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Calculation Policy 2022

This calculation guidance has been written in line with the programmes of study taken from the revised National Curriculum for Mathematics (2014). It provides guidance on appropriate calculation methods and progression. The content is set out in yearly blocks under the following headings: addition, subtraction, multiplication and division. This guidance aims to develop, model and explain core understandings and mathematical principles and progression to ensure consistency in the teaching and learning of mathematics in our school.

This policy supports the White Rose maths scheme used throughout the school. Progression within each area of calculation is in line with the programme of study in the 2014 National Curriculum. This calculation policy should be used to support children to develop a deep understanding of number and calculation. This policy has been designed to teach children through the use of concrete, pictorial and abstract representations.

- Concrete representation— a pupil is first introduced to an idea or skill by acting it out with real objects. This is a 'hands on' component using real objects and is a foundation for conceptual understanding.
- Pictorial representation – a pupil has sufficiently understood the 'hands on' experiences performed and can now relate them to representations, such as a diagram or picture of the problem.
- Abstract representation—a pupil is now capable of representing problems by using mathematical notation, for example 12 x 2 = 24. It is important that conceptual understanding, supported by the use of representation, is secure for all procedures.

Reinforcement is achieved by going back and forth between these representations.

Mathematics Mastery - At the centre of the mastery approach to the teaching of mathematics is the belief that all children have the potential to succeed. They should have access to the same curriculum content and deepen their conceptual understanding by tackling differentiated, challenging and varied problems. Similarly, with calculation strategies, children must not simply rote learn procedures, but demonstrate their understanding of these procedures, through the use of Concrete Pictorial Abstract CPA as appropriate, and in reasoning and problem solving activities

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This policy outlines the different calculation methods which should be used as outcomes in the EYFS curriculum and the national curriculum in Y1 to Y6. To ensure consistency throughout school this policy outlines the following Whole School and Year Group expectations:

- A consistent approach to teaching and learning
- Agreed calculation strategies
- Non-negotiable methods for written and mental calculations
- Precise mathematical vocabulary to be used (see additional guidelines)
- Consistent approach to setting out calculations
- Clear outcomes for every year group and key stage.

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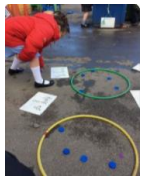
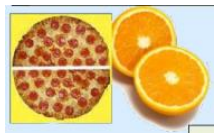
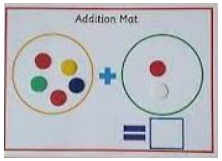
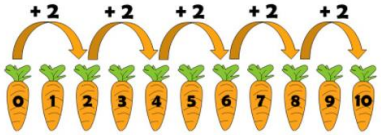
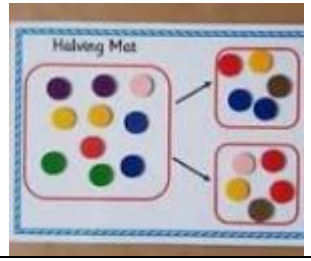
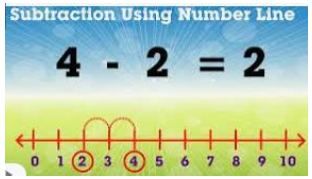
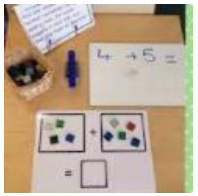
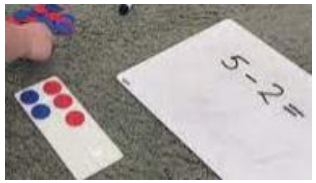
EYFS

Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers (Statutory Framework 2021)

Addition	Subtraction	Multiplication	Division
Children are encouraged to gain a sense of the number system through the use of counting concrete objects. 	Children are encouraged to gain a sense of the number system through the use of counting concrete objects. 	Children use concrete objects to make and count equal groups of objects. 	Children use concrete objects to count and share equally into 2 groups  
They combine objects in practical ways and count all.  	They understand subtraction as counting out. 	They will count on in twos using a bead string and number line. 	They count a set of objects and halve them by making two equal groups. 
They understand addition as counting on. They will count on in ones and twos using objects, cubes, bead string, reknerek and number line.  	They begin to count back in ones and twos using objects, cubes, bead string and number line. 	They understand doubling as repeated addition. 2 + 2 = 4 	They understand sharing and halving as dividing by 2. 

They begin to use + and = They are encouraged to develop a mental picture of the number system in their heads to use for calculations. Higher attaining children may be able to represent their calculations using symbols and numbers within a written calculation 	They use concrete and pictorial representation to record their calculations. They begin to use - and = Higher attaining children may be able to represent their calculations using symbols and numbers within a written calculation 	They use concrete and pictorial representation to record their calculations. 	They use concrete and pictorial representation to record their calculations. 

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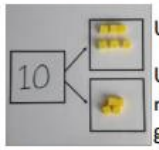
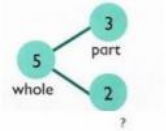
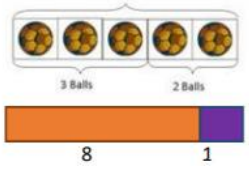
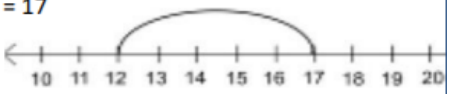
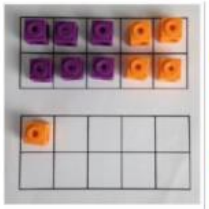
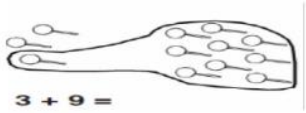
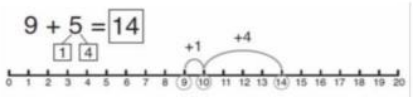
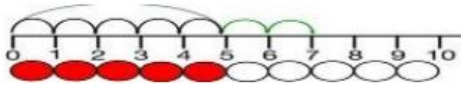
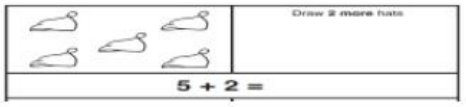
Year 1 Addition

Objective & Strategy	Concrete	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. 	   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.	12 + 5 = 17  Start at the larger number on the number line and count on in ones or in one jump to find the answer.	5 + 12 = 17 Place the larger number in your head and count on the smaller number to find your answer.
Regrouping to make 10. This is an essential skill for column addition later	 6 + 5 = 11  Start with the bigger number and use the smaller number to make 10. Use ten frames.	 3 + 9 = Use pictures or a number line. Regroup or partition the smaller number using the part part whole model to make 10. 	7 + 4= 11 If I am at seven, how many more do I need to make 10. How many more do I add on now?
Represent & use number bonds and related subtraction facts within 20	 2 more than 5.	 	Emphasis should be on the language '1 more than 5 is equal to 6.' '2 more than 5 is 7.' '8 is 3 more than 5.'

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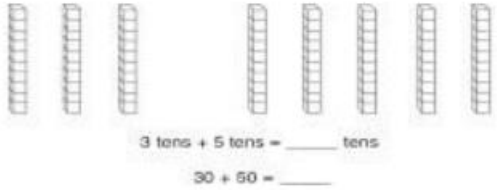
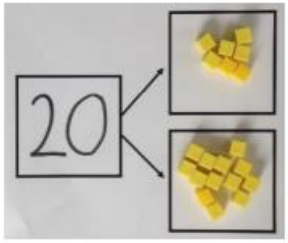
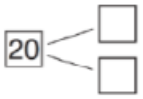
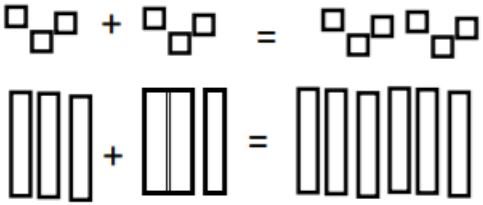
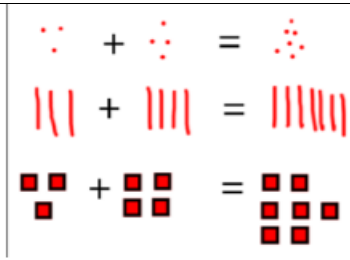
Year 2 Addition

Objective & Strategy	Concrete	Pictorial	Abstract
Adding multiples of ten	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 – □ = □	□ + 1 = 16 16 – 1 = □ 1 + □ = 16 16 – □ = 1
Using known facts		 Children draw representations of H,T and O	3 + 4 = 7 *leads to* 30 + 40 = 70 *leads to* 300 + 400 = 700
Bar model	 3 + 4 = 7	 7 + 3 = 10	 23 25 ? 23 + 25 = 48

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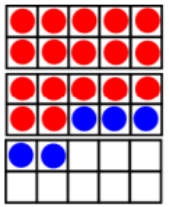
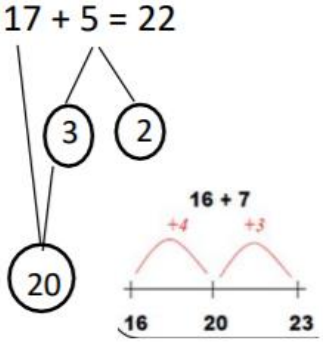
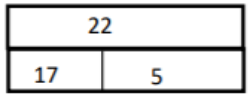
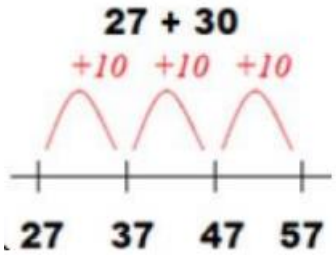
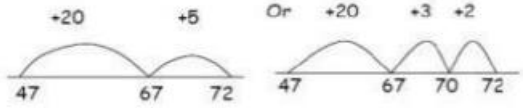
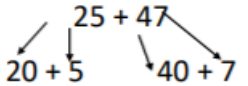
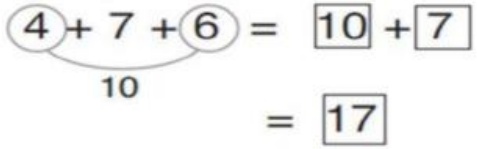
Year 2 Addition

Objective & Strategy	Concrete	Pictorial	Abstract
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 to model. 	17 + 5 = 22 Explore related facts 17 + 5 = 22 5 + 17 = 22 22—17 = 5 22—5 = 17 
Add a 2 digit number and tens	 25 + 10 = 35 Explore that the ones digit does not change		27 + 10 = 37 27 + 20 = 47 27 + □ = 57
Add two 2-digit numbers	 Model using dienes , place value counters and numicon	 Use number line and bridge ten using part whole if necessary.	 20 + 40 = 60 5+ 7 =12 60 + 12 = 72
Add three 1-digit numbers	 Combine to make 10 first if possible, or bridge 1o then add third digit	 Regroup and draw representation. 	 Combine the two numbers that make/ bridge ten then add on the third.

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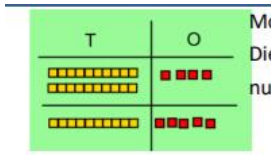
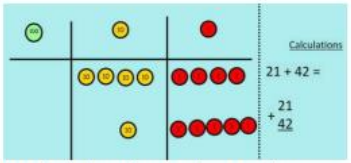
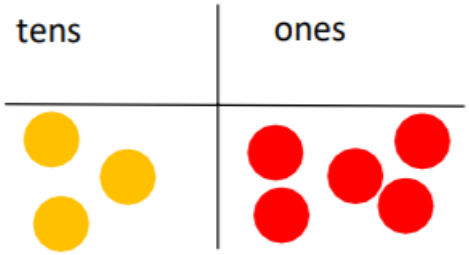
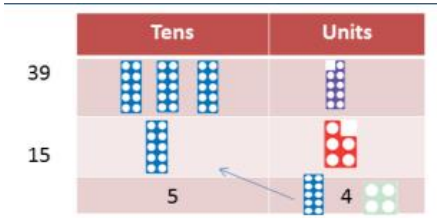
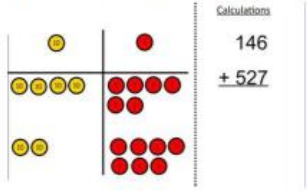
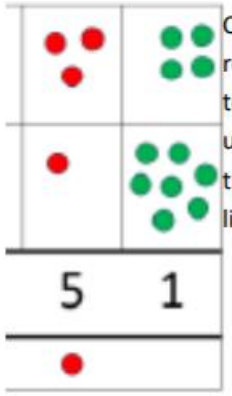
Year 3 Addition

Objective & Strategy	Concrete	Pictorial	Abstract
Column Addition—no regrouping (friendly numbers) Add two or three 2 or 3- digit numbers.	 Model using Dienes or numicon Add together the ones first, then the tens.   Move to using place value counters	Children move to drawing the counters using a tens and one frame. 	2 2 3 + 1 1 4 3 3 7 Add the ones first, then the tens, then the hundreds.
Column Addition with regrouping	 Exchange ten ones for a ten. Model using numicon and pv counters. 	 Children can draw a representation of the grid to further support their understanding, carrying the ten **underneath** the line	20 + 5 40 + 8 60 + 13 = 73 Start by partitioning the numbers before formal column to show the exchange. 536 + 85 621 1 1

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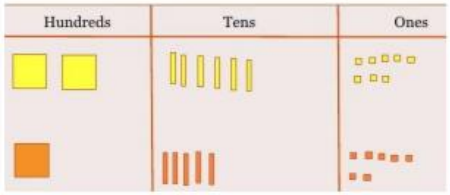
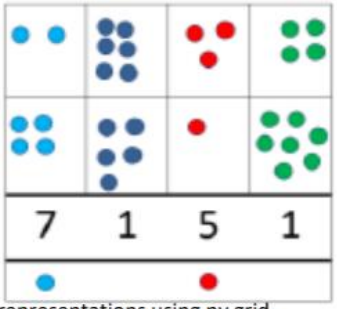
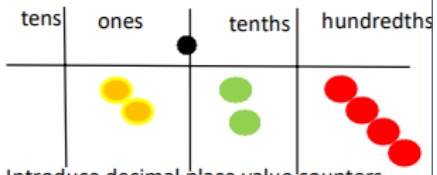
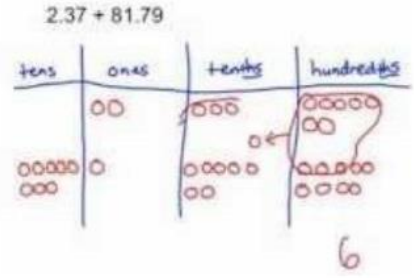
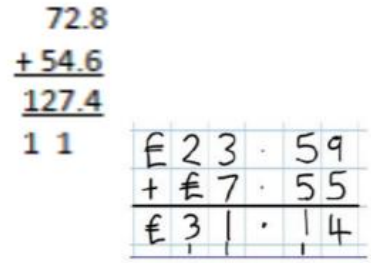
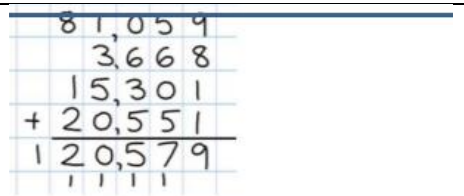
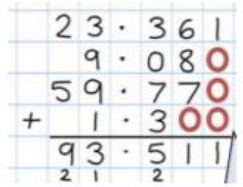
Year 4-6 Addition

Objective & Strategy	Concrete	Pictorial	Abstract
Y4—add numbers with up to 4 digits	Children continue to use dienes or pv counters to add, exchanging ten ones for a ten and ten tens for a hundred and ten hundreds for a thousand. 	 Draw representations using pv grid.	Continue from previous work to carry hundreds as well as tens. Relate to money and measures.
Y5—add numbers with more than 4 digits. Add decimals to two decimal places, including money	As year 4  Introduce decimal place value counters and model exchange for addition.		
Y6—add several numbers of increasing complexity Including adding money, measure and decimals with different numbers of decimal points.	As Y5	As Y5	 Insert zeros for place holders. 

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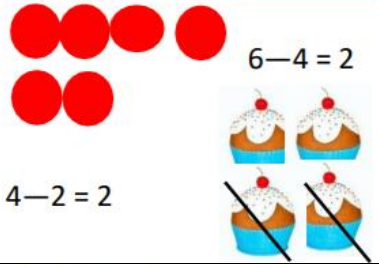
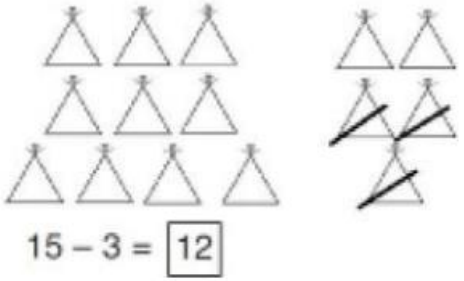
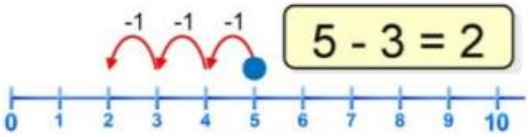
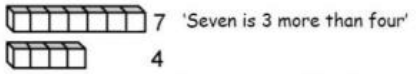
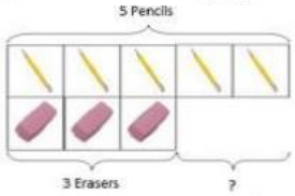
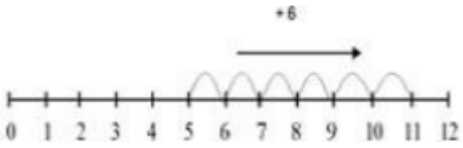
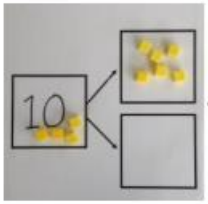
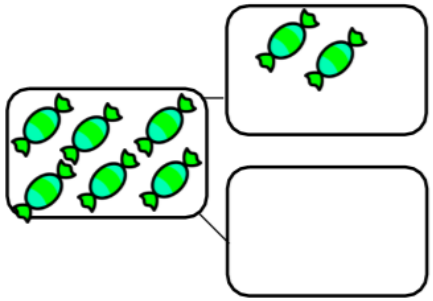
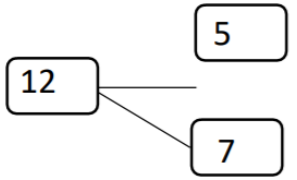
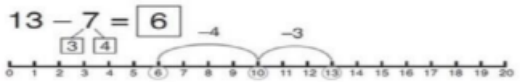
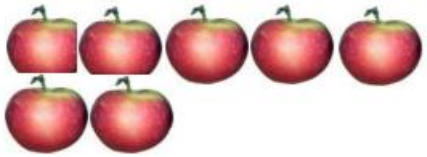
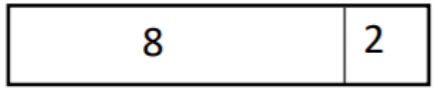
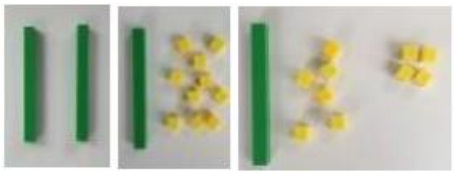
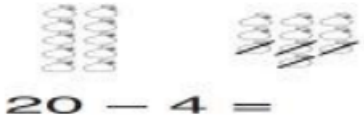
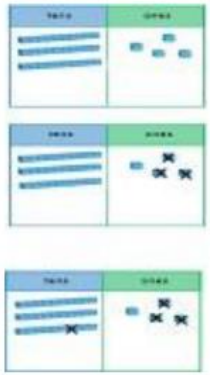
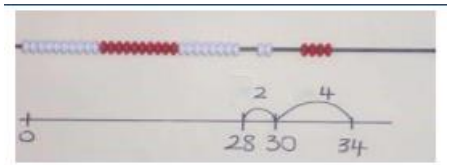
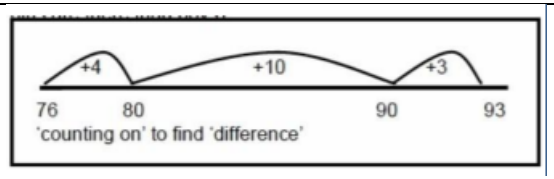
Year 1 Subtraction			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Taking away ones	Use physical objects, counters, cubes etc to show how objects can be taken away. 	 Cross out drawn objects to show what has been taken away	7—4 = 3 16—9 = 7
Counting back	 Move objects away from the group, counting backwards.  Move the beads along the bead string as you count backwards.	 Count back in ones using a number line	Put 13 in your head, count back 4. What number are you at?
Find the difference	Compare objects and amounts   Lay objects to represent bar model	Count on using a number line to find the difference. 	Hannah has 12 sweets and her sister has 5. How many more does Hannah have than her sister.?

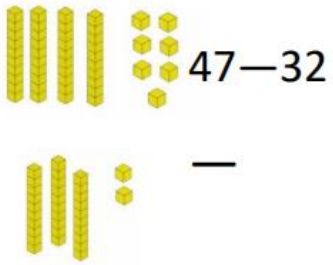
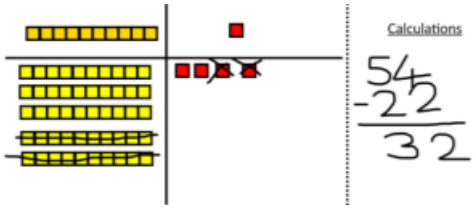
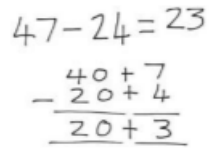
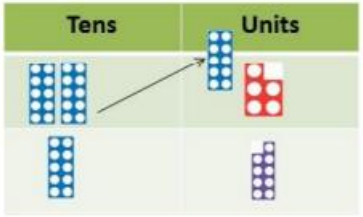
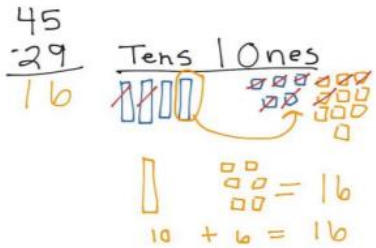
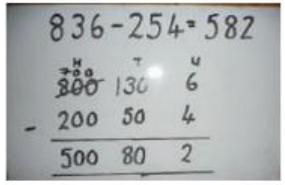
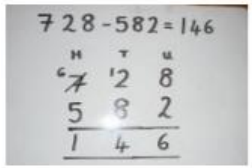
SAINT JOHN'S

Year 1 Subtraction			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Represent and use number bonds and related subtraction facts within 20 Part-Part Whole model	 Link to addition. Use PPW model to model the inverse. If 10 is the whole and 6 is one of the arts, what is the other part? 10—6 = 4	 Use pictorial representations to show the part	Move to using numbers within the part whole model. 
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?
Bar Model	 5-2=3		 10 = 8 + 2 10 = 2 + 8 10—2 = 8 10—8 = 2

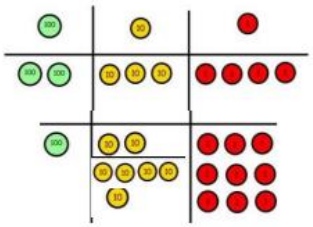
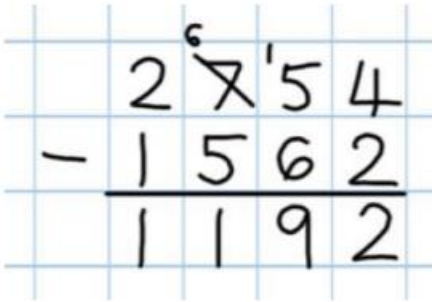
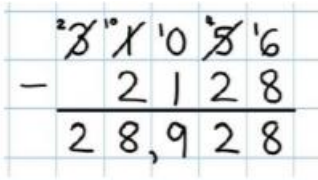
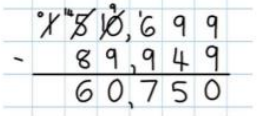
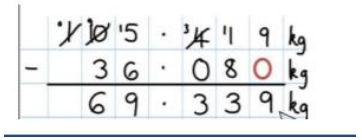
SAINT JOHN'S

Year 2 Subtraction			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Regroup a ten into ten ones	 Use a PV chart to show how to change a ten into ten ones, use the term 'take and make'		20—4 = 16
Partitioning to subtract without regrouping. 'Friendly numbers'	34—13 = 21 Use Dienes to show how to partition the number when subtracting without regrouping. 	Children draw representations of Dienes and cross off. 	43—21 = 22
Make ten strategy Progression should be crossing one ten, crossing more than one ten, crossing the hundreds.	 34—28 Use a bead bar or bead strings to model counting to next ten and the rest	 Use a number line to count on to next ten and then the rest.	93—76 = 17

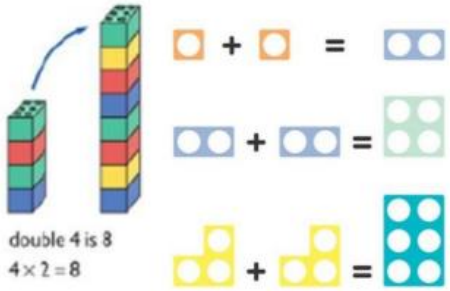
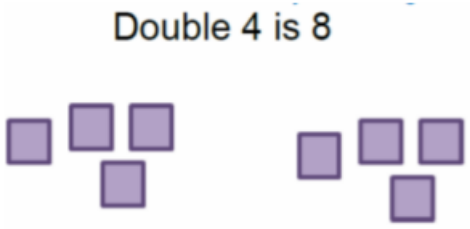
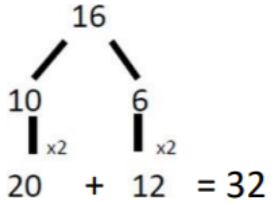
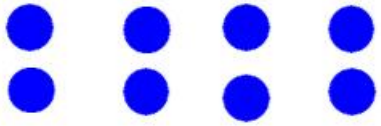
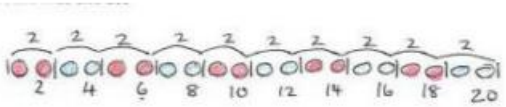
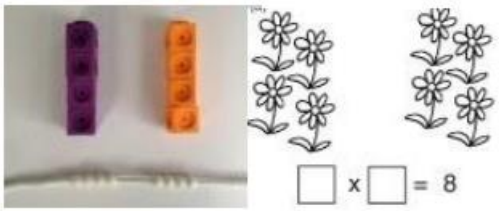
SAINT JOHN'S

Year 3 Subtraction			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Column subtraction without regrouping (friendly numbers)	 Use base 10 or Numicon to model	 Draw representations to support understanding	 Intermediate step may be needed to lead to clear subtraction understanding. 
Column subtraction with regrouping	 Begin with base 10 or Numicon. Move to pv counters, modelling the exchange of a ten into ten ones. Use the phrase 'take and make' for exchange	 Children may draw base ten or PV counters and cross off.	 Begin by partitioning into pv columns  Then move to formal method.

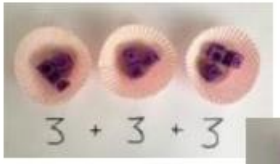
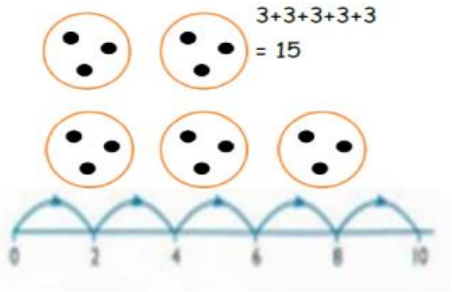
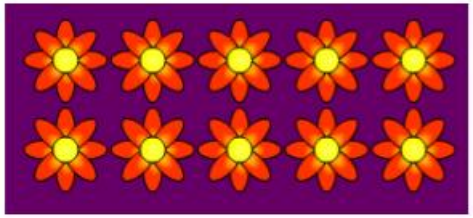
SAINT JOHN'S

Year 4-6 Subtraction			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Subtracting tens and ones Year 4 subtract with up to 4 digits. *Introduce decimal subtraction through context of money*	234 - 179  Model process of exchange using Numicon, base ten and then move to PV counters.	Children to draw pv counters and show their exchange—see Y3	 Use the phrase 'take and make' for exchange
Year 5- Subtract with at least 4 digits, including money and measures. *Subtract with decimal values, including mixtures of integers and decimals and aligning the decimal*	As Year 4	Children to draw pv counters and show their exchange- see Y3	 Use zeros for placeholders.
Year 6—Subtract with increasingly large and more complex numbers and decimal values.			 

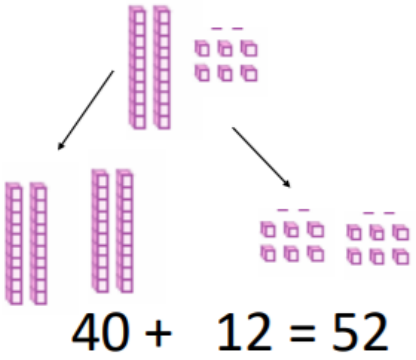
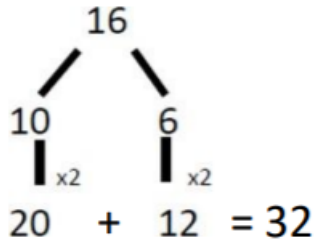
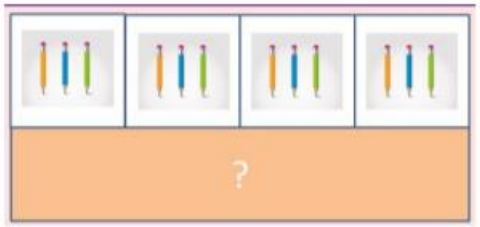
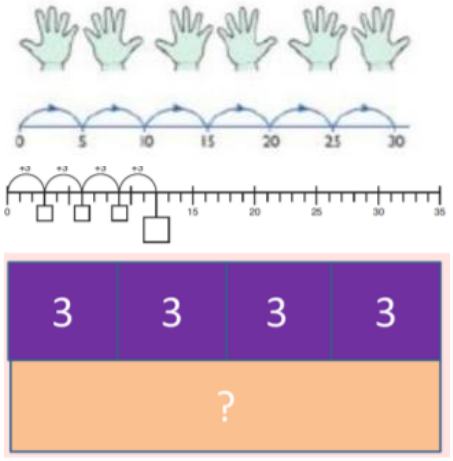
SAINT JOHN'S

Year 1 Multiplication			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Doubling	Use practical activities using manipultives including cubes and Numicon to demonstrate doubling 	Draw pictures to show how to double numbers 	Partition a number and then double each part before recombining it back together. 
Counting in multiples	Count the groups as children are skip counting, children may use their fingers as they are skip counting. 	 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
Making equal groups and counting the total	 Use manipulatives to create equal groups.	Draw  to show 2 x 3 = 6 Draw and make representations	2 x 4 = 8

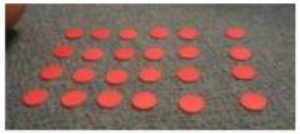
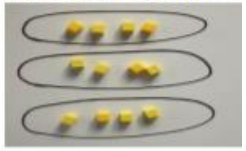
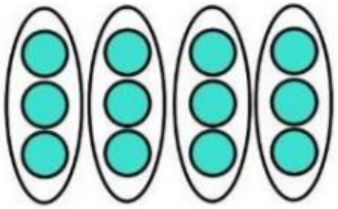
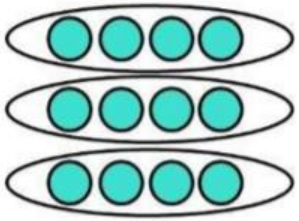
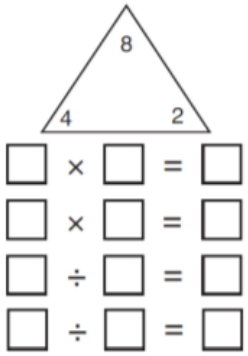
SAINT JOHN'S

Year 1 Multiplication			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Repeated addition	   Use different objects to add equal groups	Use pictorial including number lines to solve problems There are 3 sweets in one bag. How many sweets are in 5 bags altogether? 	Write addition sentences to describe objects and pictures. 
Understanding arrays	Use objects laid out in arrays to find the answers to 2 lots 5, 3 lots of 2 etc 	Draw representations of arrays to show understanding	3 x 2 = 6 2 x 5 = 10

SAINT JOHN'S

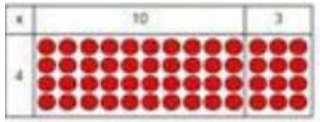
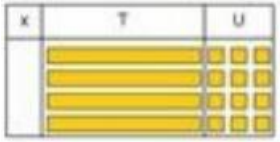
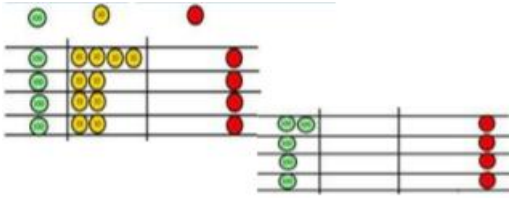
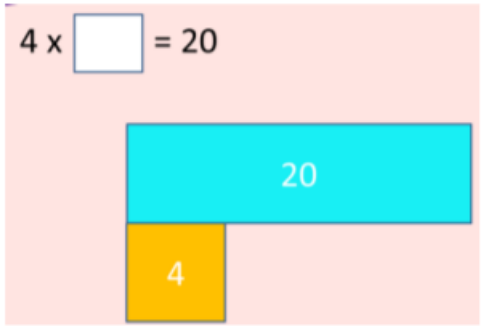
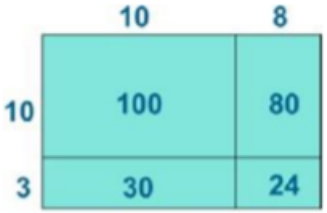
Year 2 Multiplication			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Doubling	Model doubling using dienes and PV counters.  	Draw pictures and representations to show how to double numbers	Partition a number and then double each part before recombining it back together 
Counting in multiples of 2, 3, 4, 5, 10 from 0 (repeated addition)	Count the groups as children are skip counting, children may use their fingers as they are skip counting. Use bar models.  5 + 5 + 5 + 5 + 5 + 5 + 5 + 5 = 40   	Number lines, counting sticks and bar models should be used to show representation of counting in multiples.  	Count in multiples of a number aloud. Write sequences with multiples of numbers. 0, 2, 4, 6, 8, 10 0, 3, 6, 9, 12, 15 0, 5, 10, 15, 20, 25 , 30 $4 \times 3 = \square$

SAINT JOHN'S

Year 2 Multiplication			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Multiplication is commutative	Create arrays using counters and cubes and Numicon.    Pupils should understand that an array can represent different equations and that, as multiplication is commutative, the order of the multiplication does not affect the answer.  	Use representations of arrays to show different calculations and explore commutativity.  	12 = 3 × 4 12 = 4 × 3 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
Using the Inverse *This should be taught alongside division, so pupils learn how they work alongside each other.*			2 x 4 = 8 4 x 2 = 8 8 ÷ 2 = 4 8 ÷ 4 = 8 8 = 2 x 4 8 = 4 x 2 2= 8 ÷ 4 4 = 8 ÷ 2 Show all 8 related fact family sentences

SAINT JOHN'S

Year 3 Multiplication

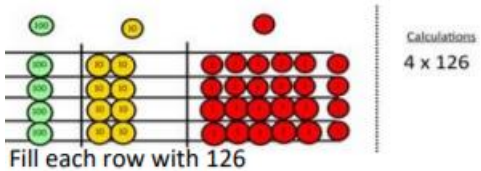
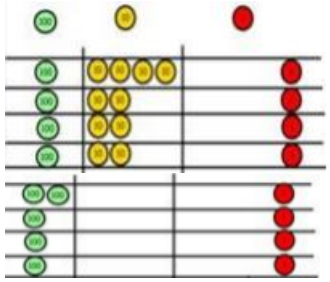
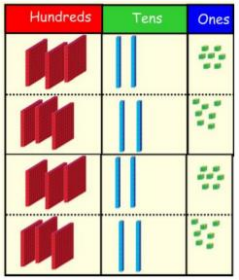
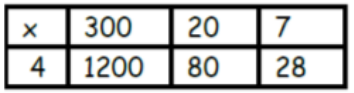
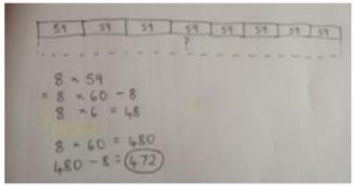
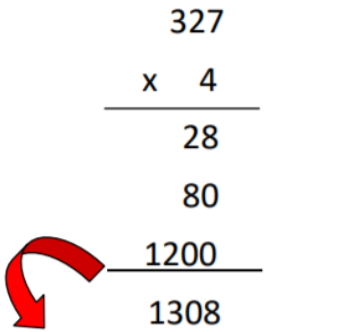
Objective & Strategy	Concrete	Pictorial	Abstract
Grid Method	Show the links with arrays to first introduce the grid method.  4 rows of 10 4 rows of 3 Move onto base ten to move towards a more compact method.  4 rows of 13 Move on to place value counters to show how we are finding groups of a number. We are multiplying by 4 so we need 4 rows  Calculations 4 x 126 Fill each row with 126 Add up each column, starting with the ones making any exchanges needed  Then you have your answer.	Children can represent their work with place value counters in a way that they understand. They can draw the counters using colours to show different amounts or just use the circles in the different columns to show their thinking as shown below Bar model are used to explore missing numbers  	Start with multiplying by one-digit numbers and showing the clear addition alongside the grid.  **210 + 35 = 245** Moving forward, multiply by a 2-digit number showing the different rows within the grid method. 

×	30	5
7	210	35

	10	8
10	100	80
3	30	24

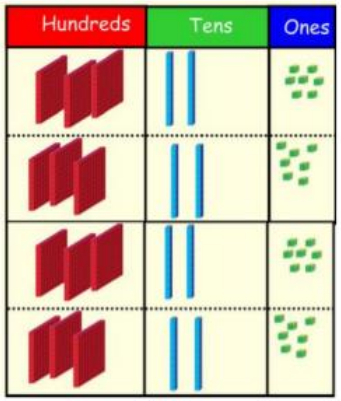
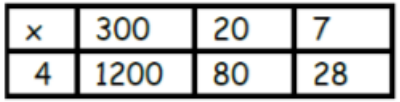
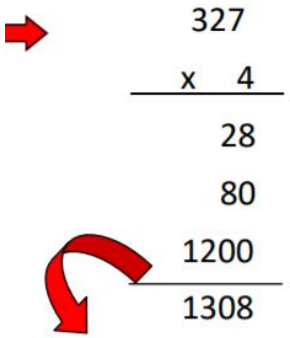
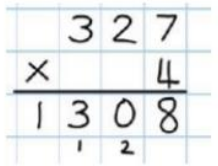
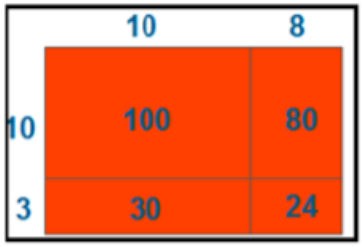
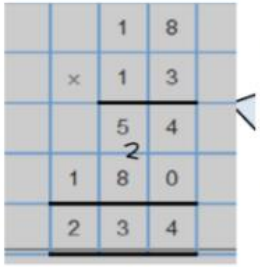
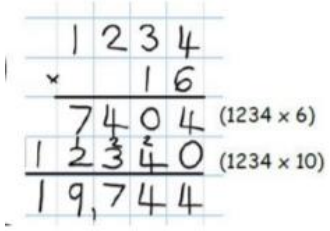
SAINT JOHN'S

Year 4 Multiplication

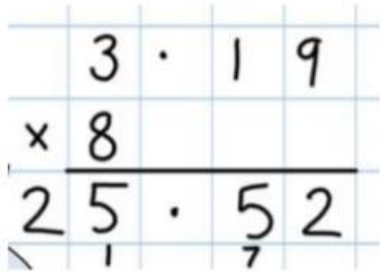
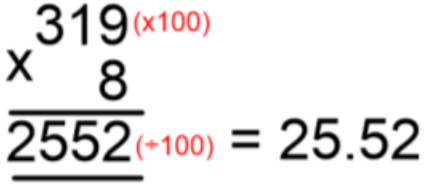
Objective & Strategy	Concrete	Pictorial	Abstract
Grid method recap from year 3 for 2 digits x 1 digit Move to multiplying 3 digit numbers by 1 digit. (year 4 expectation)	Use place value counters to show how we are finding groups of a number. We are multiplying by 4 so we need 4 rows  Fill each row with 126  Add up each column starting with the ones making any exchanges needed	Children can represent their work with place value counters in a way that they understand. They can draw the counters using colours to show different amounts or just use the circles in the different columns to show their thinking as shown below.	Start with multiplying by one-digit numbers and showing the clear addition alongside the grid.  210 + 35 = 245
Column multiplication	Children can continue to be supported by place value counters at the stage of multiplication. This initially done where there is no regrouping 321 x 2 = 642  Always multiply the ones first The corresponding long multiplication is modelled alongside	 The grid method may be used to show how this relates to a formal written method.  Bar modelling and number lines can support learners when solving problems with multiplication alongside the formal written methods.	 This may lead to a compact method.

SAINT JOHN'S

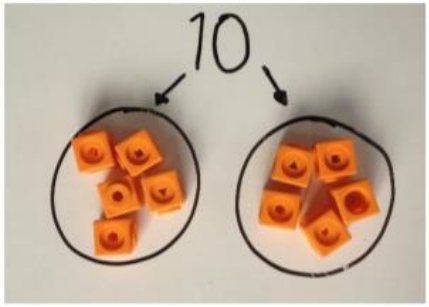
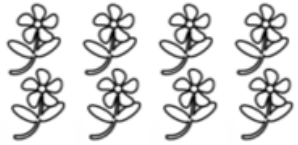
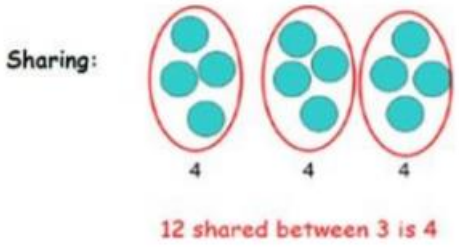
Year 5/6 Multiplication

Objective & Strategy	Concrete	Pictorial	Abstract
Column Multiplication for 3 and 4 digits x 1 digit.	It is important at this stage that they always multiply the ones first.  Children can continue to be supported by place value counters at the stage of multiplication. This initially done where there is no regrouping. 321 x 2 = 642	 	  This will lead to a compact method.
Column multiplication	Manipulatives may still be used with the corresponding long multiplication modelled alongside.	 Continue to use bar modelling to support problem solving	 18 x 3 on the first row (8 x 3 =24, carrying the 2 for 20, then 1 x 3) 18 x 10 on the 2nd row. Show multiplying by 10 by putting zero in units first 

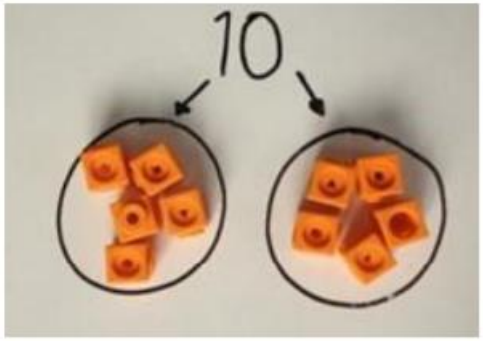
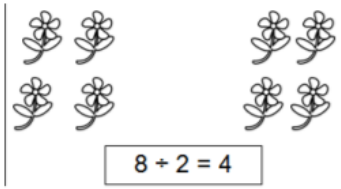
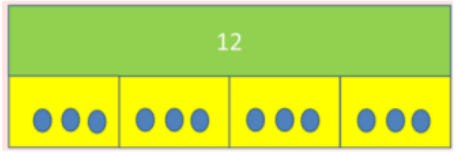
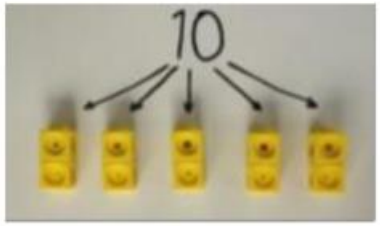
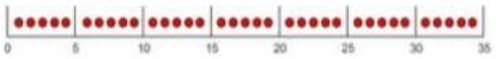
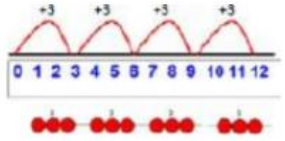
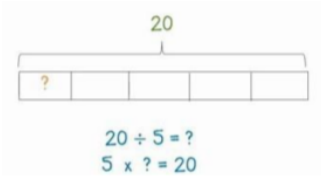
SAINT JOHN'S

Year 6 Multiplication			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Multiplying decimals up to 2 decimal places by a single digit.			Remind children that the single digit belongs in the units column. Line up the decimal points in the question and the answer.  When appropriate, children can use their place value knowledge to make the number being multiplied 10, 100 or 1000 times bigger and then multiply and make the answer 10, 100 or 1000 times smaller. 

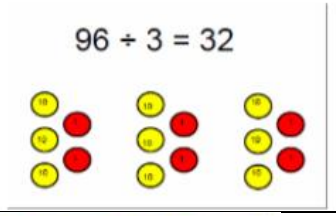
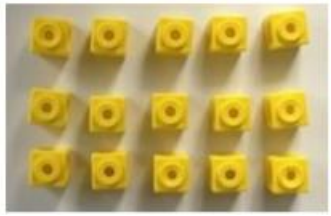
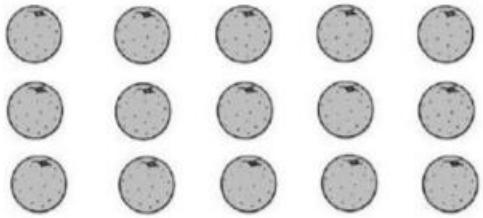
SAINT JOHN'S

Year 1 Division			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Division as sharing Use Gordon ITPs for modelling	  	 Children use pictures or shapes to share quantities. 8 shared between 2 is 4 	12 shared between 3 is 4

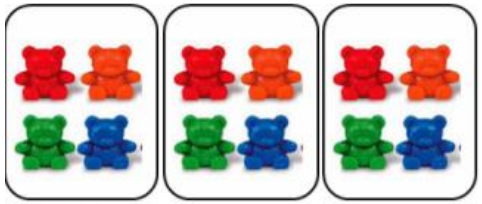
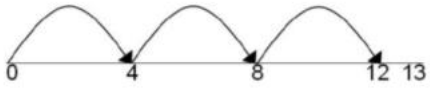
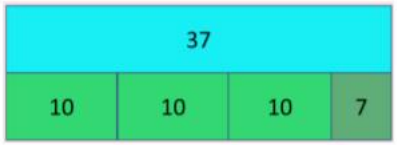
SAINT JOHN'S

Year 2 Division			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Division as sharing	 I have 10 cubes, can you share them equally in 2 groups?	Children use pictures or shapes to share quantities  Children use bar modelling to show and support understanding.  12 ÷ 4 = 3	$12 \div 3 = 4$
Division as grouping	Divide quantities into equal groups. Use cubes, counters, objects or place value counters to aid understanding.  	Use number lines for grouping  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. 	$28 \div 7 = 4$ Divide 28 into 7 groups. How many are in each group?

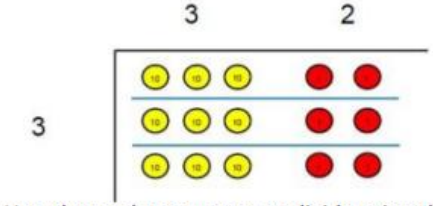
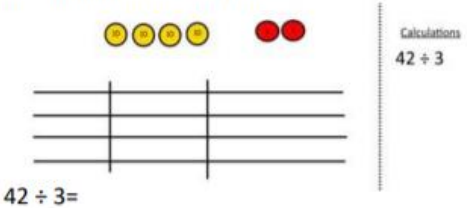
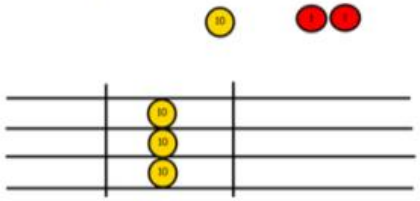
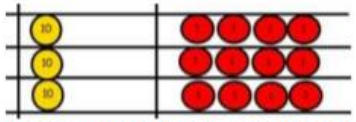
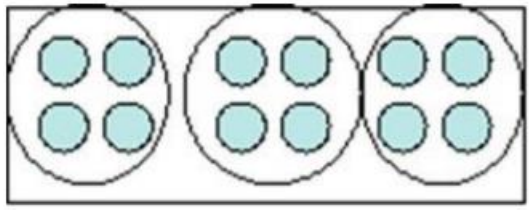
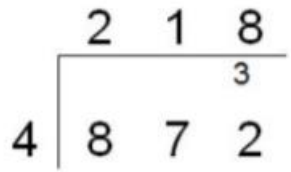
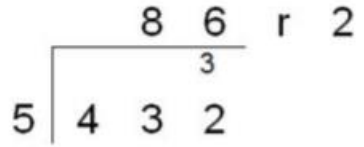
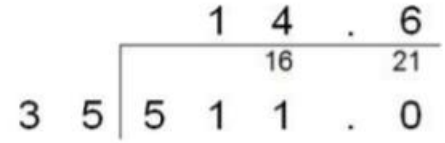
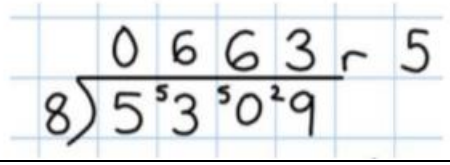
SAINT JOHN'S

Year 3 Division			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Division as grouping	Use cubes, counters, objects or place value counters to aid understanding.  24 divided into groups of 6 = 4 	Continue to use bar modelling to aid solving division problems.  20 ÷ 5 = ? 5 x ? = 20	How many groups of 6 in 24? 24 ÷ 6 = 4
Division with arrays	 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 eight linking number sentences. 7 x 4 = 28 4 x 7 = 28 28 ÷ 7 = 4 28 ÷ 4 = 7 28 = 7 x 4 28 = 4 x 7 4 = 28 ÷ 7 7 = 28 ÷ 4

SAINT JOHN'S

Year 3 Division			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Division with remainders	14 ÷ 3 = Divide objects between groups and see how much is left over  	Jump forward in equal jumps on a number line then see how many more you need to jump to find a remainder  Draw dots and group them to divide an amount and clearly show a remainder.  Use bar models to show division with remainders. 	Complete written divisions and show the remainder using r. 

SAINT JOHN'S

Year 4-6 Division			
Objective & Strategy	**Concrete**	**Pictorial**	**Abstract**
Divide at least 3 digit numbers by 1 digit. Short Division	96 ÷ 3 Tens Units 3 2 3  Use place value counters to divide using the bus stop method alongside  Calculations 42 ÷ 3 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.  We look how much in 1 group so the answer is 14.	Students 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. Begin with divisions that divide equally with no remainder.  Move onto divisions with a remainder.  Finally move into decimal places to divide the total accurately.  

SAINT JOHN'S

Year 6 Long Division

Step 1—a remainder in the ones

```
   h  t  o
      0  4  1 R1
   ---------
4 ) 1  6  5
```

4 does not go into 1 (hundred). So combine the 1 hundred with the 6 tens (160).

4 goes into 16 four times.

4 goes into 5 once, leaving a remainder of 1.

```
   th  h  t  o
       0  4  0  0 R7
   ------------
8 ) 3  2  0  7
```

8 does not go into 3 of the thousands. So combine the 3 thousands with the 2 hundreds (3,200).

8 goes into 32 four times (3,200 ÷ 8 = 400)
8 goes into 0 zero times (tens).
8 goes into 7 zero times, and leaves a remainder of 7.

SAINT JOHN'S

Year 6 Long Division

Step 1 continued...

```
   h t o
   0 6 1
  ------
4 ) 2 4 7
    - 4
    ---
      3
```

When dividing the ones, 4 goes into 7 one time. Multiply 1 × 4 = 4, write that four under the 7, and subract. This finds us the remainder of 3.

Check: 4 × 61 + 3 = 247

```
    th h t o
    0 4 0 2
   ---------
4 ) 1 6 0 9
      - 8
      -----
        1
```

When dividing the ones, 4 goes into 9 two times. Multiply 2 × 4 = 8, write that eight under the 9, and subract. This finds us the remainder of 1.

Check: 4 × 402 + 1 = 1,609

SAINT JOHN'S

Year 6 Long Division

Step 2—a remainder in the tens

1. Divide.	2. Multiply & subtract.	3. Drop down the next digit.
t o 2 2)5 8	t o 2 2)5 8 -4 1	t o 2 9 2)5 8 -4 ↓ 1 8
Two goes into 5 two times, or 5 tens ÷ 2 = 2 whole tens -- but there is a remainder!	To find it, multiply 2 × 2 = 4, write that 4 under the five, and subtract to find the remainder of 1 ten.	Next, drop down the 8 of the ones next to the leftover 1 ten. You combine the remainder ten with 8 ones, and get 18.

1. Divide.	2. Multiply & subtract.	3. Drop down the next digit.
t o 2 9 2)5 8 -4 1 8	t o 2 9 2)5 8 -4 1 8 -1 8 0	t o 2 9 2)5 8 -4 1 8 -1 8 0
Divide 2 into 18. Place 9 into the quotient.	Multiply 9 × 2 = 18, write that 18 under the 18, and subtract.	The division is over since there are no more digits in the dividend. The quotient is 29.

SAINT JOHN'S

Year 6 Long Division

Step 2—a remainder in any of the place values

1. Divide.	2. Multiply & subtract.	3. Drop down the next digit.
h t o 1 2) 2 7 8	h t o 1 2) 2 7 8 - 2 0	h t o 1 8 2) 2 7 8 - 2 ↓ 0 7
Two goes into 2 one time, or 2 hundreds ÷ 2 = 1 hundred.	Multiply 1 × 2 = 2, write that 2 under the two, and subtract to find the remainder of zero.	Next, drop down the 7 of the tens next to the zero.
Divide.	**Multiply & subtract.**	**Drop down the next digit.**
h t o 1 3 2) 2 7 8 - 2 0 7	h t o 1 3 2) 2 7 8 - 2 0 7 - 6 1	h t o 1 3 2) 2 7 8 - 2 0 7 - 6 1 8
Divide 2 into 7. Place 3 into the quotient.	Multiply 3 × 2 = 6, write that 6 under the 7, and subtract to find the remainder of 1 ten.	Next, drop down the 8 of the ones next to the 1 leftover ten.
1. Divide.	**2. Multiply & subtract.**	**3. Drop down the next digit.**
h t o 1 3 9 2) 2 7 8 - 2 0 7 - 6 1 8	h t o 1 3 9 2) 2 7 8 - 2 0 7 - 6 1 8 - 1 8 0	h t o 1 3 9 2) 2 7 8 - 2 0 7 - 6 1 8 - 1 8 0
Divide 2 into 18. Place 9 into the quotient.	Multiply 9 × 2 = 18, write that 18 under the 18, and subtract to find the remainder of zero.	There are no more digits to drop down. The quotient is 139.