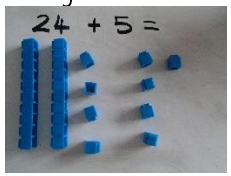
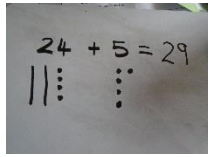
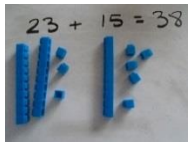
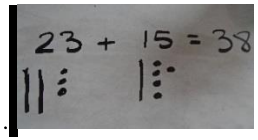
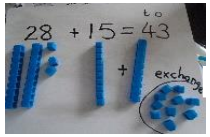
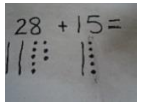
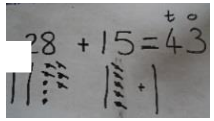
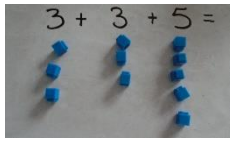
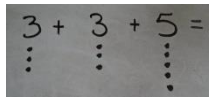
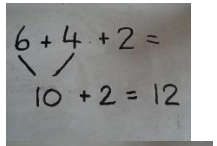
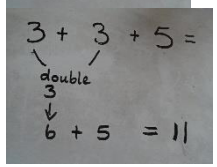
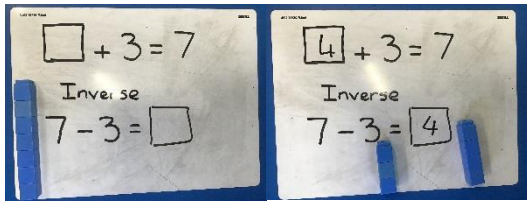
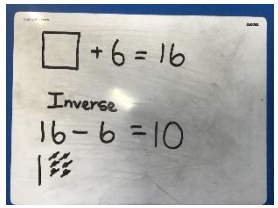
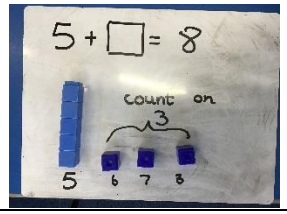
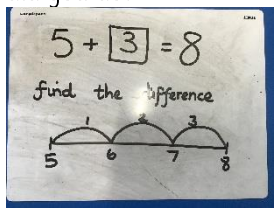
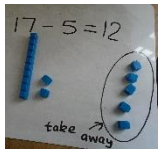
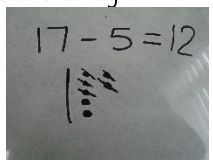
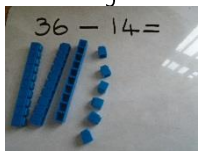
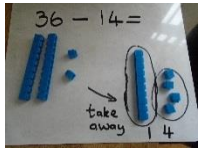
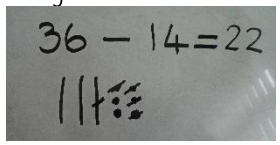
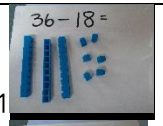
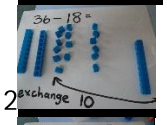
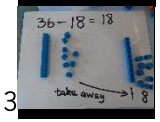
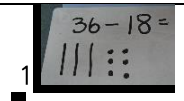
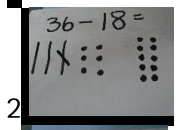
St. Peter's C E Primary Academy

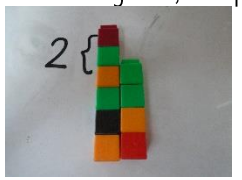
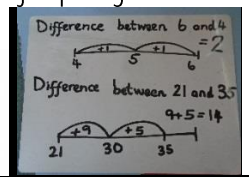
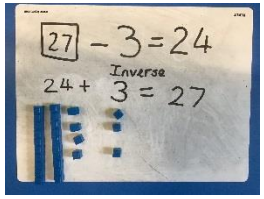
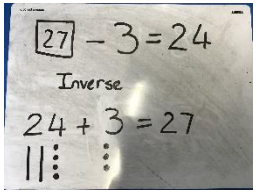
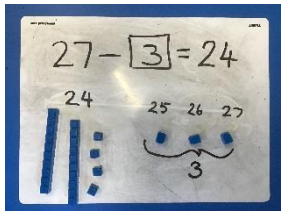
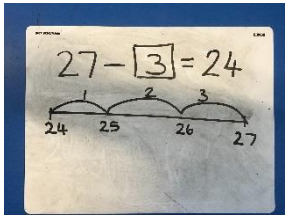
KS1 Calculation Policy

Addition			
Learning objectives	**Concrete** (using objects)	**Pictorial** (drawing pictures)	**Abstract** (mental methods)
Add 1-digit to a 2-digit number. e.g. 24+5=	Use base 10 to make and add the 10s and then the 1s together. 	Draw the tens and ones. Then count and add. 	Put the large number in your head and then count on using fingers. 25,26,27,28,29
Add two 2-digit numbers Without crossing the 10s. e.g. 23+15=	Use base 10 to make the numbers and then count all the 10s and then 1s. 	Draw base 10 and then count all the 10s and all the 1s. 	 I know that 20+10=30 and 3+5=8 30+8=38
Add two 2-digit numbers Crossing the 10s. e.g.28+15=	Use base 10 to make the numbers. Then add the 1s and exchange ten 1s for a 10 stick. Then count 10s and 1s. 	Draw tens and ones.  Then add the 1s and exchange ten 1s for a 10 stick. Then count 10s and 1s. 	 I know that 8+5=13 30+13=48

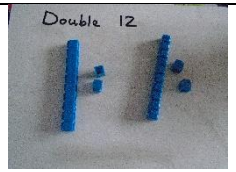
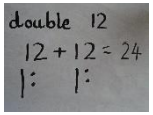
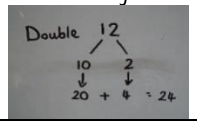
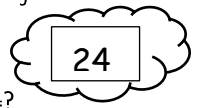
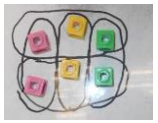
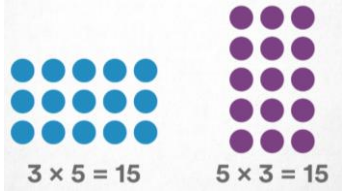
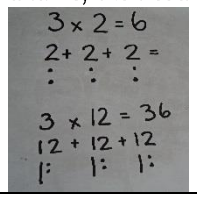
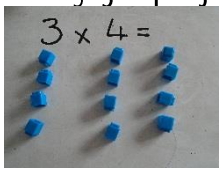
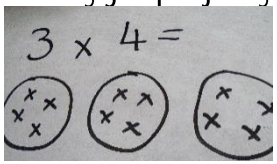
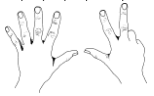
Adding three 1-digit numbers. e.g 3+3+5= 6+4+2=	Make the numbers, then count all to add together. 	Draw the 1s and the count…  Look for patterns - number bonds to 10 -doubles  	 Look for patterns. Then count on. 3+3+5= I know double 3 is 6, count on 5=11 6+4+2= I know that 6+4=10, count on 2=12
Finding a missing number at the beginning. "Missing number at the beginning find the inverse and you are winning."	Write the inverse (opposite operation) number sentence. Calculate using cubes. 	Write the inverse (opposite operation) number sentence. Calculate by drawing tens and ones. 	Write the inverse (opposite operation) number sentence. Calculate by using known number bonds. __ + 6 = 16 16 – 6 = I know that 16 – 6 = 10.
Finding a missing number in the middle. "Missing number in the middle find the difference to solve the riddle."	Build a tower of cubes for the first number and count on by adding cubes until you reach the larger number. How many extra cubes did you need? 	Draw a number line and put the smallest number at the beginning. Count on until you get to the larger number. How many jumps did you do? 	Put the first number in your head and count on using your fingers until you reach the larger number. How many fingers did you need? OR Use number bond knowledge. I know that 5 and 3 make 8.

Subtraction

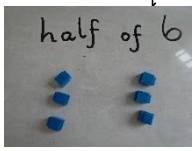
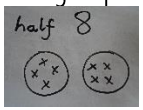
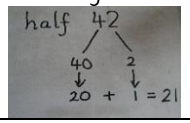
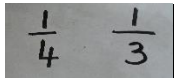
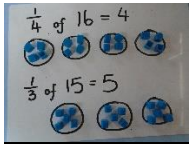
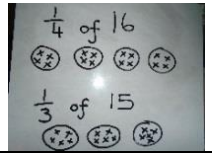
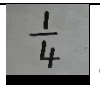
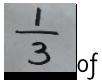
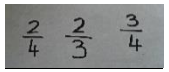
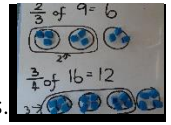
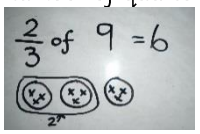
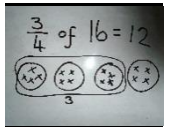
Learning objectives	**Concrete** (using objects)	**Pictorial** (drawing pictures)	**Abstract** (mental methods)
Subtract a 1-digit from a 2-digit number. e.g.17-5=	Use base 10 to make the number and take away the 1s. 	Draw the tens and ones. Then cross out to take away. 	 Counting back. I put 17 in my head and count back 5.
Subtract a 2-digit number from another 2-digit number. Without crossing the 10s. e.g. 34-14=	First, use base 10 to make the big number. Then take away the 10s and 1s. Count the remainder.  	Draw the 10s and 1s. Then cross out to take away and count the remainder. 	36-14=? I know that 30-10=20 I know that 6-4=2 20+2=22
Subtract a 2-digit number from another 2-digit number. Crossing the 10s. e.g.36-18=	1  2  3 	First, make the number using base 10. You cannot take 8 away from 6, so you exchange 1 ten stick for 10 ones. Then you take away 8 1s and 1 10. Count the 10s and 1s left over.	1  2  3	First, draw the number using 10s and 1s. You cannot take 8 away from 6, so you exchange 1 ten stick, for 10 ones. Then you take away 8 ones and 1 ten stick by crossing out. Count the 10s and 1s left over.	36-18= I know 36-10=26. 8 is made up of 6 and 2. 26-6=20 20-2=18

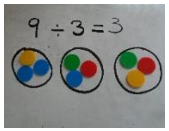
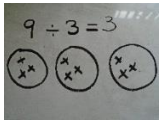
Find the difference	The difference between 4 and 6 Build a tower of 4 and a tower of 6. Put side by side, compare and count the difference. 	Draw a number line. Start from the smallest number. Draw jumps, recording how many you have jumped each time. Remember Lazy frog likes to jump to the next 10. Then add your jumps together. 	Find the difference between 6 and 4. Start from the smallest number. I count on from 4 to 6, I have counted on 2 more. Find the difference between 21 and 35. I know from 21 to 30 will be 9 and then 30 to 35 is 5. 9+5=14.
Finding a missing number at the beginning. "Missing number at the beginning find the inverse and you are winning."	Write the inverse (opposite operation) number sentence. Calculate using cubes. 	Write the inverse (opposite operation) number sentence. Calculate by drawing tens and ones. 	Write the inverse (opposite operation) number sentence. Calculate by using known number bonds. ___ - 3 = 24 24 + 3 = 27
Finding a missing number in the middle. "Missing number in the middle find the difference to solve the riddle."	Build a tower of cubes for the smallest number and count on by adding cubes until you reach the larger number. How many extra cubes did you need? 	Draw a number line and put the smallest number at the beginning. Count on until you get to the larger number. How many jumps did you do? 	Put the smallest number in your head and count on using your fingers until you reach the larger number. How many fingers did you need? OR Use number bond knowledge. I know that 24 and 3 make 27.

Multiplication

Learning objectives	**Concrete** (using objects)	**Pictorial** (drawing pictures)	Abstract (mental methods)
Doubles e.g. Double 12	 Use base 10 or cubes to make the number. Then count the 10s and the 1s. 10,20 1,2,3,4=24	Draw the 10s and 1s.  Then add the 10s and then 1s. Or partition into 10s and 1s and double each number before adding back together. 	Instant recall of double facts.  double 12=? Or I know double 10 =20 and double 2=4 And 20+4=24
Arrays	Using counters, cones and cubes make an **array** to show multiplication sentences. 5x3=15  2x3=6 or 3x2=6	Draw **arrays** in different rotations to find commutative multiplication sentences. 	Hold up fingers for the amount and touch them while counting in 2s, 5s or 10s. 3x5=15 5, 10, 15
Repeated addition	using objects, cubes and counters 2 +2 +2 =6 3x2=6 2 + 2 + 2 = 6 3x2=6	Write out **addition sentence**, draw the 10s and 1s, then count up all the 10s and 1s. 	10x7=70 10,20,30,40,50,60,70
Groups of	Making **groups of** using counters or cubes. 	Drawing **groups of**.. 3 groups of 4 	2x8=16 2,4,6,8,10,12,14,16 

Division (including fractions)

Learning objectives	**Concrete** (using objects)	**Pictorial** (drawing pictures)	**Abstract** (mental methods)
Halving	Use base 10, counters or cubes to make the number. Then share equally between 2. 	Draw 2 circles and share out the 8 equally between the 2 circles. Count how many is in each group.  Or split the number into 10s and 1s, half the 10s number and then the 1s and put them back together. 	Instant recall double facts. Half of 12=? . . . 6 Half of 42 I know that half of 40=20 I know that half of 2=1 And 20+1=21
Finding a quarter or third of a number. 	Use base 10, counters or cubes to make the number. Then share equally between 4 or 3. 	Draw 4 circles for quarters and 3 for thirds. Draw circles or crosses while counting and sharing out the number. Count the number in 1 circle. 	 of 12 I know half of 12= 6, then half of 6 =3  of 9 I can count in 3s.
Finding more than 1 quarter or 1 third. 	First, find 1 quarter or 1 third using objects. Then count the number of quarters or thirds. 	First, find 1 quarter or 1 third. Then count the number of quarters or thirds.  	I know that 1 third is 3, so 2 thirds will be 3 + 3 = 6. I know that I quarter is 4 ,so 3 quarters will be 4+4+4=12

Dividing **sharing**	Sharing objects equally into groups. 9 counters shared into 3 groups. 	Draw the groups (circles) and then share out equally between the circles. 9 shared into 3 groups. 	Count up on fingers counting in 2s, 5s or 10s until you reach the big number. Then count your fingers. 15 ÷ 5 = 3 5, 10, 15 you counted in 5s using **3** fingers to get to 15.