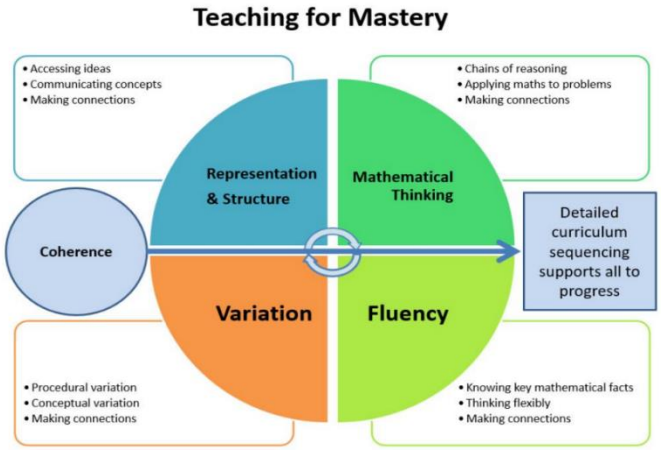
WESTGATE
PRIMARY SCHOOL
Striving for Excellence • Caring for Children

Progression in Calculations Policy

At the centre of the mastery approach to the teaching of mathematics is the belief that all pupils have the potential to succeed. Children should all have access to their age-appropriate curriculum content and, rather than being extended with new learning, they should deepen their conceptual understanding by tackling varied and challenging problems. Similarly with calculation strategies, pupils must not simply rote learn procedures but demonstrate their understanding of these principles and concepts through the use of concrete materials and pictorial representations to ensure fluency and depth of understanding.

This calculation progression document is based on the key principles of a mastery approach as outlined in the tale below:



The rationale of the concrete-pictorial-abstract (CPA) approach is that for pupils to have a true understanding of a mathematical concept, they need to master all three phases. Reinforcement is achieved by going back and forth between these representations. Pupils who grasp concepts rapidly should be challenged through rich and sophisticated problems before any acceleration through new content. Those pupils who are not sufficiently fluent with earlier material should consolidate their understanding, including additional practice, before moving on.

There is also an emphasis placed on instant recall of number bonds and times tables. These need to be mastered to aid with calculations and more challenging problems in readiness for the Multiplication Test at the end of Year 4.

This document outlines the progression of different calculation strategies that could be taught and used from Reception – Year 6, in line with the requirements of the 2014 Primary National Curriculum. This guidance is to make teachers and parent/carers aware of the progression of strategies that pupils are formally taught that will support them to perform mental and written calculations. In addition, it will support teachers in identifying appropriate pictorial representations and concrete materials to help develop understanding. This guidance only details the strategies; teachers must plan opportunities for pupils to apply these. Concrete materials shown here are for exemplification; there are many other resources which can be used to aid pupil understanding.

Here are some of the important key elements to develop children's conceptual and procedural fluency with calculations:

1. Develop children's fluency with basic number facts

Fluent computational skills are dependent on accurate and rapid recall of basic number bonds to 20 and times-tables facts. At Westgate we have found that spending a short time everyday on these basic facts quickly leads to improved fluency. One way this is carried out is through our daily whole school TT Rockstars timestable challenges and Flashbacks. We are clear that this is not meaningless rote learning; rather, this is an important step to developing conceptual understanding through identifying patterns and relationships between the tables (for example, that the products in the 6× table are double the products in the 3× table). This has helped children develop a strong sense of number relationships, an important prerequisite for procedural fluency. Children in Shanghai learn their multiplication tables in this order to provide opportunities to make connections. At Westgate we learn our times tables in this order so children can identify patterns and relationships.

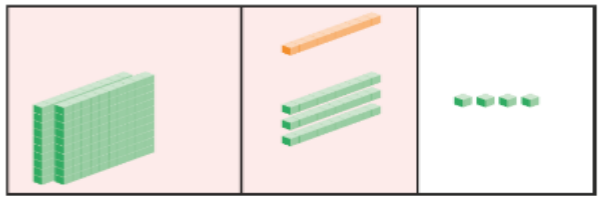
×10	×5	×2	×4	×8	×3	×6	×9	×7

2. Develop children's fluency with mental and written methods

Efficiency in calculation requires having a variety of mental strategies. It is important that children can mentally recall number bonds and are able to partition numbers to bridge through ten. Children are taught that it is helpful to make 10 as this makes the calculation easier. Our number facts progression plan at Westgate ensures that the children practise number facts, and they are taught strategies which ensures that the children move away from 'counting on' to develop more efficient strategies so children can gain instant recall of facts.

Teaching column methods for calculation provides the opportunity to develop both procedural and conceptual fluency. We ensure that children understand the structure of the mathematics presented in the algorithms, with a particular emphasis on place value. This is developed through using base ten apparatus and a range of models and images in the textbooks to support the development of fluency and understanding. Informal methods of recording calculations are also an important stage to help children develop fluency with formal methods of recording. Informal methods are only used for a short period, to help children understand the internal logic of formal methods of recording calculations. They are stepping stones to formal written methods. For example,

	h	t	o
			8
+	2	3	6
		1	4
		3	0
+	2	0	0
	2	4	4



	h	t	o
			8
+	2	$\frac{1}{3}$	6
	2	4	4

3. Don't count, calculate

Children benefit from being helped at an early stage to start calculating, rather than relying on 'counting on' as a way of calculating. For example, with a sum such as: 4 + 7 = Rather than starting at 4 and counting on 7, children could use their knowledge and bridge to 10 to deduce that because 4 + 6 = 10, so 4 + 7 must equal 11. (See our number facts progression plan)

4. Automaticity of number facts and times tables

At Westgate we have a clear progression of the teaching of number facts and times tables to ensure children develop fluency of these facts. This frees up working memory and ensures accuracy when calculating.

5. Look for patterns and make connections

Children are given opportunities in the lessons to look for patterns and make connections. The maths journals are used to explore patterns, relationships and reasoning. The question "What's the same, what's different?" is used frequently to make comparisons

6. Use of intelligent Practice

The practice children engage in provides the opportunity to develop both procedural and conceptual fluency. Children are required to reason and make connections between calculations. Calculations are chosen carefully to develop children's connections and strategies. The calculations in the maths no problem textbooks provide opportunities for making these connections. For example,

2 × 3 =	6 × 7 =	9 × 8 =
2 × 30 =	6 × 70 =	9 × 80 =
2 × 300 =	6 × 700 =	9 × 800 =
20 × 3 =	60 × 7 =	90 × 8 =
200 × 3 =	600 × 7 =	900 × 8 =

7. Move between the concrete and the abstract

Children's conceptual understanding and fluency is strengthened if they experience concrete, visual and abstract representations of a concept during a lesson. Moving between the concrete and the abstract helps children to connect abstract symbols with familiar contexts, thus providing the opportunity to make sense of, and develop fluency in the use of, abstract symbols. Maths lessons at Westgate move between the concrete, visual and abstract.

8. Contextualise the maths

Mathematics lessons often start with a contextualised problem. This supports the children's understanding of the abstract calculation.

9. Use of questioning to develop reasoning

Teachers' have a strong and consistent focus on questioning that encourages and develops their mathematical reasoning. For example, there is always an emphasis on the 'how do you know?' as opposed to 'what is the answer?' Children know that they need to explain how they worked out a calculation or solved a problem, and justify their reasoning.

10. Use of precise mathematical vocabulary and STEM sentences

The quality of children's mathematical reasoning and conceptual understanding is significantly enhanced if they are consistently expected to use correct mathematical terminology (e.g. saying 'digit' rather than 'number') By all using the precise vocabulary, everyone is clear which part of the calculation we are talking about eg, divisor, dividend, quotient.High expectations of the mathematical language used is essential, with staff only accepting what is correct. Consistency across the school is key.

Examples of precise Vocabulary	
Ones	Factor product
is equal to (is the same as)	Whole part whole
Exchange exchanging regrouping	Dividend divisor quotient
calculation equation	Known unknown
A stem sentence can work alongside a mathematical representation by complementing it and revealing the structure.	For example *There are 12 stars. One third of the stars is equal to 4 stars.* 

11. Identifying misconceptions

Difficult points need to be identified and anticipated when lessons are being designed and these need to be an explicit part of the teaching, rather than the teacher just responding to children's difficulties if they happen to arise in the lesson. The teacher should be actively seeking to uncover possible difficulties because if one child has a difficulty it is likely that others will have a similar difficulty. Difficult points also give an opportunity to reinforce that we learn most by working on and through ideas with which we are not fully secure or confident. Discussion about difficult points can be stimulated by asking children to share thoughts about their own examples when these show errors arising from insufficient understanding. For example: A visualiser is a valuable resource since it allows the teacher quickly to share a child's thinking with the whole class.

Maths No Problem Textbooks

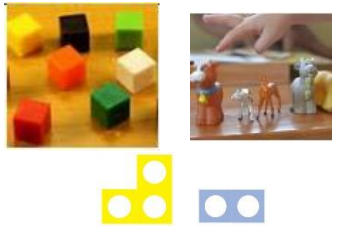
The textbooks allow teachers and pupils to explore each topic in great depth. Each lesson has an explore task which provides a contextualised problem, guided practice and independent tasks. The varied examples in the lessons have been specifically chosen to stretch pupils into harder concepts and create challenge and depth. The maths no problem maths lessons include all of the above key elements.

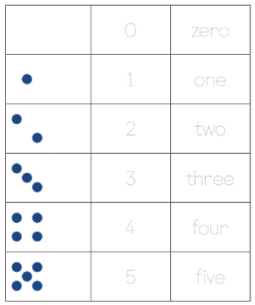
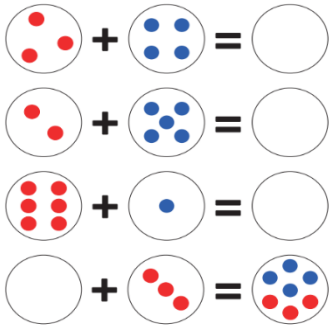
Progression in each calculation

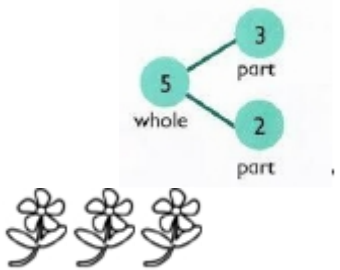
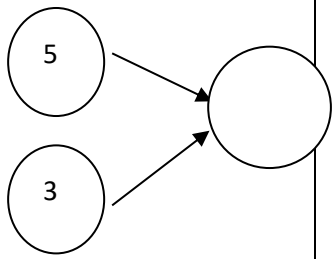
	Year R	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Addition	Counting a set of objects. Knowing 1 more or 1 less Place numbers in order of size	Combining two parts to make a whole: part whole model Starting at the bigger number and counting on Regrouping to make 10	Adding multiples of 10. Adding three single digits. Column method with no regrouping and regrouping. (2 digit numbers)	Column method- regrouping. (up to 3 digits)	Column method- regrouping. (up to 4 digits)	Column method- regrouping. (with more than 4 digits) (Decimals- with the same amount of decimal places)	Column method- regrouping. (Decimals- with different amounts of decimal places)
Subtraction	One less than / Taking away ones	Taking away ones Number bonds model. Counting back Find the difference Part whole model Subtract from 10	Counting back Find the difference Part whole model Make 10 Column method- with and without regrouping 2 digits	Column method with regrouping. (up to 3 digits)	Column method with regrouping. (up to 4 digits)	Column method with regrouping. (with more than 4 digits) (Decimals- with the same amount of decimal places)	Column method with regrouping. (Decimals- with different amounts of decimal places)
Multiplicatio	Doubling	Doubling Counting in multiples Arrays (with support) Making and adding equal groups	Doubling Counting in multiples Repeated addition Arrays- showing commutative multiplication	Counting in multiples Repeated addition Arrays- showing commutative multiplication	Column multiplication (2 and 3 digit multiplied by 1 digit)	Column multiplication (up to 4 digit numbers multiplied by 1 or 2 digits)	Column multiplication (multi digit up to 4 digits by a 2 digit number)

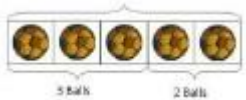
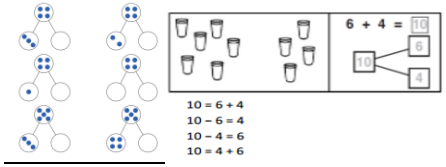
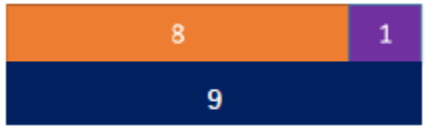
Division	Halving	Sharing objects equally Division as grouping	Division as grouping Division as sharing gb `` bb Division within arrays	Division within arrays Division with a remainder Short division (2 digits by 1 digit- concrete and pictorial)	Division within arrays Division with a remainder Short division (up to 3 digits by 1 digit- concrete and pictorial)	Short division (up to 4 digits by a 1 digit number interpret remainders appropriately for the context)	Short division Long division (up to 4 digits by a 2 digit number- interpret remainders as whole numbers, fractions or round)

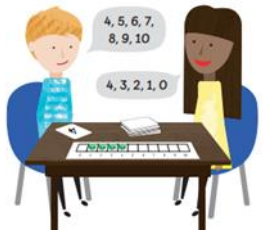
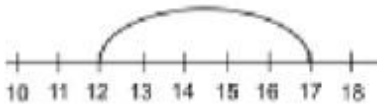
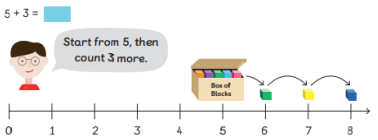
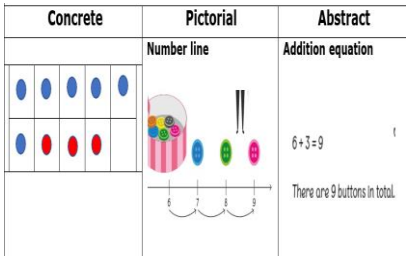
Calculation Guidance- Addition

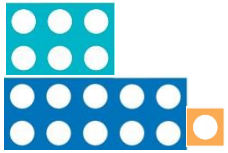
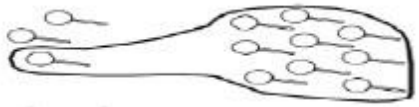
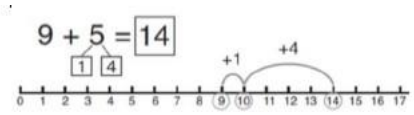
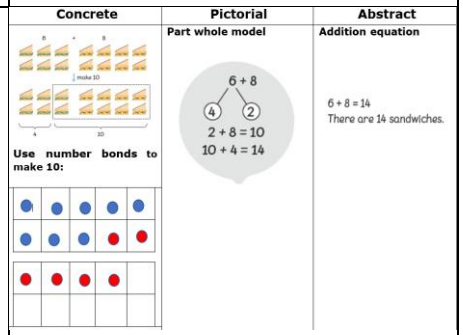
Stage and Year group introduced	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 1 YR	**Count all 1:1 correspondence** Joining two groups and then recounting all objects using 1:1 correspondence Counting a set of objects Knowing 1 more or 1 less Place numbers in order of size	One more One less Bigger Larger			

Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete/Pictorial/Abstract
Stage 2 YR	**Perceptual subitising** A key development underpinning the ability to add is subitising. Perceptual subitising is when pupils can recognise the quantity of items without counting up to 5	Subitising	
Stage 3 YR	**Conceptual subitising** Pupils are able to recognise a quantity by combining groups that have not needed to be counted. Pupils may see 5 items as 2 and 3 items. This relates to the part part whole model.	Part part whole	

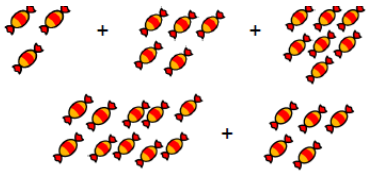
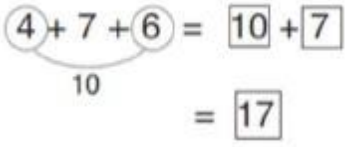
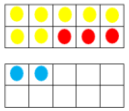
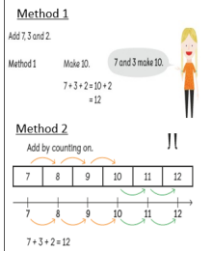
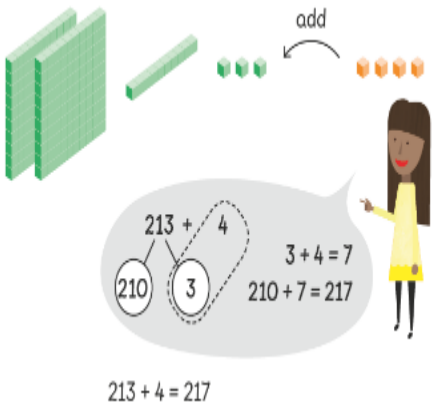
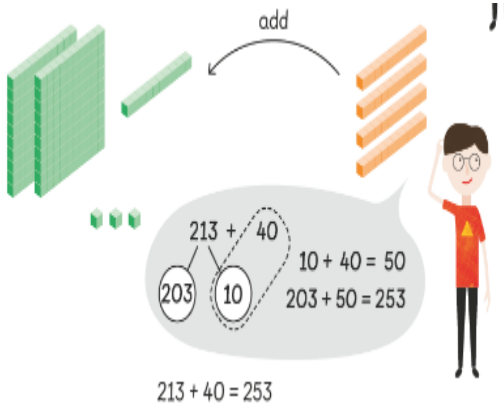
Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 4 YR	**Combining 2 parts to make a whole.** Teach both addition and subtraction alongside each other as pupils will use the model to see the inverse relationships between them.	Addition Sum Total Partsand wholes Plus Add	Use cubes to add two numbers together as a group or in a bar: 	Use pictures to add two numbers together as a group or in a bar: 	Use the part-part whole diagram as shown to move into the abstract: 

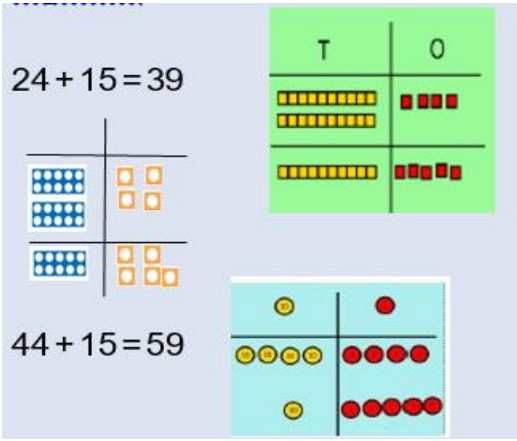
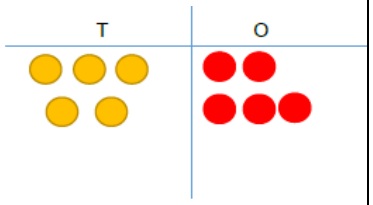
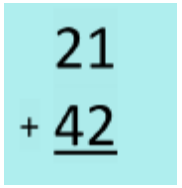
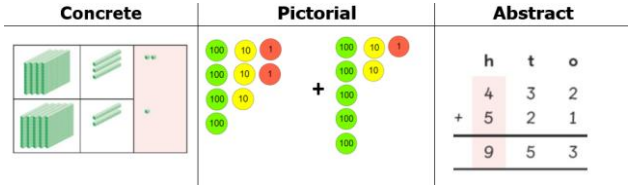
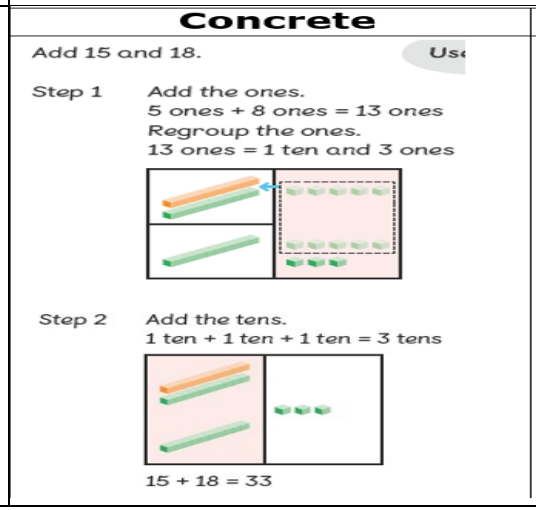
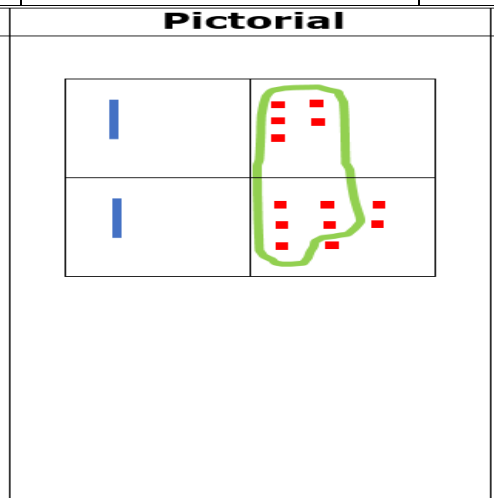
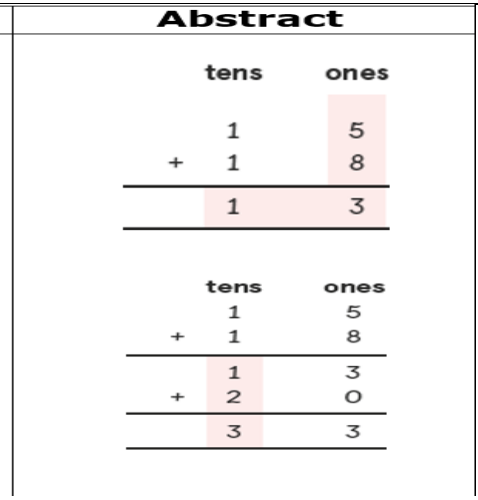
	This model begins to develop the understanding of commutativity of addition, as pupils will become aware that the parts will make the whole in any order.	Altogether More than Equal to Same as	 	   	4 + 3 = 7 10 = 6 + 4

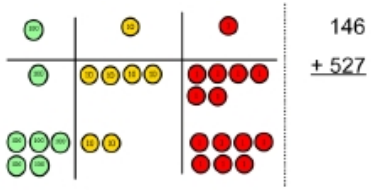
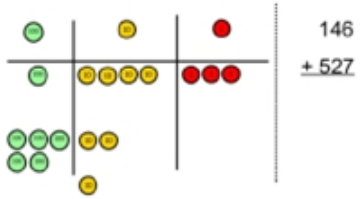
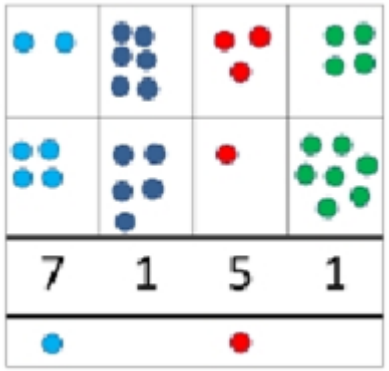
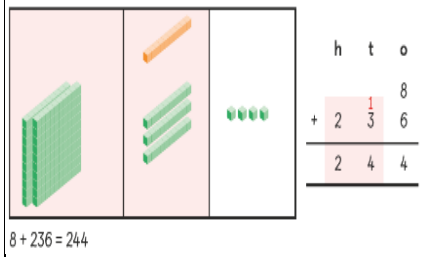
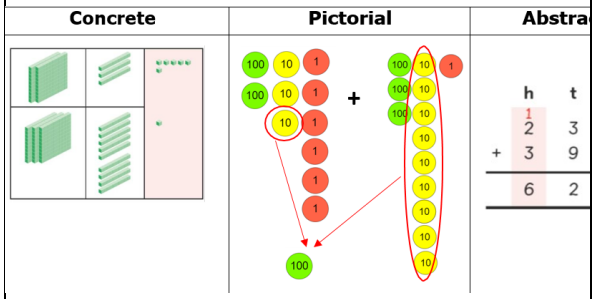
Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 5 YR	**Counting on** Start at the bigger number and count on As a strategy, this should be limited to adding small quantities only (1,2 or 3) with pupils understanding that counting on from the greater number is more efficient. Pupils are first introduced to a linear number system through a number track and then this follows onto a number line. Pupils may benefit from placing items on a number track before moving onto a number		 Start with the larger number on the bead string and then count on to the smaller number 1 by 1 to find the answer. Use a number track to add items on it. 	Start at the larger number on the number line and count on in ones or in one jump to find the answer. 12 + 5 = 7  Number line – Move from the number track to the number line. 	Place the larger number in your head and count on the smaller number to find your answer. 

	line which is more abstract.				
Stage 6 Yr1	**Making ten strategy** Regrouping to make 10 Regrouping ten ones to make ten. This is an essential skill that will support column addition later on.	Regroup Partition	Regroup 9 + 3 into 10 + 2 before adding together:   Start with the larger number and use the smaller number to make 10 6 + 5 = 11 	Use pictures or a number line. Regroup or partition the smaller number to make 10 before adding. 3 + 9 =  	

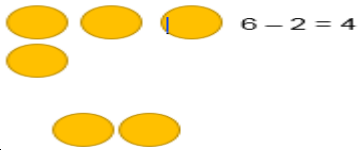
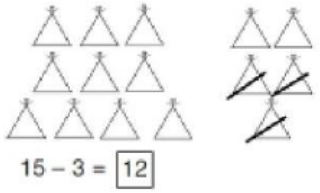
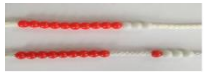
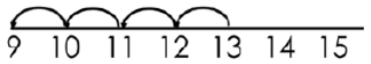
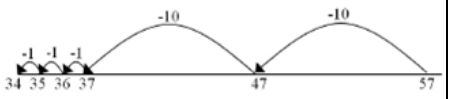
Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract

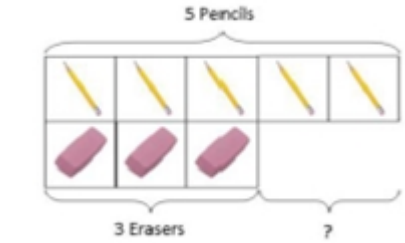
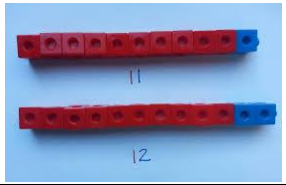
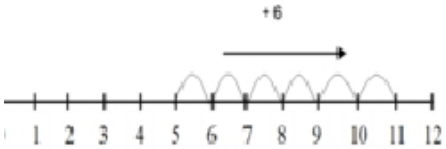
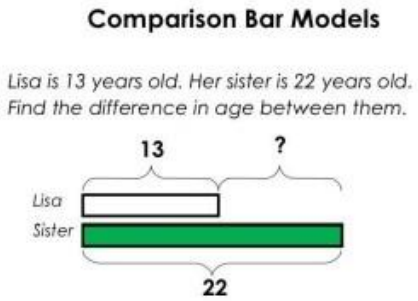
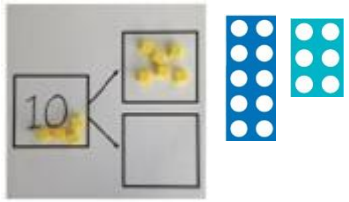
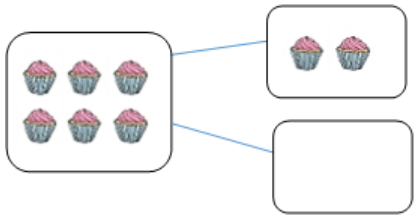
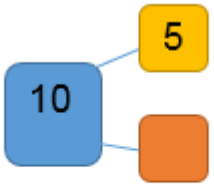
Stage 7 Yr 2	**Adding three single digits**	Addition Sum Total Parts and wholes Plus Add Altogether More than Equal to Same as	4 + 7 + 6= 17 Put 4 and 6 together to make 10. Add on 7.  Following on from making 10, make 10 with 2 of the digits (if possible) then add on the third digit.	 Add together three 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. **Concrete**  **Pictorial**  **Abstract** 7 + 3 + 2 = 10 + 2 = 12
Stage 8 **Y2**	**Partitioning to add** Pupils should be encouraged to partition numbers in different ways. Pupils should use place value counters and Dienesequipment alongside the column methods to develop their understanding. It is important that they don't just learn a procedure, but instead they know why and what they are doing.		 213 + 4 = 217  213 + 40 = 253		

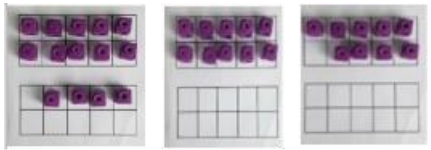
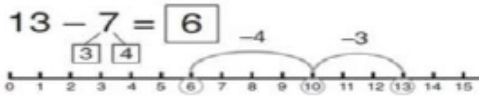
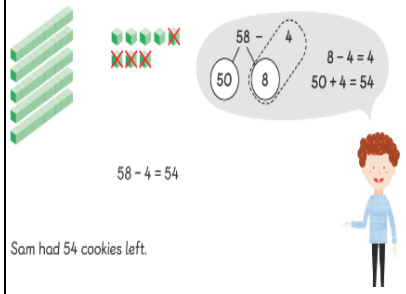
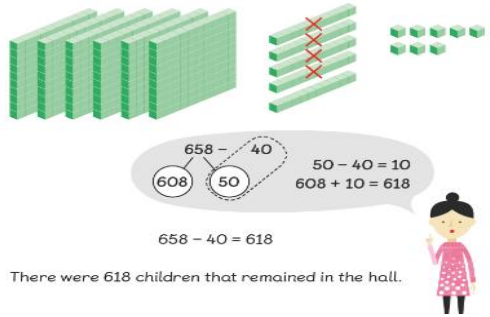
Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 9 **Yr 2**	**Column addition – without regrouping**	Regroup Partition	Partition the numbers into tens and ones using base 10 blocks, place value counters. Add together the ones first then add the tens. Finally add the 2 totals together. 	After practically using the base 10 blocks and place value counters, children can draw the counters to help them to solve additions. 32 + 23 = 55 	21 + 42 =  Record the calculation vertically adding the column of ones then the column of tens. 
Stage 10 Y2	**Expanded column method** This is a bridging process before pupils reach the full algorithm for column method. This can be used for struggling learners who are not yet ready to move to the complete column method.				

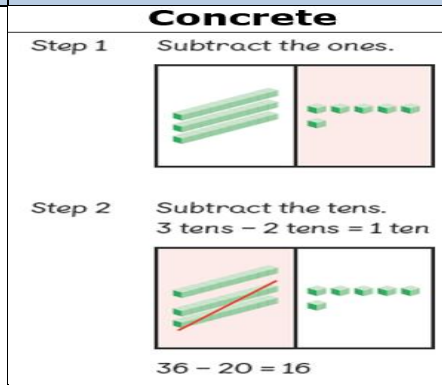
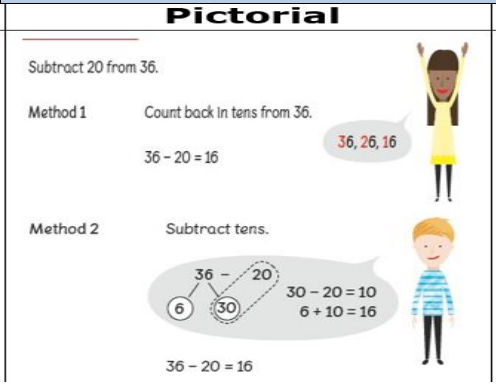
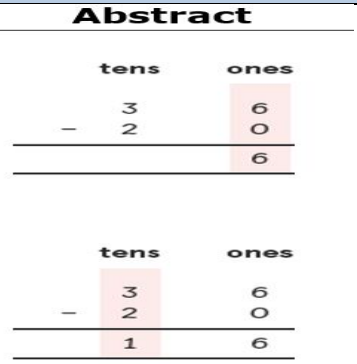
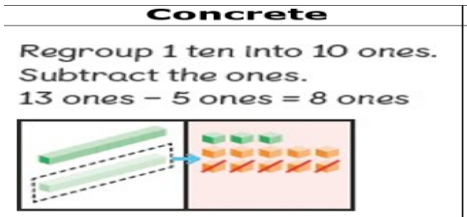
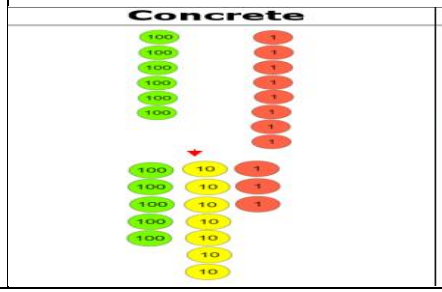
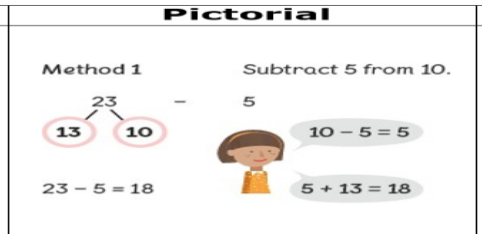
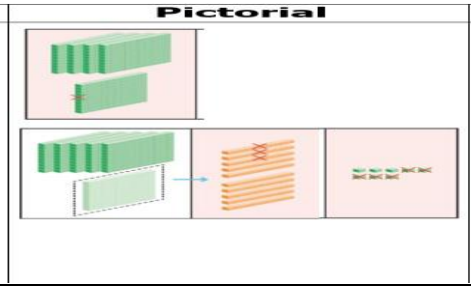
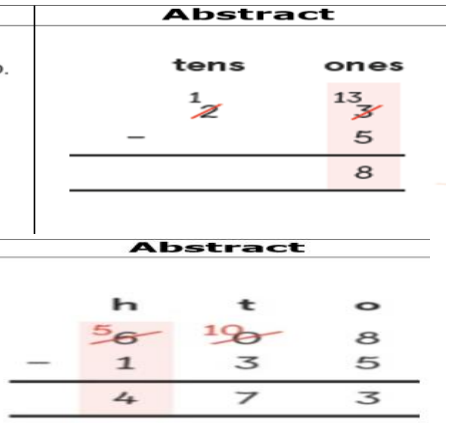
Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 11 Yr 3 (3 digits) Yr 4 (4 digits) Yr 5 + (4+ digits and decimals with same np. dp) Yr 6 (decimals with difft no. dp)	**Column addition – with regrouping** This is the standard column method. Show both this and the expanded methods together so pupils can see the link between the two and feel more comfortable using the column method..	Exchange Regroup Partition	Make both numbers with place value counters.  Add up the ones and exchange 10 ones for one 10. Add it to the other tens:  Add up the rest of the columns, exchanging the 10 counters from one column for the next place value column until every column has been added. This can also be done with Base 10 to help children clearly see that 10 ones equal 1 ten and 10 tens equal 100. As children move on to decimals,money and decimal place value counters can be used to support learning.	Children can draw a pictoral representation of the columns and place value counters to further support their learning and understanding.   8 + 236 = 244	The compact method 76 + 47 123 1 1 As the children move on, introduce decimals with and without the same number of decimal places. Money can also be used here. 

Calculation Guidance- Subtraction

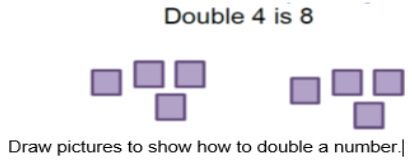
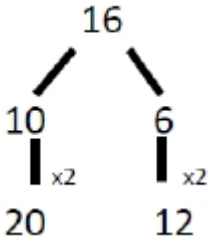
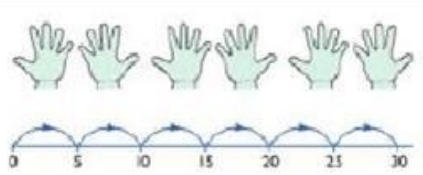
Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 1	**Count all 1:1 correspondence- Taking away ones** This is the early stages of subtraction. Pupils start with the total amount and physically take away amounts. Pupils then recount what is left.	One less Take away Less than The difference Subtract Minus Fewer Decrease	Use physical objects, counters, cubes numicon, etc, to show how objects can be taken away. 6 – 2 = 4 	Cross out drawn objects to show what has been taken away.  4 – 2 = 2	18 – 3 = 15 8 – 2 = 6 Children are encouraged to mentally take away ones.
Yr/ Stage	**Strategy/ Method**	**New Vocabulary for the Stage**	**Concrete**	**Pictorial**	**Abstract**
Stage 2 YrR Yr1 Yr2	**Counting back** Pupils may start off by counting back but they should be quickly encouraged to rely on number bonds knowledge as time goes on, rather than using counting back as their main strategy.	One less Take away Less than The difference Subtract Minus Fewer Decrease	Make the larger number in your subtraction. Move the beads along your beadstring as you count backwards in ones. 13 – 4  Use counters and move them away from the group as you take them away counting backwards as you o. 	Count back on a number line or number track  Start at the bigger number and count back the smaller number showing the jumps on the number line.  This can progress all the way to counting back using two 2 digit numbers.	For 13 – 4, put 13 in your head and count back 4. What number are you at? Use your fingers to help.

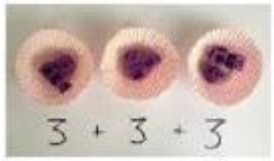
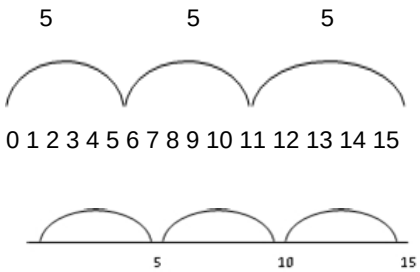
Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 3 Yr1 Yr2	**Find the difference** Pupils should be encouraged to compare two amounts using practical equipment so they can visually see the difference. The bar model is a good representation to show this. The bar model also allows you to demonstrate the connections eg. How addition and subtraction are related.	One less Take away Less than The difference Subtract Minus Fewer Decrease	Compare amounts and objects to find the difference. Use cubes to build towers or make bars to find the difference.  Use basic bar models with items to find the difference. 	Count on to find the difference:  Draw bars to find the difference between 2 numbers. 	Hannah has 23 sandwiches, Helen has 15 sandwiches. Find the difference between the number of sandwiches.
Stage 4 Yr1 Yr2	**Part Whole Model** Teach both addition and subtraction alongside each other, as the pupils will use this model to identify the link between them.	Part Whole Inverse	Link to addition - use the part whole model to help explain the inverse between addition and subtraction.  If 10 is the whole and 6 is one of the parts. What is the other part? 10 – 6 =	Use a pictorial representation of objects to show the part whole model.  6 – 2 = 4	 Move to using numbers within the part whole model

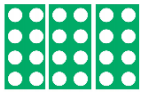
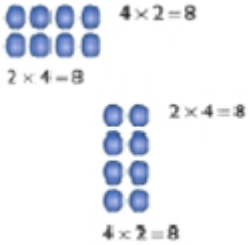
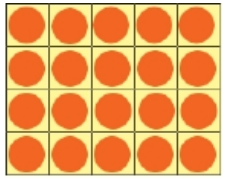
Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 5 Yr1 Yr2	**Make 10** Partitioning in different ways is so important in the early stages. Children need to know quick recall of different ways to make all numbers not just number bonds to 10 or 20 eg. To make 7 = 6+1 = 5+2=4+3=	Ten frame Remainin g Take off Count backK	14 – 5 =  Make 14 on the ten frame. Take away the four first to make 10 and then take away one more so you have taken away 5. You are left with the answer of 9.	Start at 13. Count back 3 to reach 10. Then count back the remaining 4 so you have taken away 7 altogether. You have reached your answer. 	16 – 8 = How many do we take off to reach the previous 10? (6) How many do we have left to take off? (2)
Stage 6	**Partitioning to subtract** It is important to look at different ways to partition numbers. The Dienes equipment can be used alongside the partitioning method to model this.		Examples  		

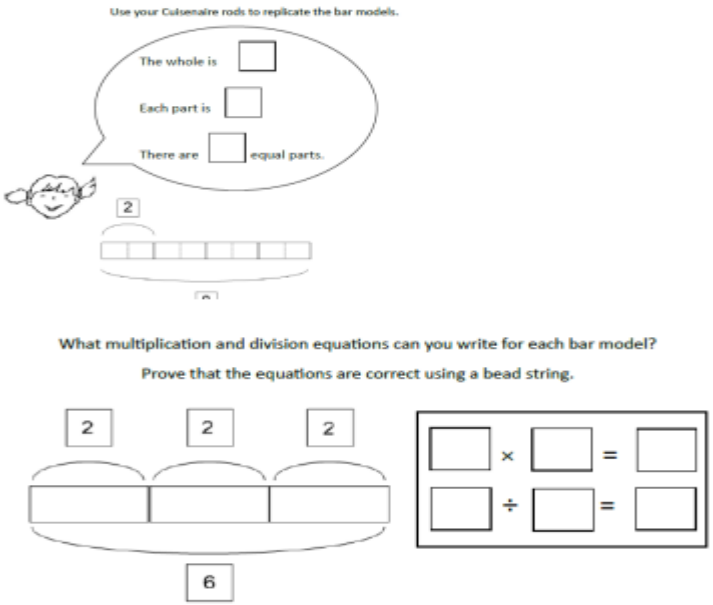
Yr/ Stage	Strategy/ Method	New Vocabulary	Concret2	Pictorial	Abstract
Stage 7 Yr 2	**Column method without regrouping**				
Stage 7	Column method with regrouping Yr3 (3 digits) Yr4 (4 digits) Yr5 + (4+ digits and decimals with same np. dp) Yr 6 (decimals with difft no. dp)	Exchange Partition	 	 	

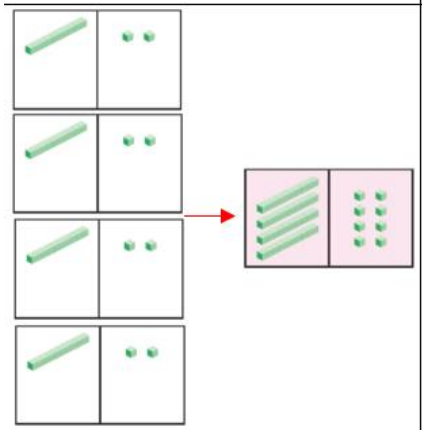
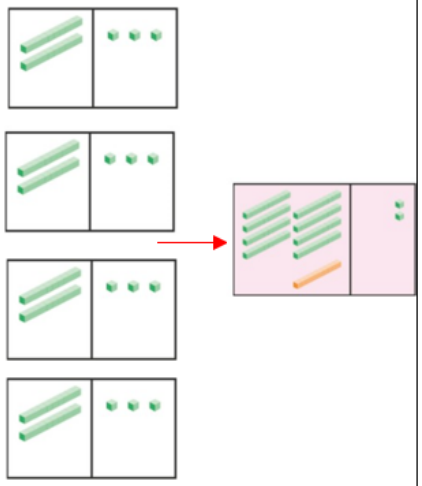
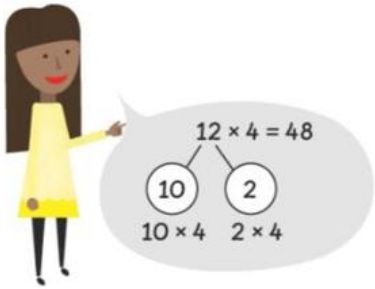
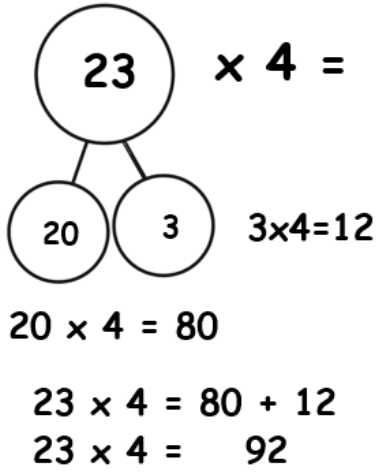
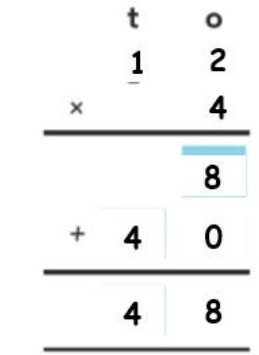
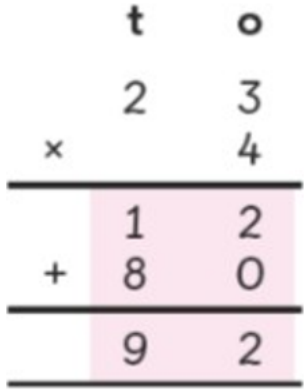
Calculation Guidance- Multiplication

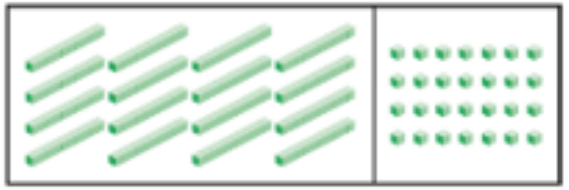
Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 1 Yr R Yr 1 Yr2	**Doubling**	Double Count on (from, to) Count back (from, to Count in ones, twos, tens… Is the same as	Use practical activities to show how to double a number.  	Draw pictures to show how to double a number. 	 Partition a number and then double each part before recombining it back together.
Stage 2 Yr R Yr 1 + Yr 2 (x2, 5, 10) Yr3 (x3, 4, 8)	**Counting in multiples**	Multiplied by The product of Groups of Lots of Is equal to	Count in multiples supported by concrete objects in equal groups.   	 Use a number line or pictures to continue support in counting in multiples.	Count out loud in multiples of a number. Write sequences with multiples of numbers. 2, 4, 6, 8, 10 5, 10, 15, 20, 25 , 30

Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 3 Yr 2 Yr 3	**Repeated addition**		Use different objects to add equal groups.   	There are 3 plates. Each plate has 2 star biscuits on. How many biscuits are there?  2 add 2 add 2 equals 6 Repeated addition can be shown on a labelled or empty number line. Eg 5 + 5 + 5 = 15:  Begin to relate repeated addition to multiplication using 'lots of'. e.g. 3 lots of 5 = 15	Write addition sentences to describe objects and pictures.  This then leads to writing related multiplication sentences e.g. 2 x 5 = 10

Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 4 (Yr 1) Yr2 Yr3	**Arrays - showing commutative multiplication**	Array Commutative	Create arrays using counters /cubes /numicon to show multiplication sentences. Eg 4 x 6 = 24  Begin to look at arrays in different orientations to make the link between.  Eg 5 x 3 = 15 and 3 x 5 = 15 (commutativity)	Draw arrays in different rotations to find **commutative** multiplication sentences.  Link arrays to area of rectangles: 	Use an array to write multiplication sentences and reinforce repeated addition.  5 + 5+5 = 15 3 + 3 + 3 + 3 + 3 = 15 5 x 3 = 15 3 x 5 = 15

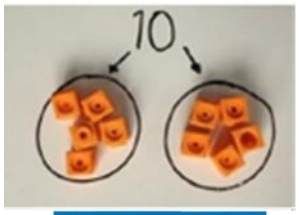
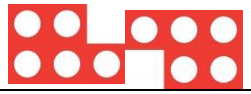
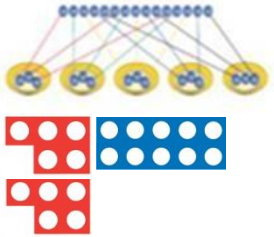
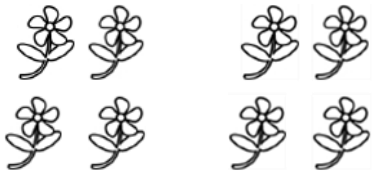
Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 4 (Yr 1) Yr2 Yr3	**Partitioing** – part whole models Use of part-part whole model to establish the inverse relationship between multiplication and division This link should be made explicit from early on, using the language of the part-part-whole model, so that pupils develop an early understanding of the relationship between multiplication and division. Bar models (with Cuisenaire rods) should be used to identify the whole, the size of the parts and the number of parts.				

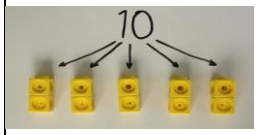
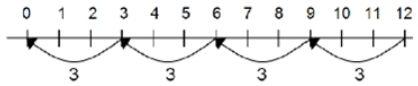
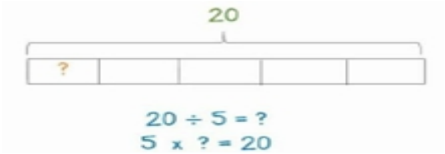
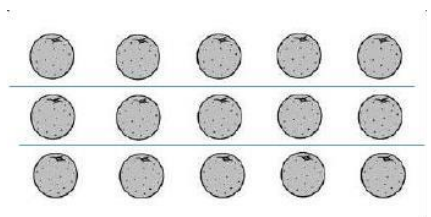
Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage Y3	**Expanded column method** **Without renaming** **With renaming**		**Concrete**  **Concrete** 	**Pictorial**  **Pictorial**  	**Abstract**  **Abstract** 

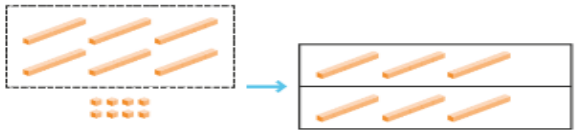
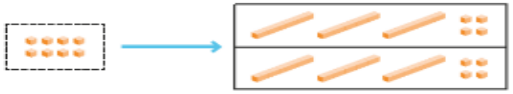
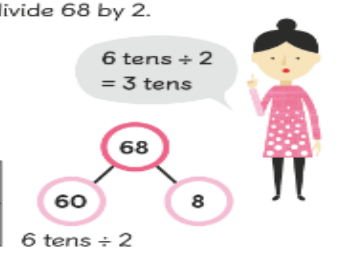
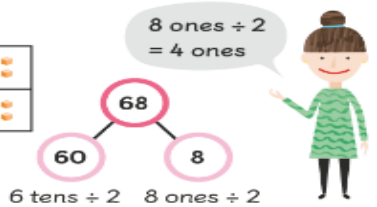
Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 6 Yr4 (2 and 3 digit x 1 digit) Yr 5 (4 digits x 1 or 2 digits) Yr 6 (4 digits x 2 digits)	**Short column Multiplication** It is important that the children are able to see all the representations so they can fully understand the concept and not just a procedure. The children need to be using the vocab of how many tens make 1 hundred, how many ones in a ten etc	Column multiplication		  7 ones x 4 = 28 ones 28 ones = 2 tens and 8 ones 4 tens x 4 = 16 tens 16 tens = 1 hundred and 6 tens	

Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage **Y3**	**Long Multiplication**		32 x 24 8 (4 x 2) 120 (4 x 30) 40 (20 x 2) 600 (20 x 30) 768	Long Multiplication	

Division

Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 1 Yr R	Halving	Half Halve Count out Share out Left Left over …is the same as Equal	  	One sweet for you, one for me… Is it fair? How many do we each have? 	
Stage 2 Yr R Yr 1	Sharing objects Equally	Share Group Divide Half Halve Count out Share out Left Left over Is the same as Is equal to	I have 10 cubes; can you share them equally into 2 groups?   15 shared between 5 is 3: 	Children use pictures or shapes to share quantities.  8 ÷ 2 = 4 How many groups of 4 are there in 12 stars?	Share 9 buns between three People: 9 ÷ 3 = 3

Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 3 Yr1 Yr2	Division as grouping	Equal groups	Divide quantities into equal groups. Use cubes, counters, objects or place value counters to aid understanding. There are 10 sweets. How many people can have 2 sweets each?  	Use a number line to show jumps in groups. The number of jumps equals the number of groups.  Think of the bar as a whole. Split it into the number of groups you are dividing by and work out how many would be within each group. 	28 ÷ 7 = 4 Divide 28 into 7 groups. How many are in each group?
Stage 4 Yr2 Yr3 Yr4	Division within arrays	Array Inverse	Link division to multiplication by creating an array and thinking about the number sentences that can be created:  Eg 15 ÷ 3 = 5 5 x 3 = 15 15 ÷ 5 = 3 3 x 5 = 15	 Draw an array and use lines to split the array into groups to make multiplication and division sentences.	Find the inverse of multiplication and division sentences by creating four linking number sentences. 7 x 4 = 28 4 x 7 = 28 28 ÷ 7 = 4 28 ÷ 4 = 7

Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
	<u>Partitioning</u> It is important to look at different ways to partition numbers. The Dienes equipment can be used alongside the partitioning method to model this.		To find the number of sweets each person gets, divide 68 by 2. 68 ÷ 2 = ☐ Step 1 Divide 6 tens by 2.  Step 2 Divide 8 ones by 2.  Step 3 Add the results. 68 ÷ 2 = 30 + 4 = 34	 	

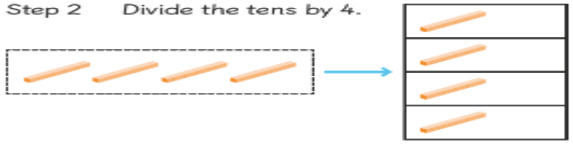
Partitioning with regrouping

To find the number of ice creams in each box, divide 52 by 4.

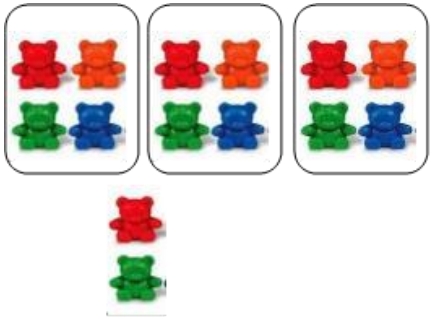
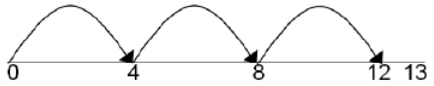
52 ÷ 4 = ☐

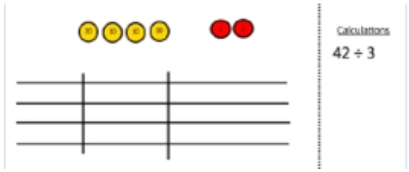
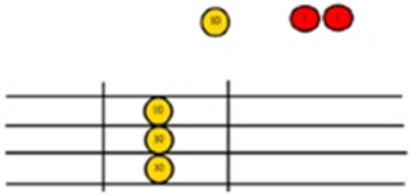
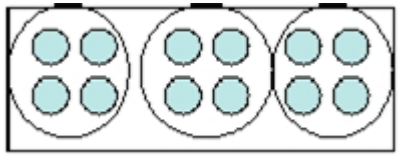
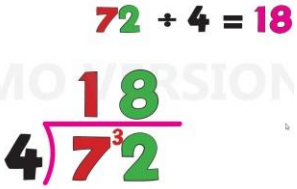
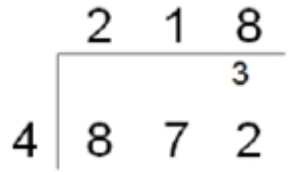
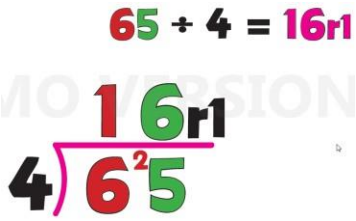
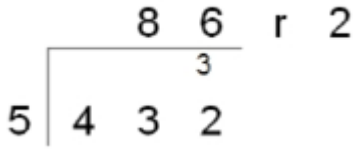
Step 1 Split 52 into 40 and 12.

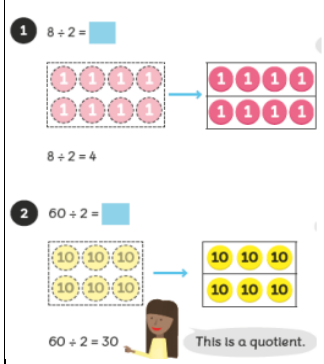
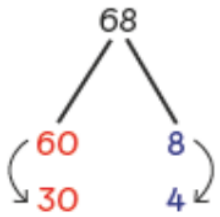
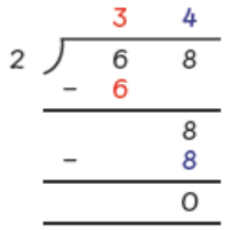
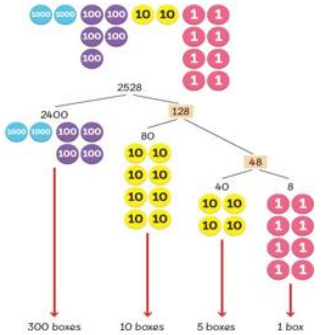
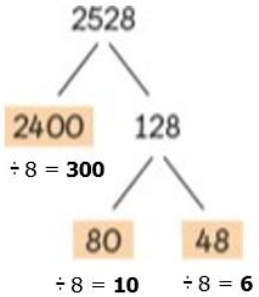
Step 2 Divide the tens by 4.



Step 3 Regroup 1 ten into 10 ones.

Stage 5 Yr3 Yr4	Divisionwitha remainder	Remainder Equal jumps	14 ÷ 3 = Divide objects into groups or share equally andseehowmuchisleftover: 	Draw dots and group them to divide an amount and clearly show a remainder:  Jump forward in equal jumps on a number line then see how many more you need to jump to find a remainder. 13 ÷ 4 = 3 r1  As knowledge of place value improves, children can begin to jump in multiples of 10: 63 ÷ 2 = 30 r3  0 20 40 60 63	Children use knowledge of times table facts to quickly calculate divisions involving remainders. For example: 27 ÷ 5 = 5 r2 Go on to combining knowledge of times tables with place value to calculate more difficult divisions. For example: 137 ÷ 4 = 34 r1

Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
Stage 6 Yr3 (2 digit by 1 digit) Yr4 (up to 3 digits by 1 digit) Yr5 (up to 4 digits by a 1 digit remainder. Interpret remainders based on context)	Short division	Bus stop method	Use place value counters to divide using the bus stop method alongside:  42 ÷ 3= Start with the biggest place value; we are sharing 40 into three groups. We can put 1 ten in each group and we have 1 ten left over:  We exchange this ten for ten ones and then share the ones equally among the groups: 	Children can continue to use drawn diagrams with dots or circles to help them divide numbers into equal groups.  Encourage them to move towards counting in multiples to divide more efficiently.	Begin with divisions that divide equally with no remainder:  872 ÷ 4 = 218:  Move onto divisions with a remainder:  432 ÷ 5 = 86 r2: 

Yr/ Stage	Strategy/ Method	New Vocabulary for the Stage	Concrete	Pictorial	Abstract
	Long Division		**Concrete** **Number discs** 	**Pictorial** **Part-whole model** 	**Abstract** **Long division, with no remainder:**  They are reminded to view division as **repeated subtraction.** **Step One**
			Concrete **Number discs**  2528 ÷ 8 = 300 + 10 + 5 + 1 = 316 316 boxes are needed.	**Pictorial** **Partitioning**  300 + 10 + 6 = 316	**Abstract** **Long division**