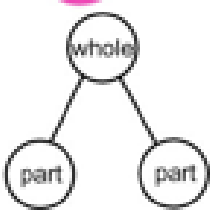
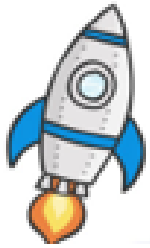
OVERCHURCH INFANT SCHOOL

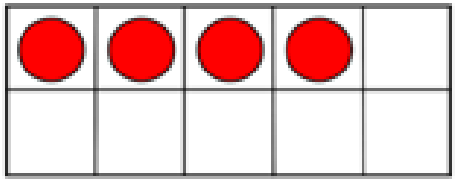
Approved by FGB:	
Date ratified by Governors: 09.02.2022	
Date reviewed: January 2022 J Wilson – No Change	
Date of next review: Spring 1 - 2023	
Signed:	Headteacher
Signed:	Chair of Governors

OVERCHURCH
INFANT SCHOOL

Calculation Policy

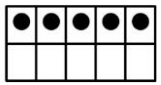
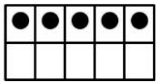
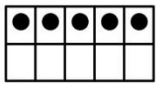


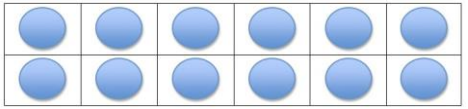




Progression in the use of equipment to support learning

USE IT!

Foundation	Year 1	Year 2	Notes / resource implications
Real-life objects	Real-life objects	Real-life objects	
0 – 9 digit cards	0 – 9 digit cards	0 – 9 digit cards	
Number track to 10 Number line to 10	Number line to 20	Number line to 100	
Numbered counting stick	Counting stick	Counting stick	
Tens frame 	Tens frame 	Tens frame 	
	Place value charts – Tens and ones	Place value charts – Hundreds, tens and ones	
Interlocking cubes - Use one colour to represent one amount	Interlocking cubes - Use one colour to represent one amount	Dienes	
	Place value arrow cards – tens and ones	Place value arrow cards – hundreds, tens and ones	
Part-part-whole mat	Part-part-whole mat	Part-part-whole mat	
Bar model with real-life objects	Bar model with real life objects/pictorial objects/representative objects eg. counters	Bar model with counters /Dienes progressing to numbers	
Bead strings – ten	Bead strings - twenty	Bead strings - hundred	
Numicon shapes	Numicon shapes	Numicon shapes	
Double sided counters	Double sided counters	Double sided counters	
Multilink – use one colour to model an amount	Multilink – use one colour to model an amount	Multilink – use one colour to model an amount	

Maths Working Wall – DISPLAY IT!		
Say it!	Use vocabulary related to the concept	Multiply, times, repeated addition, array, divide, group, multiples, factors
Build it!	Use a real-life representation of the concept which children can see, touch and feel.	
Draw it!	Show a pictorial representation of the concept.	
Solve it!	Show the mathematical representation of the concept.	6 x 2 = 12 2 x 6 = 12 12 ÷ 2 = 6 12 ÷ 6 = 2 Factors of 12 are: 1, 2, 3, 4, 6 and 12
Practise it!	Encourage children to practice the concept. ***Interactive opportunity*** – ask children to respond to questions, encourage them to add what they know, leave homework for children to take to master the concept.	1x 2 = 2 2x 2 = 4 3 x 2 = 6 etc.
Challenge it!	Set a challenge to be solved. ***Interactive opportunity*** – leave real-life objects or manipulatives for children to use to help solve the challenge.	How many different ways can 12 eggs be arranged into arrays? What if you try 24 eggs?

Classroom Visual Prompts – SEE IT!

Foundation	Year 1	Year 2	Notes / requirements
Numbers to 10/20	Numbers to 50/100	Numbers to 100	
Numicon number line with Numicon shapes	Numicon number line with Numicon shapes	Numicon number line	
	Odd and even numbers	Odd and even numbers	
Number bonds up to 10	Number bonds up to 20	Number pairs totalling 10 Multiples of 10 totalling 100	
0 – 10 number line / track	0 -20 number line	0 – 100 number line	
	100 square	100 square	
Number names from 0 - 10	Number names from 0 - 20	Number names from 0 – 100	
Real coins Large coins	Real coins Large coins Large notes	Real coins Large coins Large notes	
	Counting in multiples of 1, 2, 5 and 10	Counting in multiples of 2, 3, 4, 5 and 10	
	Mathematical symbols including + - x / =	Mathematical symbols including + - x / = < >	
Real-life / pictorial fractions	Real-life / pictorial fractions	Fractions including fraction number line/wall	
2D and 3D shapes	2D and 3D shapes	2D and 3D shapes	
RESOURCE IMPLICATIONS?			

Progression in the teaching of counting in Foundation Stage

Pre-counting	Ordering	One to one correspondence	Cardinality (Knowing the final number counted is the total number of objects)
The key focus in pre-counting is an understanding of the concepts more, less and the same and an appreciation of how these are related. Children at this stage develop these concepts by comparison and no counting is involved.	Count by reciting the number names in order forwards and backwards from any starting point.	One number word has to be matched to each and every object. Lack of coordination is a source of potential error – it helps if children move the objects as they count, use large rhythmic movements, or clap as they count.	Count out a number of objects from a larger collection. Know the number they stop counting at will give the total number of objects.
Pre-counting ideas *Provide children with opportunities to sort groups of objects explicitly using the language of **more** and **less.***   *Which group of apples has the most?* *Which group of apples has the least?*	**Ordering ideas** *Provide children with opportunities to count orally on a daily basis. Rote count so that children are able to understand number order and can hear the rhythm and pattern. Use a drum or clap to keep the beat.* 	**One to one correspondence ideas** *Play counting games together moving along a track, play games involving amounts such as knocking down skittles.* *Use traditional counting songs throughout the day ensuring children have the visual/kinaesthetic resources eg. 5 little ducks, 10 green bottles* 	**Cardinal counting ideas**  *How many bananas are in my fruit bowl? Allow children to physically handle the fruit.* *Provide children with objects to point to and move as they count and say the numbers.*

Progression in the teaching of counting in Foundation Stage

Subitising (recognise small numbers without counting them)

Children need to recognise small amounts without counting them eg. dot patterns on dice, dots on tens frames, dominoes and playing cards as well as small groups of randomly arranged shapes stuck on cards.

Abstraction

You can count anything – visible objects, hidden objects, imaginary objects, sounds etc. Children find it harder to count things they cannot move (because the objects are fixed), touch (they are at a distance), see, that move around. Children also find it difficult to count a mix of different objects, or similar objects of very different sizes.

Conservation of number – MASTERY!

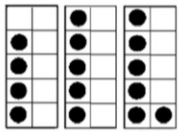
Ultimately children need to realise that when objects are rearranged the number of them stays the same.

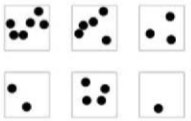
End of year counting expectations

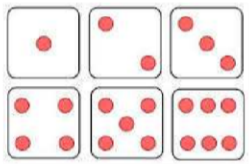
- count reliably to 20
- count reliably up to 10 everyday objects
- estimate a number of objects then check by counting
- use ordinal numbers in context eg first, second, third
- count in twos, fives and tens
- order numbers 1-20
- say 1 more/ 1 less than a given number to 20

Subitising ideas

Provide children with opportunities to count by recognising amounts.



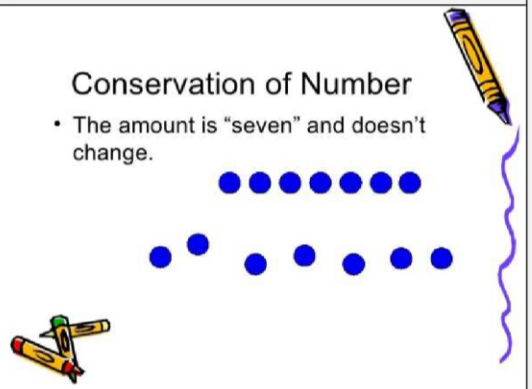




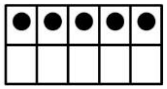
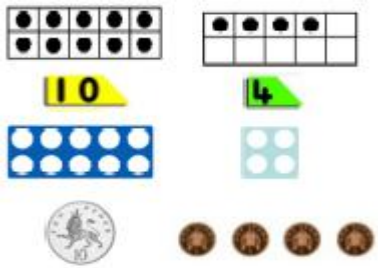
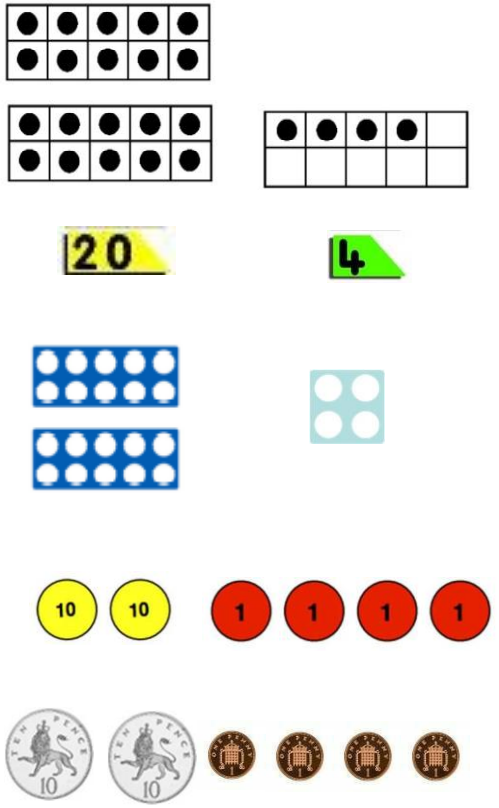
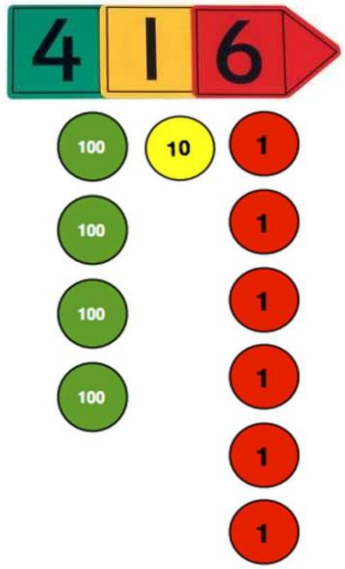
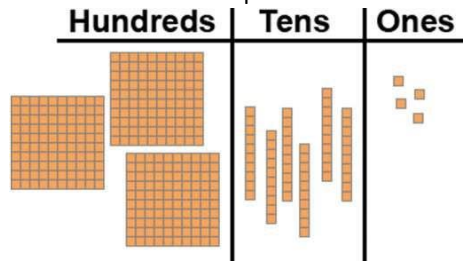
Abstraction ideas

How many pigs are in this picture?

Provide children with a variety of objects to count.



Progression in the teaching of place value

Foundation	Year 1	Year 2	Year 3 onwards
Understanding ten	**Understanding numbers up to 20**	**Understanding numbers up to one hundred**	**Understanding numbers up to one thousand**
A TENS FRAME is a simple maths tool that helps children: • Keep track of counting • See number relationships • Learn addition to 10 • Understand place value Use ***tens frames*** flash cards daily to ensure children recognise amounts. Use empty ***tens frames*** to fill with counters to enable children to understand number relationships. Either fill the ***tens frame*** in pairs or in rows. In rows shows 5 as a benchmark. Children can easily see more than 5 or less.  Setting the counters in pairs, naturally allows the children to see addition concepts. Include other visual images such as dice, cards, dominoes etc. 	'Ten' is the building block of our Base 10 numeration system. Young children can usually 'read' two-digit numbers long before they understand the effect the placement of each digit has on its numerical value. A child might be able to correctly read 62 as sixty-two and 26 as twenty-six, and even know which number is larger, without understanding why the numbers are of differing values. Ten-frames can provide a first step into understanding two-digit numbers simply by the introduction of a second frame. Placing the second frame to the right of the first frame, and later introducing numeral cards, will further assist the development of place value understanding. 	Continue developing place value through the use of ***tens frames***. 	Continue developing place value through the use of manipulatives.  Use Dienes blocks and place value charts 

TENS FRAME IDEAS

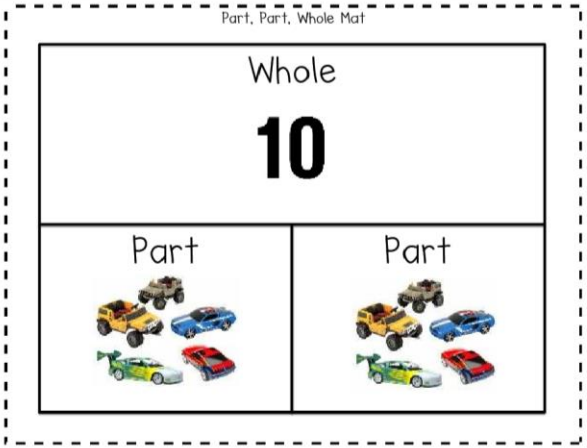
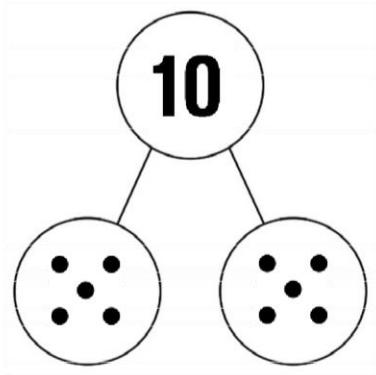
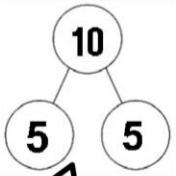
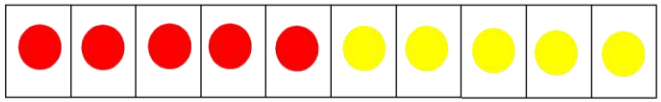
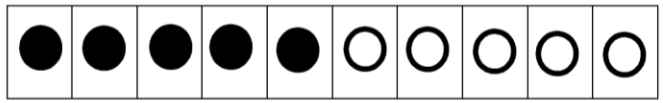
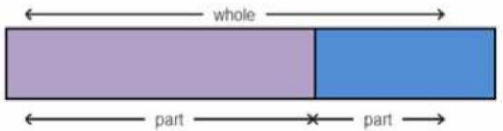
LIFE SIZE 10 FRAME	Create a life-size ten frame in the classroom and outdoor play area. Use counters, pennies, teddies, gingerbread men, children etc.
FLASH	Flash ***ten frame*** briefly and have children write the number on a whiteboard. Using whiteboards, rather than having children say the number, ensures that all children attempt to respond and allows the teacher to assess class progress. When the response is oral, not all child responses are audible. Encourage children to share the different strategies used to find the total number of dots for cards, "How did you see it?" This can be varied by asking children to write the number and draw the pattern they saw, or by having them build the number flashed on their own blank frame.
FLASH: ONE MORE	Once children are familiar with the basic patterns, and know them automatically, flash a 10 frame or dot card and ask them to name the number that is one more than the number flashed. Variation: ask children to give the number that is two more/one less/double/ten more than the number flashed.
I WISH I HAD TEN	Flash a dot card or ten frame showing 9 or less and say, "I wish I had 10". Children respond with the part that is needed to make ten. The game can focus on a single whole, or the "wish I had" number can change each time. Variation: teacher flashes card and children write the complement of ten on individual whiteboards with dry erase markers.
I WISH I HAD 12	As above but children respond with how many more are needed to make twelve. Children should be confident in facts of 10 before this is attempted. For example to go from 8 to 12, they should realise they need 2 more to get to 10, then 2 more to 12. 2 and 2 is 4. Variation: Children draw an empty number line on their whiteboards to show the two jumps used to get to the target number.
1 MORE 1 LESS 10 MORE 10 LESS	The following four prompts are written on the board: one more one less ten more ten less Teacher flashes a dot or ten frame card as the 'starting number'. The first child selects one prompt. E.g. if the teacher flashes a card showing '5' the first child might say, "one more than 5 is 6", the second child might say, "ten more than 6 is 16", and the third child might say, "one less than 16 is 15". Continue until all chn have had a turn.
TEEN FRAME FLASH (11-20)	**Teen Frame Flash (11-20)** Once children are subitizing ***ten frame*** patterns 0- 10, cards showing larger numbers (i.e. more than one ten frame) should be introduced. Use mental math sessions with the following key questions: How many? How many more than 10? As children become familiar with the 'teen' patterns introduce further questions to develop number relationships. • What is one more/two more than the number I flashed? • What is one less/two less than the number I flashed? • How far away is the number I flashed from twenty? • Double the number I flash. • What is the near Doubles fact? (i.e., if 15 is flashed, children answer 7+8)
MULTIPLES	Flash a ***tens frame*** and ask children to give you the product if the number you flash was multiplied by 2, 5 etc.

Progression in the teaching of calculations

	Year 1	Year 2	Year 3	Notes
Addition	Combining two parts to make a whole: part whole model. Starting at the bigger number and counting on. Regrouping to make 10.	Adding three single digits. Column method – no regrouping.	Column method- regrouping. (up to 3 digits)	
Subtraction	Taking away ones Counting back Find the difference Part whole model Make 10	Counting back Find the difference Part whole model Make 10 Column method - no regrouping	Column method with regrouping. (up to 3 digits)	
Multiplication	Doubling Counting in multiples Arrays (with support)	Doubling Counting in multiples Repeated addition Arrays- showing commutative nature of multiplication	Counting in multiples Repeated addition Arrays- showing commutative multiplication Grid method	
Division	Sharing objects into groups Division as grouping	Division as grouping Division within arrays	Division within arrays Division with a remainder Short division (2 digits by 1 digit- concrete and pictorial)	

Progression in the teaching of calculations

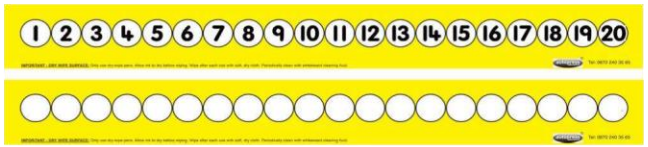
ADD IT!

Objective and strategies	Concrete BUILD IT/USE IT!	Pictorial DRAW IT!	Abstract SOLVE IT!
Combine two parts to make a whole model. Part-part-whole model			 Use the part-part whole diagram as shown above to move into the abstract. 5 + 5 = 10 10 = 5 + 5 Use the term 'number sentence'. Progress to the term 'calculation'
Teach the children that the cubes/counters represent the real-life objects.	 	  Part + Part = Whole Whole – Part = Part	
Use cubes to add two numbers together as a group or in a bar.			

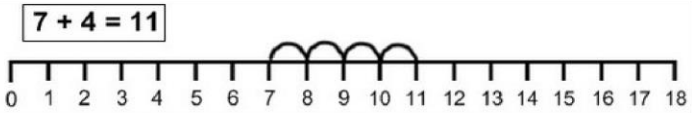
Start at the larger number and count on

Start with the larger number on the bead string then count on 1 by 1 to find the

Use counters on a number track to count on.



7 + 4 = 11



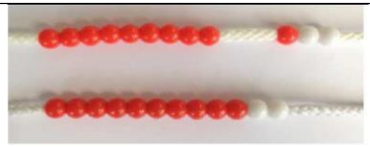
Start at the larger number on the number line and count on in ones or in one jump to find the answer.

4 + 7 = 11

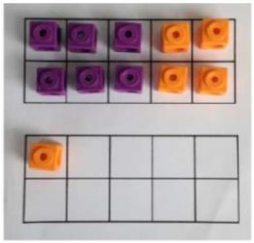
Place the larger number in your head and count on the smaller number to find your answer.

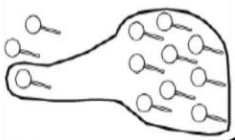
Regrouping to make 10.

Start with the bigger number and use the smaller number to make 10.



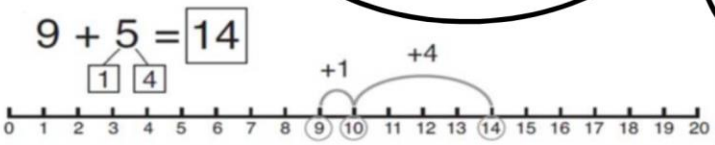
6 + 5 = 11





3 + 9 =

Use pictures or a number line. Regroup or partition the smaller number 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?

Adding three single digits.

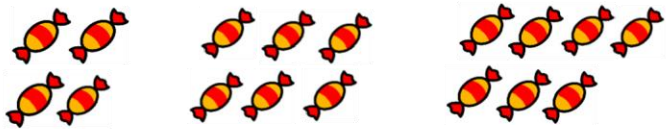
Encourage children to use known facts.

4 + 7 + 6= 17

Put 4 and 6 together to make 10. Add on 7.

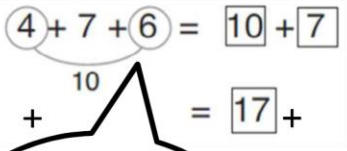
Following on from making 10, make 10 with 2 of the digits (if possible) then add on the third digit.

Add together three groups of objects. Draw a picture to recombine the groups to make 10.



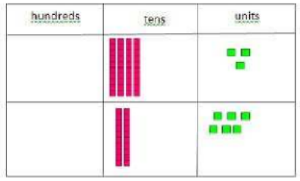
4 + 6 + 7 = 17

11



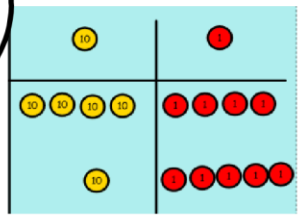
Combine the two numbers that make 10 and then add on the remainder.

Column method- no regrouping



$$\begin{array}{r} 43 \\ +\ 26 \\ \hline \\ \hline \end{array}$$

Use Dienes to add tens and ones before moving on to place value counters.



After practically using the base 10 blocks and place value counters, children can draw the Dienes to help them to solve addition calculations.

hundreds	tens	ones
	////	□ □ □
	//	□ □ □ □ □ □
	6	9

After practically using Dienes, children can draw the 'tens' and 'ones'.

Calculations

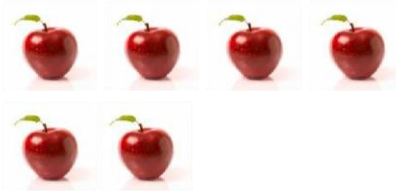
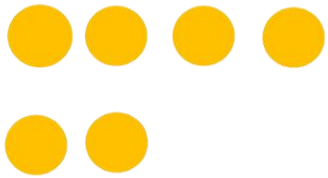
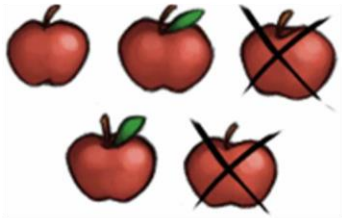
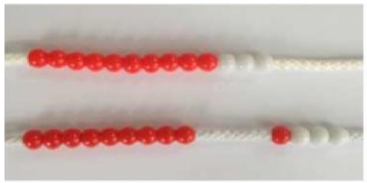
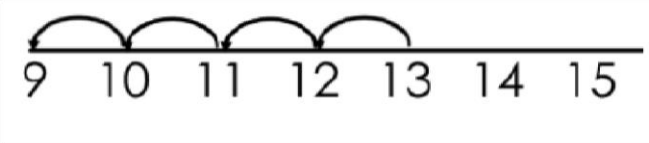
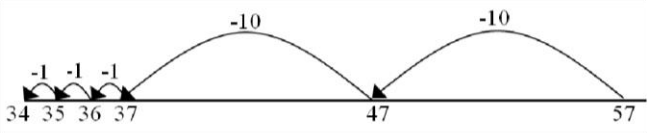
21 + 42 =

$$\begin{array}{r} 21 \\ +\ 42 \\ \hline \end{array}$$

Only select numbers which do not involve regrouping.

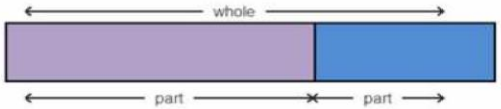
Progression in Calculations Policy

SUBTRACT IT!

Objective and strategies	Concrete BUILD IT/USE IT!	Pictorial DRAW IT!	Abstract SOLVE IT!
Taking away ones	Use real-life physical objects, counters, cubes etc. to show how objects can be taken away.  6 – 2 = 4 	Cross out drawn objects to show what has been taken away.  5 – 2 = 3	4 = 6 – 2 18 - 3= 15 8 – 2 = 6
Counting back Use counters and move them away from the group whilst counting backwards.	Make the larger number in the subtraction calculation. Move the beads along the bead string whilst counting backwards in ones. 13 – 4  	Count back on a number line or number track  9 10 11 12 13 14 15 Start at the bigger number and count back the smaller number showing the jumps on the number line.  -1 -1 -1 -10 -10 34 35 36 37 47 57	Put 13 in your head, count back 4. What number are you at? Use your fingers to help. Children will need regular practice counting backwards.

Use cubes to subtract a number from the bar.

Use the bar



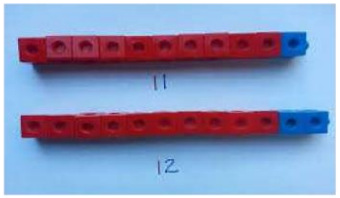
Part + Part = Whole

Whole – Part = Part

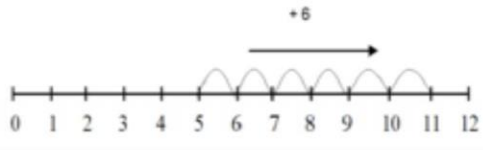
Find the difference

Compare amounts and objects to find the difference.

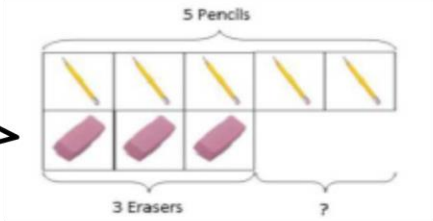
Use cubes to build towers or make bars to find the difference.



Count on to find the difference.

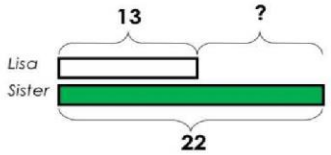


Use basic bar models with items to find the difference.



Comparison Bar Models

Lisa is 13 years old. Her sister is 22 years old. Find the difference in age between them.



Draw bars to find the difference between two numbers.

Hannah has 23 pencils, Helen has 15 pencils. Find the difference between the number of pencils.

Part-part-whole model

Link to addition- use the part whole model to help explain the inverse.

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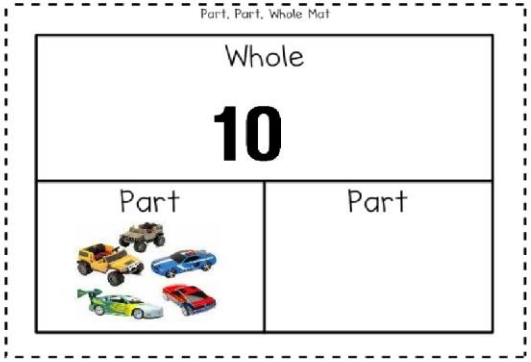
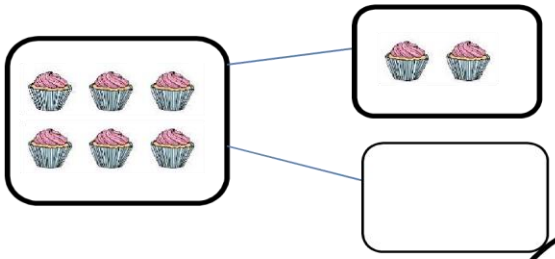
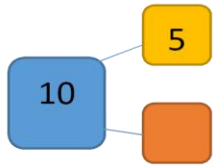


If 10 is the whole and 5 is one of the parts. What is the other part?

10 - 5 = or 10 - ? = 5

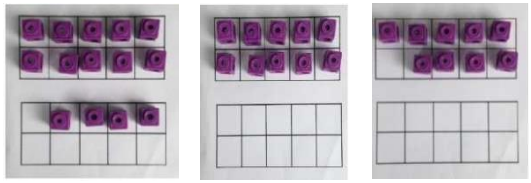
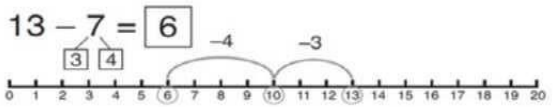
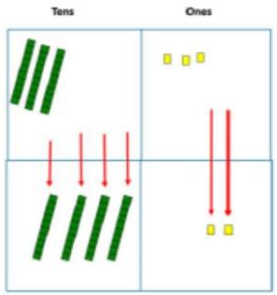
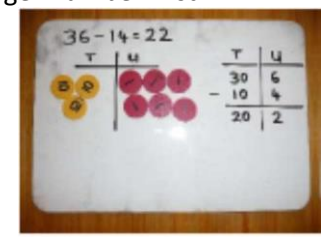
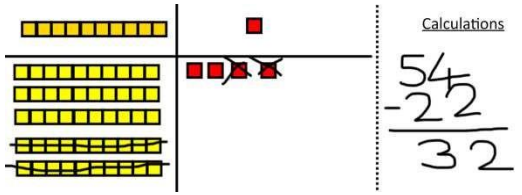
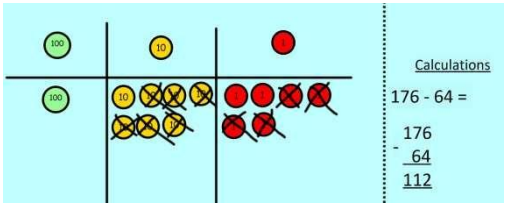
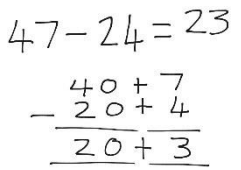
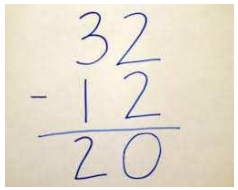
Use a pictorial representation of objects to show the part-part-whole model.





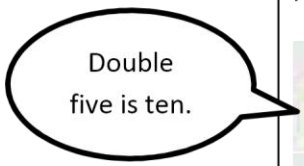
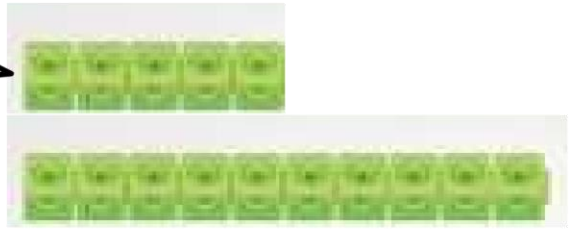
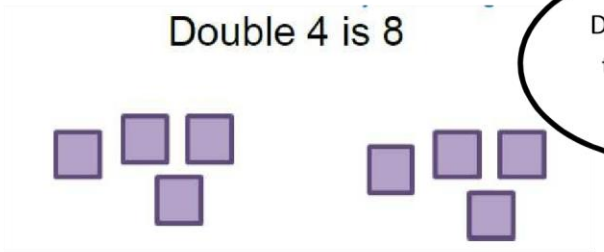
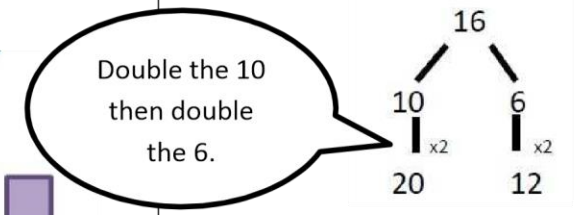
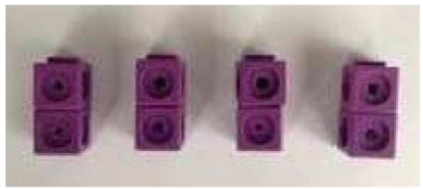
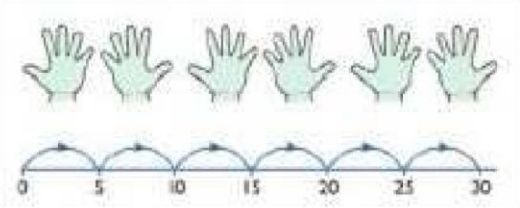
10 - 5 = 5 or 5 = 10 - ?

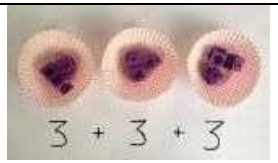
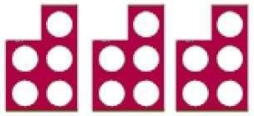
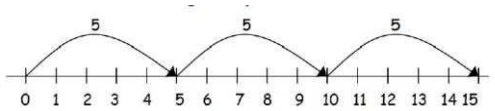
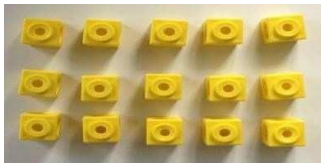
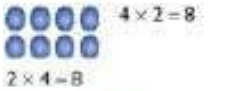
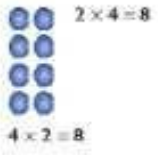
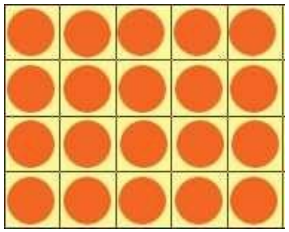
Move to using numbers with the part-part-whole model.

Make 10	14 – 5 =  Make 14 on the ten frame. Take away the four first to make 10 and then takeaway one more so you have taken away 5. You are left with the answer of 9.	 Start at 13. Take away 3 to reach 10. Then take away 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 next 10? How many do we have left to take off?
Column method without regrouping	75- 42 = Use Dienes to make the bigger number then take the smaller number away.  Show how you partition numbers to subtract. Again make the larger number first.  	Draw the Dienes or place value counters alongside the written calculation to help to show working.   	This will lead to a clear written column subtraction.  

Progression in Calculations Policy

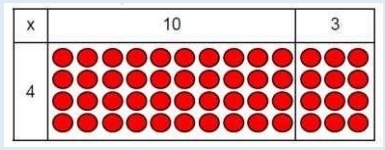
MULTIPLY IT!

Objective and strategies	Concrete BUILD IT/USE IT!	Pictorial DRAW IT!	Abstract SOLVE IT!
Doubling 	Use practical activities to show how to double a number.  5 x 2 = 10	Draw pictures to show how to double a number.  	Double 16 Partition a number and then double each part before recombining it back together.
Counting in multiples	  Count in multiples supported by concrete objects in equal groups.	 Use a number line or pictures to continue support in 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

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  5 + 5 + 5 = 15	Write addition sentences to describe objects and pictures.  2 + 2 + 2 + 2 + 2 = 10
Arrays- showing commutative multiplication	Create arrays using counters/ cubes to show multiplication sentences.  	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

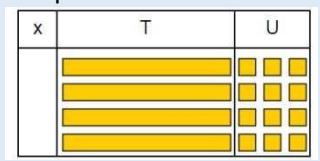
Grid Method

Show the link with arrays to first introduce the grid method.



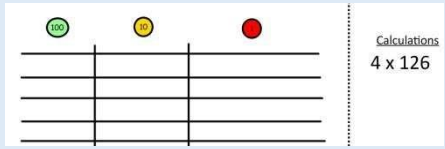
4 rows of 10 4 rows of 3

Use Dienes to move towards a more compact method.

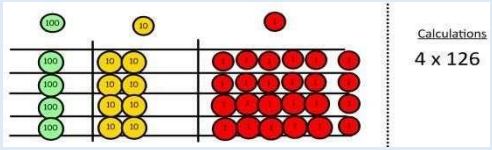


4 rows of 13

Use place value counters to show finding groups of a number eg. multiplying by 4 so we need 4 rows.



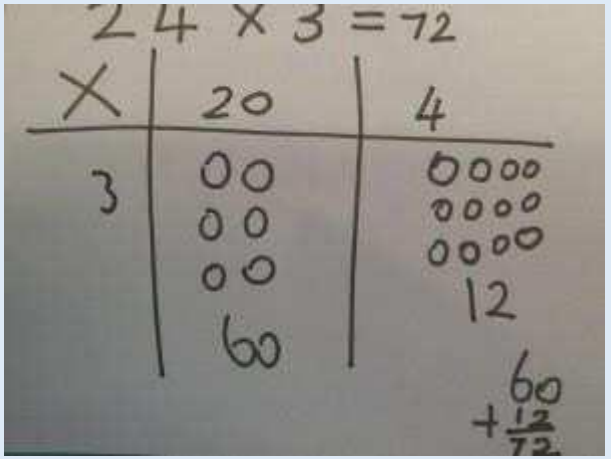
Fill each row with 126.



Add up each column, starting with the ones making any exchanges needed.

Children can represent the work they have done with place value counters in a way that they understand.

They can draw the counters, using colours to show different amounts or just use 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.

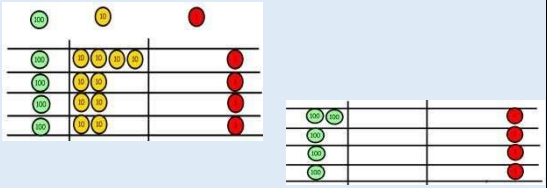
×	30	5
7	210	35

210 + 35 = 245

Moving forward, multiply by a 2 digit number showing the different rows within the grid method.

	10	8
10	100	80
3	30	24

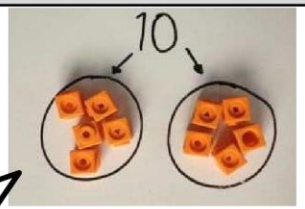
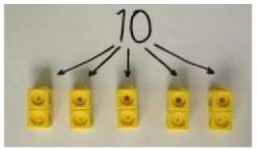
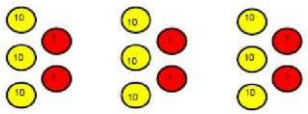
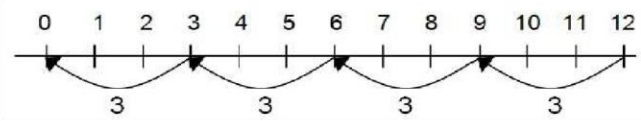
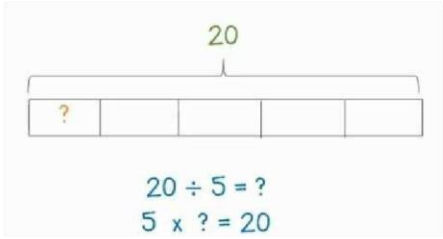
X	1000	300	40	2
10	10000	3000	400	20
8	8000	2400	320	16

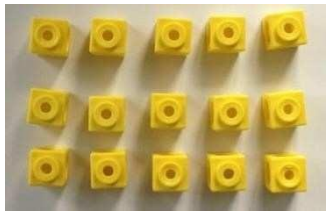
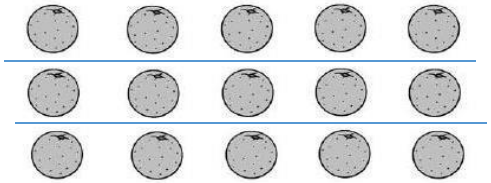
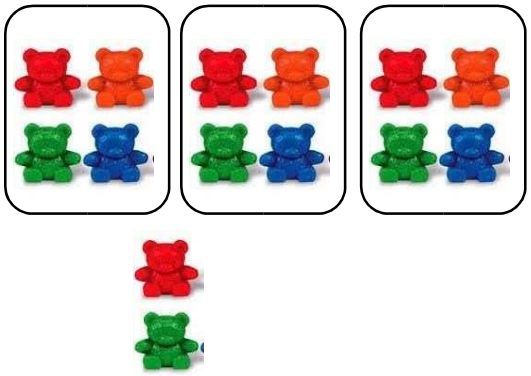
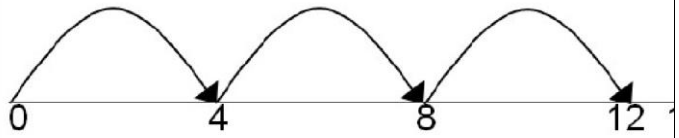
			

Progression in Calculations Policy

DIVIDE IT!

It is important to make links with fractions

Objective and strategies	Concrete BUILD IT/USE IT!	Pictorial DRAW IT!	Abstract SOLVE IT!
Sharing objects into groups If we are dividing by two we are finding one half.	 I have 10 cubes; can you share them equally into 2 groups?	Children use pictures or shapes to share quantities.  8 ÷ 2 = 4	One half of 14 is 7 ½ of 14 = 7 14 ÷ 2 = 7 Share 9 cakes between three people. 9 ÷ 3 = 3
Division as grouping If we are dividing by three we are finding one third.	Divide quantities into equal groups. Use cubes, counters, objects or place value counters to aid understanding.   96 ÷ 3 = 32 	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?

Division within 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 four linking number sentences. 7 x 4 = 28 4 x 7 = 28 28 ÷ 7 = 4 28 ÷ 4 = 7
Division with a remainder	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. 	Complete written divisions and show the remainder using r. 

Times Table Policy

TIMES IT!

Times Tables are at the heart of mental arithmetic, which in itself helps form the basis of a child's understanding and ability when working with number. Once the children have learnt their times tables by heart, they are then able to work far more confidently and efficiently through a wide range of more advanced calculations.

Reception	Year 1	Year 2
I can count in steps of 1. I can count in steps of 10.	I can count in steps of 10. I can count in steps of 2. I can count in steps of 5. I know my 10 times table in relation to counting in tens.	I can count in steps of 2, 5 and 10. I know my 2 times table. I know my 5 times table. I know my 10 times table. I understand the corresponding division facts.

Rote learning

We learn at two levels –

- **accuracy**: being able to do something but not necessarily quickly / automatically
- **fluency**: being accurate and using a skill automatically

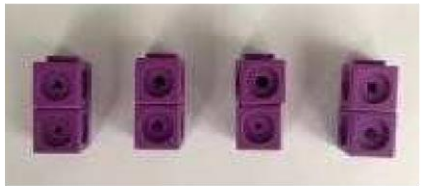
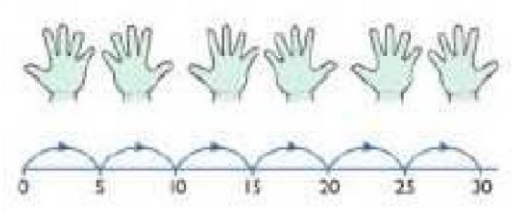
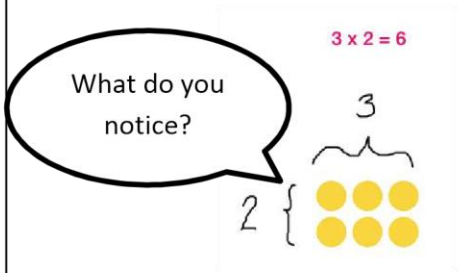
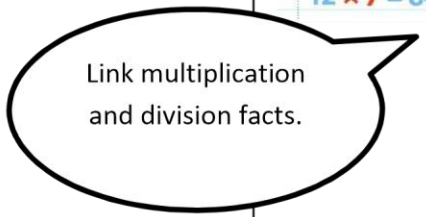
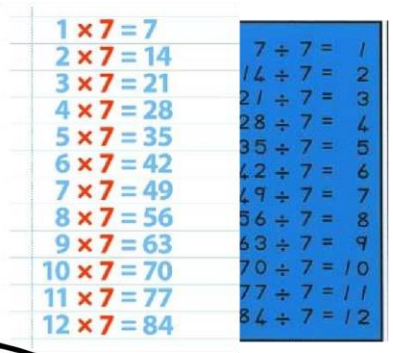
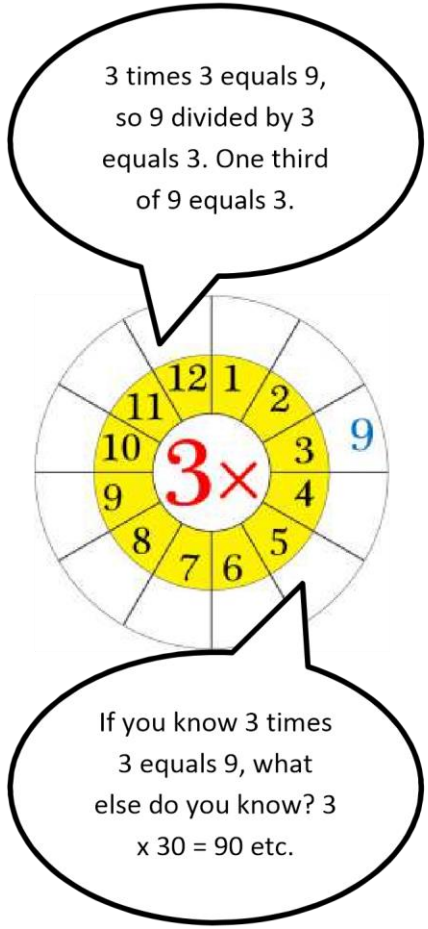
We need to learn to fluency before we add in any more new information. Children need to learn the each of the sets of tables to a 'fluency' level, before they begin to learn the next set. Think SAFMEDs.

Times tables should be recited in Y2, to help the children put them into long-term / fluency memory. Chant as: 'One times two is two, two times two is four, three times two is six …..' . Also ensure the children hear, as 'one multiplied by two is two, once two is two, one lot of two is two, one group of two is two, the product of one and two is two etc.'

Display

The relevant times tables should be on display in KS1 classrooms, for children to use as support and reference.
Year 1: Numbers to support counting in multiples of 1, 2, 5 and 10 should be displayed.
Year 2: 1, 2, 5 and 10 times tables should be displayed.

Process of teaching times tables

Children will be taught the concept of multiplication using practical resources.	Children will progress on to using number lines or pictures.	Children will count in multiple steps.	Children will recite times tables by rote. Links will be made with 'grouping' and division whilst times tables are being taught.
Concrete **BUILD IT! / USE IT!**	**Pictorial** **DRAW IT!**	**Abstract stage 1** **SOLVE IT!**	**Abstract stage 2** **PRACTISE IT!**
Count in multiples supported by concrete objects in equal groups.   Use real-life arrays or build arrays.  	 Use a number line or pictures to continue support in 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 Record multiplication number sentences.  1 × 7 = 7 2 × 7 = 14 3 × 7 = 21 4 × 7 = 28 5 × 7 = 35 6 × 7 = 42 7 × 7 = 49 8 × 7 = 56 9 × 7 = 63 10 × 7 = 70 11 × 7 = 77 12 × 7 = 84 7 ÷ 7 = 1 14 ÷ 7 = 2 21 ÷ 7 = 3 28 ÷ 7 = 4 35 ÷ 7 = 5 42 ÷ 7 = 6 49 ÷ 7 = 7 56 ÷ 7 = 8 63 ÷ 7 = 9 70 ÷ 7 = 10 77 ÷ 7 = 11 84 ÷ 7 = 12	Recite times tables by rote orally. 

COUNT IT!

Children need to rehearse counting regularly in order that they MASTER the number system. Remember to count forwards and backwards orally and in written form.
Count from any number.
Ensure pronunciation of numbers is correct, especially 'ty's and teens.

COUNTING IDEAS			
Counting ladder – draw a ladder. Put starter number in the middle. Count forwards up the ladder and backwards down the ladder.	Chanting	Spot my error	Pass the parcel (wrap up numbers, predict next number)
Count in a sequence	Pendulum counting – multilink cube on a string	Speed counting	Mixed sequences eg +10, +1, -2 or missing number sequences
How many beats? Teacher beats wood block. Children count how many times in their head. Record. Each beat could represent an amount.	Action counting	Estimate and count When counting estimated objects, place the objects in rows of 10.	What am I counting in? Teacher counts, children work out rule. Can they then continue the pattern?
Counting stick (attached numbers then remove)	Count to the beat of the drum	Eyes closed counting game -blindfold one child, point to others who stand and say their name. Blindfolded child counts.	Play counting tennis eg count in steps, teacher says 5, children say 10 (mime using racket)
Fizz buzz	Use shapes eg triangles and count number of sides using 3 times table	Count coins in a pot, drop in one by one	Count using constant function on calculator

Lead the counting into calculation so the children see the link, for example, if counting in twos, calculate using repeated addition, multiplication – include inverse operations etc.

DIFFERENT WAYS OF COUNTING				
Single steps	Multiples	Odds	Evens	Missing numbers
Fractions	Units of time	Millilitres/litres	Centimetres/metres	Decimals
Grams/kilograms	Negative numbers / Temperature	Percentages	Ordinals	Money

VISUAL AIDS FOR COUNTING				
Number line	100 square	Counting beads	Bead frame	Objects
Numicon	Number tiles	Pocket number line	Real money, large money or magnetic money	Shapes eg count sides
Counting stick	Whiteboards making own visual prompt	Objects (real life)	Base 10 Hundreds, tens, units	Groups of straws
Real life packaging showing arrays eg egg boxes, biscuit packets	Wrapping paper, wall paper etc. to count number of shapes	Number track	Counting bead string	Tape measure or metre stick
Clocks	Measuring jugs	Thermometer	Bead frame/abacus	Calculator
Pictures	Fingers	Interactive whiteboard	Multilink/buttons etc.	Number cards

REHEARSE IT!

Rehearsing old skills:

Children need to rehearse skills already taught to lead them to MASTERY.

RECALL IT!

Rapid recalling of key facts is important in developing fluency and MASTERY.

As children recall facts they deepen their knowledge by reasoning in context eg. When recalling number, bonds totalling 100: 'tell me two lengths that together make one metre.'

SAY IT!

Build mathematical vocabulary into every lesson.

Encourage children to speak in full sentences when giving responses.

QUESTION IT! REASON IT!

There is a huge emphasis on reasoning in maths lessons. Children need opportunities to justify and explain their knowledge. Ensure you are using:

NCETM reasoning questions

NCETM mastery documents

NRICH tasks

The 'Hellogoodstuff' website also has some excellent free and paid resources, such as the 'True or False' questions.

WHENEVER YOU ASK QUESTIONS IN CLASS ENSURE THAT YOU DON'T ONLY DO A HANDS UP APPROACH.

The Lolly stick method works well, followed by **'Who agrees with…?' 'Why do you agree?'** or **'Why do you disagree?' 'Can you explain your answer?'**

The following are useful reasoning prompts.

Odd one out	Would you rather have … ?	Find the mistake.	What is the same and what is different?
True or false?	Here is the answer, explain how it was worked out.	Always, sometimes, never	Give me a silly answer to this problem. What makes it silly?
Tell me about this…	Prove/disprove this statement.	Convince me that …	What if….?
Give me a hard and easy example of a calculation you could do with these numbers. Give me a hard and easy example of a question you could ask about this graph/pie chart etc.	What do you notice? Why do you think that? *…because…* I agree with ??? because…	How are these linked?	If you know this fact, what else do you know? Eg. If you know: 4 + 6 = 10 You can also know: 6 +4 = 10 10 – 6 = 4 10 – 4 = 6 40 + 60 = 100 60 + 40 = 100 100 – 40 = 60 100 – 60 = 40 The sum of 6 and 4 is 10. If it is 6 o'clock now, in 4 hours it will be 10 o'clock.