

GRINDON INFANTS



CALCULATION POLICY

How to use this calculation policy

This calculation policy has been collated using the White Rose scheme of learning, The National Curriculum and The Early Years Foundation Stage. The policy outlines the four calculations of addition (+), subtraction (-), multiplication (x) and division (\div) and the strategies that can be used to teach them using the Concrete, Pictorial and Abstract (CPA) model. It is planned for **all** children so that they can access and achieve to their full potential. It is also designed to show a consistent and smooth progression of a learning journey throughout the whole school.

The calculation policy shows methods that will be taught to children in their year groups. It is set out in an order to allow children to become confident with strategies and aim to begin choosing their own efficient ones as they move up the school. Children are encouraged to think for themselves and ask about why they have used particular strategies. It is vital that children are given a plethora of concrete and pictorial experiences before they are even introduced to abstract calculations. The small steps are in place so that children can build on their foundations and work towards not only written but efficient methods of mental calculations too. Teachers are encouraged to use their expertise and knowledge to adapt these strategies through their planning and teaching when needed.

End of Year expectations for calculation

EYFS	Year 1	Year 2
<ul style="list-style-type: none"> • Have a deep understanding of number to 10, including the composition of each number • Subitise (recognise quantities without counting) up to 5 • Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts • Verbally count beyond 20, recognising the pattern of the counting system • Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. • Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally. 	<ul style="list-style-type: none"> • Read, write and interpret mathematical statements involving addition (+), Subtraction (-) and equals (=) signs. • Represent and use number bonds and related subtraction facts within 20, add one and subtract one digit and two-digit numbers to 20, including zero. • Solve one-step problems that involve addition and subtraction, using Concrete and pictorial representations and missing number problems such as $7 = ? - 9$ • Solve one step problems involving multiplication and division, by calculating the answer using concrete objects. • Solve one-step problems involving multiplication and division using pictorial representations and arrays with the support of the teacher. 	<ul style="list-style-type: none"> • Solve problems with addition and subtraction: using concrete and pictorial representations including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods. • Recall and use addition and subtraction facts to 20 fluently, derive and use related facts up to 100. • Add and subtract numbers using Concrete, Pictorial and Abstract (CPA) including: A two-digit number and ones, a two digit number and tens, two, two-digit numbers and adding three one-digit numbers. • Show that addition of numbers can be done in any order (Commutative) and subtraction of one number from another cannot. • Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. • Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. • Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (x), division (\div) and equals (=) signs. • Show that multiplication of two numbers can be done in any order (Commutative) and division of one number by another cannot. • Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problem solving on context.

Links to Calculation:

Birth to Three	Three to Four	Four to Five	Early Learning Goal
<p>Knows that things exist, even when out of sight. Compares amounts using words like 'lots' or 'more'. May be aware of number names through their enjoyment of action rhymes and songs that relate to numbers. Looks for things which have moved out of sight. Says some counting words. May engage in counting-like behaviour, making sounds and pointing or saying some numbers in sequence. Begins to say numbers in order, some of which are in the right order (ordinality) Uses number words, like <i>one</i> or <i>two</i> and sometimes responds accurately when asked to give one or two things In everyday situations, takes or gives two or three objects from a group. Beginning to notice numerals (number symbols) Beginning to count on their fingers.</p>	<p>Says some counting words. Engages in counting-like behaviour, making sounds and pointing or saying some numbers in sequence. Says the number sequence, maybe skipping some numbers (e.g. 1-2-3-5) and beginning to count on their fingers. Enjoys reciting numbers from 0 to 5 and back from 5 to 0 Has fun counting as far as they can go and is fascinated with large numbers. Shows interest in meaningful numbers. 'Tags' (reliably points or touches each item), saying one number for each item, using the stable order of 1,2,3,4,5 at first, and then later, to 10. Uses number words, like 'one' or 'two' and sometimes responds accurately when asked to give one or two things. Gets 2 or 3 objects from a group. Beginning to notice numerals (number symbols) Uses some number names and number language within play. Begin to recognise numerals and make marks to represent amounts. Subitises: e.g. instantly recognising under 5 objects without counting. Recognises that the last number said represents the total counted so far (cardinal principle) with numbers to 5 Shows 'finger numbers', up to 5 Links numerals with amounts up to 5 Explores using a range of marks and signs to which they ascribe mathematical meanings.</p>	<p>Compares two small groups of up to five objects, saying when there are the same number of objects in each group, e.g. <i>You've got two, I've got two. Same!</i> Uses number names and symbols when comparing numbers, showing interest in large numbers. Understand the 'one more than/one less than' relationship between consecutive numbers. Explore the composition of numbers to 10. Estimates of numbers of things, showing understanding of relative size Count objects, actions and sounds. May enjoy counting verbally as far as they can go Points or touches (tags) each item, saying one number for each item, using the stable order of 1,2,3,4,5. Uses some number names and number language within play, and may show fascination with large numbers. Begin to recognise numerals 0 to 10. Enjoys reciting numbers from 0 to 10 (and beyond) and back from 10 to 0. Increasingly confident at putting numerals in order 0 to 10 (ordinality.) Count beyond ten. Subitises one, two and three objects (without counting.) Counts up to five items, recognising that the last number said represents the total counted so far (cardinal principle.) Links numerals with amounts up to 5 and maybe beyond. Explores using a range of their own marks and signs to which they ascribe mathematical meanings. Link the number symbol (numeral) with its cardinal number value. Engages in subitising numbers to four and maybe five. Counts out up to 10 objects from a larger group. Matches the numeral with a group of items to show how many there are (up to 10)</p>	<p>Have a deep understanding of number to 10, including the composition of each number. Subitise (recognise quantities without counting) up to 5. Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts. Verbally count beyond 20, recognising the pattern of the counting system. Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity. Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.</p>

EYFS Addition (+) (Progression in calculation)

Two Year Old Provision and Nursery

- Children to begin to add/ count by using songs and rhyme and begin to record practically or in the context of play. (Recording can be done using a range of strategies such as stamps and objects.)
- Children are encouraged to count everything anywhere, e.g twigs outside, claps, birthday candles etc. Children point to objects where possible as they count.
- Numicon is made available as soon as possible for children to become familiar with. They can find one more, one less, , add tiles and make numbers. Children can draw around them to make pictorial representations or print with them.
- Solve simple problems and calculations using fingers.
- Children are given opportunities to count out sets of objects then combine them to make a total.

This old man, he played three,
He played nick-nack on my knee,
With a nick-nack paddy-wack,
Give a dog a bone,
This old man came rolling home.

1, 2, 3, 4, 5
Once I Caught
a Fish Alive

Clap and Count

1 2 3 4 5 6 7 8 9 10

5 + 1 = 6

First count out a group of 6. Then count out a group of 2. Finally combine them to find a total.

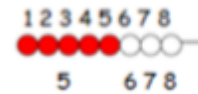
Reception

- Children must be given a range of objects to make numbers, e.g 6



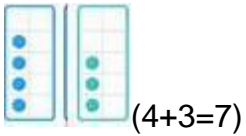
- Bead strings can be used to represent addition such as :

$$5 + 3 = 8$$



Children are introduced to the + and = symbol, ensuring they understand the = symbol means is the same as.

- Tens frames can be used to show concrete representations before pictorial and abstract representations are attempted



- Some EYFS examples:



YEAR 1 ADDITION (+)

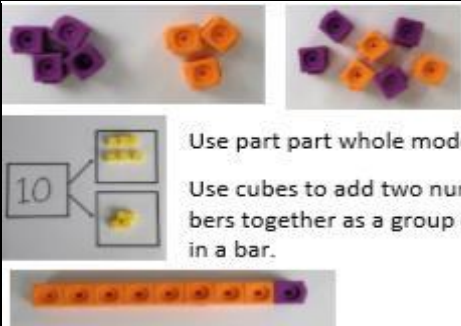
Objective and Strategy

Concrete

Pictorial

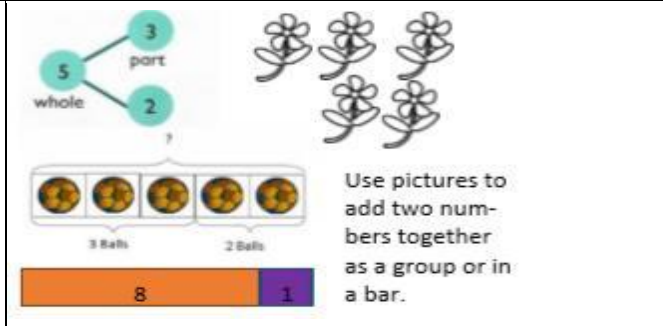
Abstract

Part Part Whole (PPW) Model- Combining 2 parts to make a whole.




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.

$4 + 3 = 7$



$10 = 6 + 4$

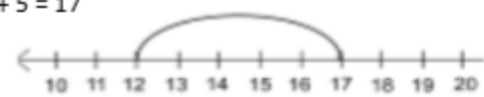
Use the part-part whole diagram as shown above to move into the abstract.

Beginning to add by starting with the biggest number



Start with the biggest number on the bead string and then count on the smallest number 1 by 1 so children can see number increasing.

$12 + 5 = 17$

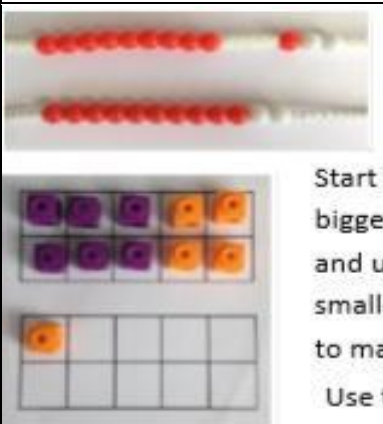


Begin with the biggest number on the number line and then count on in ones (or in one jump) to solve the calculation.

$5 + 12 = 17$

Start with the biggest number in your head and count on the smaller number to solve your calculation.

(Regrouping to make 10 (This is an essential skill for column addition later on))

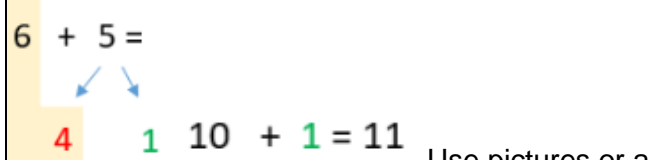


$6 + 5 = 11$

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

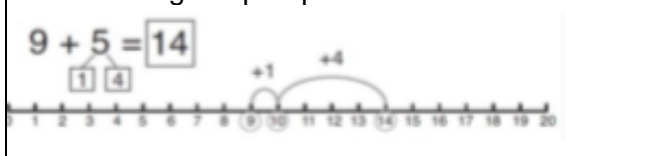
Use ten frames.

$6 + 5 =$




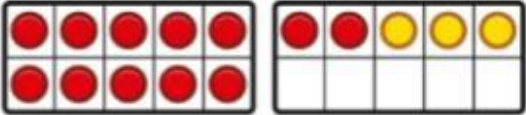
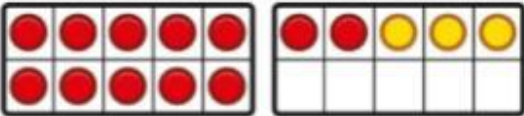

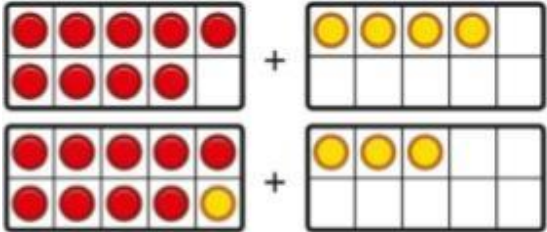
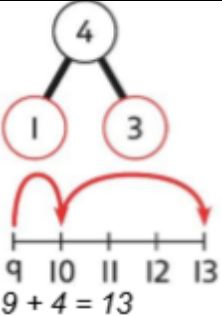
Use pictures or a number line to regroup or partition the smaller number using the part part model to make 10

$9 + 5 = 14$



$8 + 5 = 13$

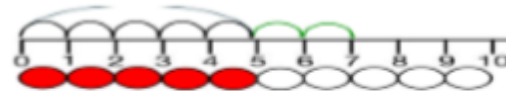
If I am at 8, how many more do I need to make 10? How many more do I add now?

<p>Adding the ones</p>	 <p>$2 + 3 = 5$ $12 + 3 = 15$</p> <p>Children use bead strings to recognise how to add ones efficiently to solve calculations</p>  <p>$2 + 3 = 5$ $12 + 3 = 15$</p>	 <p>$2 + 3 = 5$ $12 + 3 = 15$</p> <p>These are then represented through drawing on tens frames so children can see teens numbers and ones</p>	<p>I know that $3 + 9 = 12$ so</p> <p>$13 + 9 = 22$ and $23 + 9 = 32$</p> <p>Children use their knowledge of addition within 10 to work efficiently.</p>
<p>Bridging 10 using number bonds</p>	<p>Children use a beadstring to make 10 and understand how this relates to addition.</p>  <p><i>7 add 3 makes 10. So, 7 add 5 is 10 and 2 more.</i></p>	 <p>Children use their knowledge of number bonds using a tens frame. They recognise</p> <p>$9 + 4 = 10 + 3$ (Children partition the smallest number (Addends) to make a complete 10 and add on the ones.</p>	 <p>$9 + 4 = 13$</p> <p>Children use Part Part whole and numberlines to support their calculations.</p>

Represent and use number bonds and related addition/subtraction within 20



3 more than 4





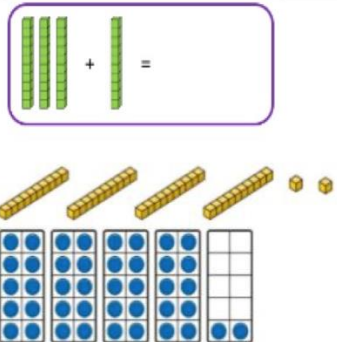









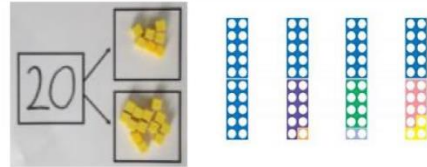

Making pictorial representations of what the children can see.



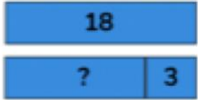
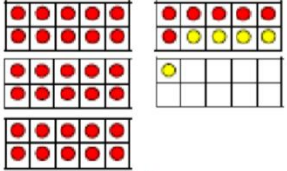
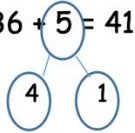
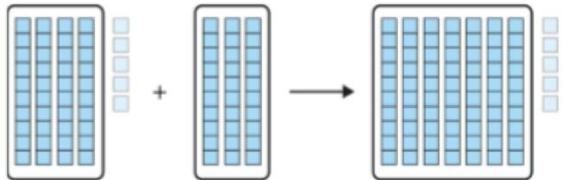
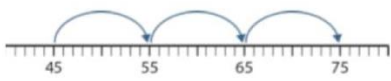
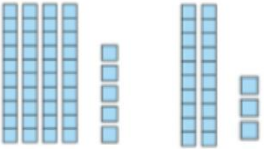
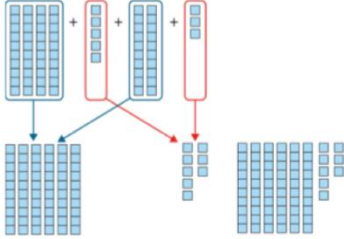
Variation and emphasis on language
e.g


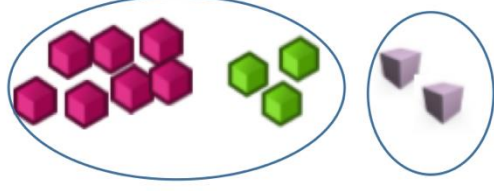
'3 more than 6 is equal to 9'
'2 more than 4 is 6'

'9 is 2 more than 7'

Year 2 Addition (+)

Objective and Strategy	Concrete	Pictorial	Abstract										
<p>Understanding groups of tens and ones</p>	<p>Group objects into 10s and 1s.</p>  <p>Bundle straws to understand unitising of 10's</p> 	 <p>Children to pictorially represent groups using variation</p>	<table border="1" style="width: 100%; text-align: center;"> <tr> <th style="width: 50%;">Tens</th> <th style="width: 50%;">Ones</th> </tr> <tr> <td></td> <td></td> </tr> <tr> <td>3</td> <td>2</td> </tr> <tr> <th>Tens</th> <th>Ones</th> </tr> <tr> <td>4</td> <td>3</td> </tr> </table> <p>Representing tens and ones on a place value grid using pictorial and numerical representations.</p>	Tens	Ones			3	2	Tens	Ones	4	3
Tens	Ones												
													
3	2												
Tens	Ones												
4	3												
<p>Addition by adding multiples of 10</p>	 <p>$10+20=30$</p>  <p>$50= 30+20$ Modelling and scaffolding by using Beadstrings and Dienes</p>	 <p>3 tens add 3 tens = _____tens $30 + 30 = 60$ Use dienes as a pictorial representations</p>	<p>$30 + 40 = 70$</p> <p>$70 = 30 + 40$</p> <p>$70 = \underline{\quad} + 40$</p> <p>Use related facts to embed strategies.</p>										
<p>Part Part Whole (Use known facts)</p>	 <p>Children explore different ways to make 20.</p>	 <p>$\square + \square = 20$ $20 - \square = \square$ $\square + \square = 20$ $20 - \square = \square$</p> <p style="text-align: right;">Part</p> <p>Part whole is used to support calculations</p>	<p>$20 + 0 = 20$ $19 + 1 = 20$</p> <p>$20 = 20 + 0$ $20 = 19 + 1$</p>										

<p>Bar Model method</p>	 <p style="text-align: center;">$1 + 4 + 5$</p>	 <p style="text-align: center;">$7 + 3 = 10$</p>	 <p>Ensure bar model boxes are proportionate in size. (e.g the smaller number is written in the smaller box)</p>
<p>Add a two digit number and ones</p>	 <p style="text-align: center;">$36 + 5 =$</p> <p>Children explore patterns such as $36 + 5 = 41$ $46 + 5 = 51$</p>	 <p style="text-align: center;">$36 + 5 = 41$</p> <p style="text-align: center;">$36 + 4 = 40 + 1$</p> <p>Use part Part whole to model</p>	<p>Use related facts to explore addition and subtraction.</p> <p>$36 + 5 = 41$ $5 + 36 = 41$ $41 - 5 = 36$ $41 - 36 = 5$</p> <p>Use bar model if needed.</p>
<p>Add a two digit number and tens</p>	<p>$45 + 30 = 75$</p>  <p>Use Dienes to show calculation</p>	<p>$45 + 30$</p>  <ul style="list-style-type: none"> • 'Forty-five, fifty-five, sixty-five, seventy-five' • 'Forty-five plus thirty is equal to seventy-five.' <p>$45 + 30 = 75$</p> <p>Use number lines to chant and show jumps of 10</p>	<p>$45 + 30 = 75$</p> <p>Understanding the ones number does not change.</p>
<p>Add 2 two-digit numbers</p>	<p>$45 + 23 =$</p>  <p>Use Dienes to show calculation.</p>		<p>$45 + 23 =$ $40 + 20 = 60$ $5 + 3 = 8$ $60 + 8 = 68$</p>

		<p>Show pictorial representation of combining tens then the ones.</p>	
<p>Add 3 one digit numbers</p>	 <p> $7 + 2 + 3 =$ $7 + 3 = 10$ Use knowledge of number bonds to make 10 first. </p>	 <p>Regroup and draw representations.</p>	<p> $7 + 2 + 3$ $7 + 3 = 10$ $10 + 2 = 12$ </p> <p>Combine the 2 numbers that make 10 then add the 3rd number.</p>

EYFS Subtraction (-) (Progression in calculation)

Two Year Old Provision and Nursery

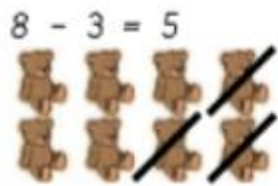
- Before subtraction can be introduced, children must have a secure foundation of number. In pre-school and nursery, this can begin through counting backwards using games, books, songs and rhyme.



- Children begin by counting objects and removing from the group. This should also be done physically whilst acting out games and stories as above. This is a valuable concrete strategy to use so children can visually see what is happening to the numbers. Children are encouraged to use words such as less and fewer.

Reception

- Children explore subtraction using concrete and pictorial representations. Children are encouraged to count out a group of objects, then remove some of these objects from the group and then recount the group. This can then be represented pictorially by children using reduction methods to cross out objects that have been taken away.

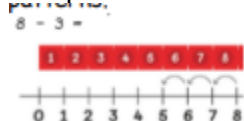


Subtract two single digit numbers
unters on plates



As children become familiar with number bonds, they should use this knowledge to support their subtraction facts.

➤ Children should use variation when using concrete apparatus to show subtraction. Children should be able to observe links between number and patterns.



➤ Children can pictorially represent subtraction and only move on to abstract representations when they are ready.



➤ Children are introduced to the - and = symbol, ensuring they understand the = symbol means is the same as.

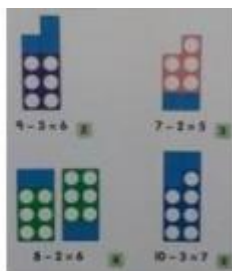
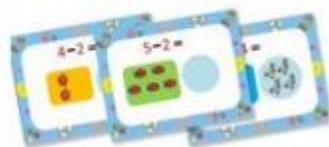
➤ Children begin to use part part whole to explore subtraction facts.




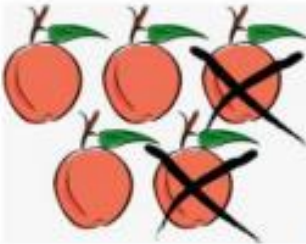
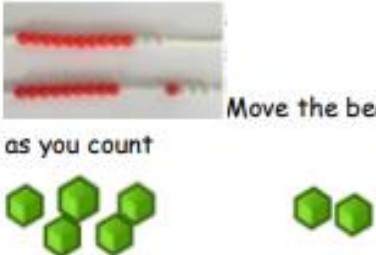

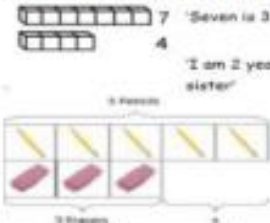

➤ Use familiar word problems to solve subtraction calculations. E.g I had 10 circles, I gave 4 to my friend, how many do I have left? Start with 10 and work backwards. 9 Count back) Use both concrete and pictorial representations and move to abstract only when ready.

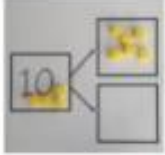
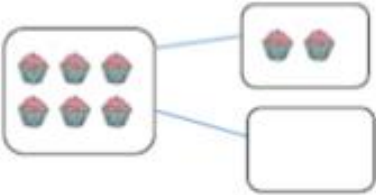
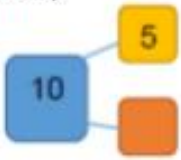

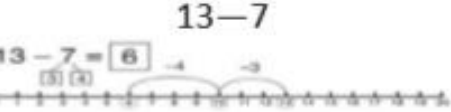

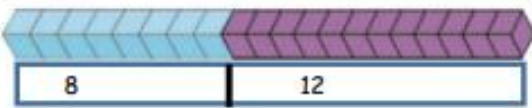


Some EYFS examples:

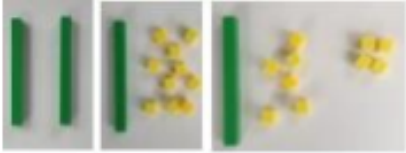
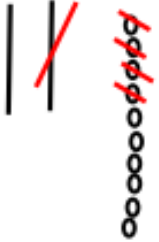


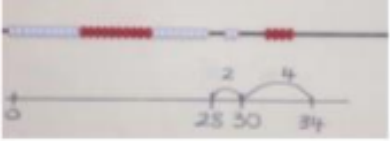
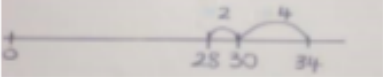


Year 1 - Subtraction (-)

Objective and Strategy	Concrete	Pictorial	Abstract
Taking away ones	<p>Using physical objects such as counters, cubes etc to show how objects can be taken away.</p>  <p style="text-align: right;">$4-2=2$</p>	 <p style="text-align: right;">$5-2=3$</p> <p>Cross out pictorial representations to see what has been taken away.</p>	<p style="text-align: center;">$10-3=7$</p> <p style="text-align: center;">$15-6=9$</p>
Counting back	<p>Counting backwards, moving objects away from the group using bead strings, counters.</p>  <p>Move the beads along the string as you count</p> <p>Move objects away from the group as you count.</p>	<p>Count back in ones using a number line.</p> <p style="text-align: center;">$9-3=6$</p> 	<p>(Mental subtraction)</p> <p>Place 15 in your head and count back 4, what number have you got to?</p>
Find the difference	<p>Compare amounts and objects</p>  <p>7 'Seven is 3 more than four'</p> <p>4 'I am 2 years older than my sister'</p> <p>5 items</p> <p>3 items</p> <p>Lay objects to represent bar model.</p>	<p>Use a number line to count on and find the difference.</p>  <p style="text-align: center;">Numbers increase left to right</p> <p style="text-align: center;">$+1 +1 +1 +1$</p>	<p>Mrs Kapadia had 10 sweets and Mrs Chohan had 6 sweets. How many more did Mrs Kapadia have?</p>

<p>Represent and use number bonds and related subtraction within 20- Part Part Whole model (PPW)</p>	 <p>Use the PPW model to show inverse, $10-6=4$ If 10 is the whole and 6 is one part, what is the other part?</p>	 <p>Use pictorial representations to show the parts</p>	<p>Use numbers within the PPW Model,</p> 
<p>Make 10</p>	 <p>$14-5=9$</p> <p>Step one- Make 14 on the tens frame.</p> <p>Step two- Take 4 away from the Second tens frame.</p> <p>Step three- take 1 more away to Take away 5.</p>	<p>$13-7$</p>  <p>Jump back 3 first to land on 10, then jump back 4 using a number line.</p>	<p>$14-8=$</p> <p>How many do we take off first, to get to 10? Then how many left to take off to solve our calculation?</p>
<p>Bar Model</p>	 <p>$5-3=2$</p>		<p>$20= 8 + 12$ $20= 12 +8$ $20-12 =8$ $20-8=12$</p>

Year 2- Subtraction (-)

Objective and Strategy	Concrete	Pictorial	Abstract
Exchange a 10 dienes rod into 10 ones	<p style="text-align: center;">20-4=16</p>  <p>Exchange a tens rod for ten ones, then take away the 4.</p>	 <p style="text-align: center;">20-4=16</p>	20-4=16
Partitioning to subtract without regrouping/exchanging	<p style="text-align: center;">34-13=21</p>  <p>Use dienes to partition subtract without or regrouping.</p>	<p style="text-align: center;">22-11=11</p> 	22-11=11
Using the 10 strategy (Progression should show crossing a ten, crossing more than one ten then crossing hundreds.)	 <p style="text-align: center;">34-28</p> <p>Use bead string alongside a number line to count to the next ten, then what is left.</p>	 <p>Use a number line to count to the next ten and then the rest. Count the jumps to help solve the calculation.</p>	34-28=6

EYFS Multiplication (x)/ EYFS Division (÷) (Progression in calculation)

Pre-school and Nursery

➤ Children will learn about equal grouping in practical concepts and everyday activities.
e.g at snack time 'There are 2 groups of 3 bananas.'



➤ Children will use the language of doubling and halving



➤ Allow opportunities for children to explore different ways of building doubles.

Reception

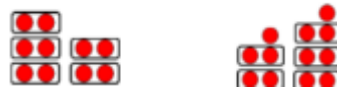
➤ Children are given opportunities to sort doubles and non doubles.

➤ Children will be given opportunities to explore halving, understanding that it is sharing between 2 equal groups. Use incidental learning throughout continuous provision to embed and reinforce language and exploration.

➤ Activities such as 'show me how you could share these strawberries fairly'



➤ The children begin to explore
can be shared equally are even and



odds and evens. They begin to understand that objects that
ones with left overs are odd.

➤ Children will be given opportunities to sort objects into odd and even groups using familiar apparatus such as tens frames and numicon. ***Underlined statements relevant to Multiplication**



Understanding arrays

Use countables and objects, laid out in arrays to solve calculations.

E.g

2 lots of 5



3 groups of 5



Draw and label your own arrays to show understanding.



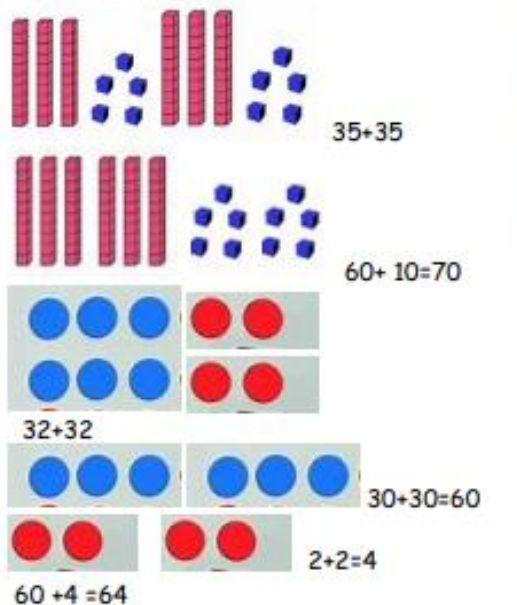
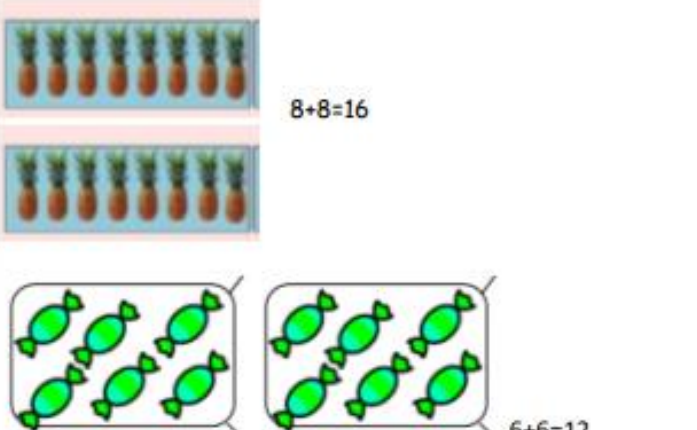
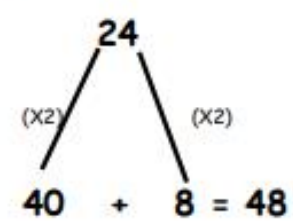
3×3



4×3

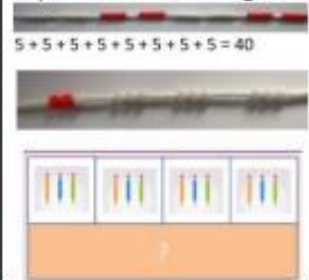
$$3 \times 3 = 9$$
$$4 \times 3 = 12$$

Year 2- Multiplication (x)

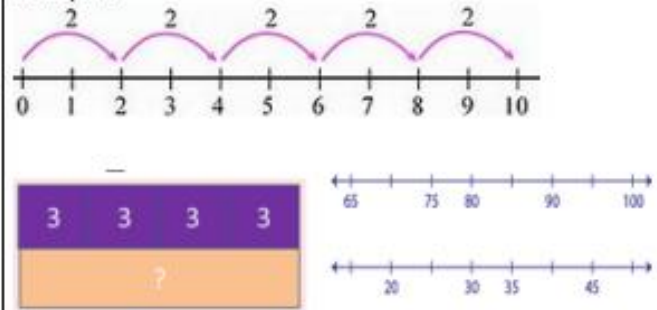
Objective and Strategy	Concrete	Pictorial	Abstract
<p>Doubling</p>	<p>Model doubling using dienes and double sided counters.</p>  <p>35+35</p> <p>60+ 10=70</p> <p>32+32</p> <p>30+30=60</p> <p>60 +4 =64</p> <p>2+2=4</p>	<p>Draw pictorial representations to double numbers.</p>  <p>8+8=16</p> <p>6+6=12</p>	<p>Partition a number then double each part of the number before recombining to solve the calculation.</p>  <p>24</p> <p>(x2) (x2)</p> <p>40 + 8 = 48</p>

Counting in multiples of 2, 3, 4, 5 and 10 (Repeated addition)

As children are skip counting, they are encouraged to count the groups. They can use their fingers for this strategy. Use bar models and bead strings to represent these alongside the skip counting.



Use a range of pictorial representations to show counting in multiples.



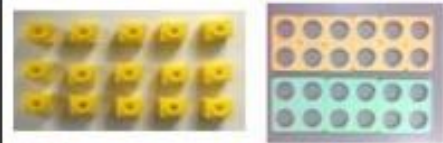
Count aloud in multiples.

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

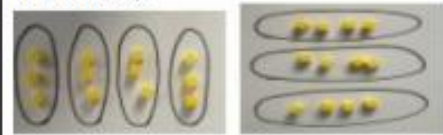
4 lots of 3 = 12
 $4 \times 3 = \square$

Multiplication is commutative

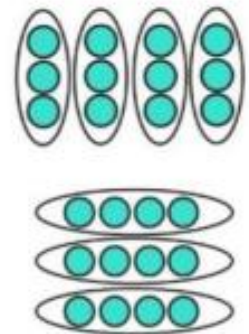
Create arrays using a range of concrete apparatus.



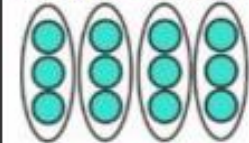
Children begin to understand that multiplication is commutative and arrays can represent different calculations, and the order of the number of groups and the size of the groups (factors) does not affect the answer).



Explore different pictorial representations of arrays by turning them around. Understanding the answer of the calculation remains unchanged as long as the factors stay the same. This explores commutativity and different calculations.



Use arrays to reinforce repeated addition and to write multiplication calculations.



$3 + 3 + 3 + 3 = 12$
 $4 + 4 + 4 = 12$
 $4 \times 3 = 12$
 $3 \times 4 = 12$

Using the inverse, to be taught alongside division so links can be seen and made.

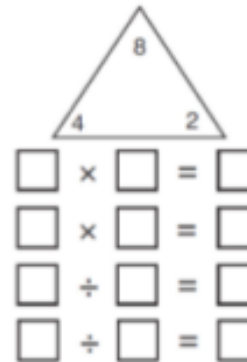
Explore the inverse by making arrays, finding the calculation for multiplication and build on that using division.



$$\begin{aligned}8 \times 2 &= 16 \\ 2 \times 8 &= 16 \\ 16 \div 8 &= 2 \\ 16 \div 2 &= 8\end{aligned}$$



Use pictorial representations to show related facts.



Show all 8 related facts for inverse calculations.

$$\begin{aligned}2 \times 4 &= 8 \\ 4 \times 2 &= 8 \\ 8 \div 2 &= 4 \\ 8 \div 4 &= 2 \\ 8 &= 2 \times 4 \\ 8 &= 4 \times 2 \\ 2 &= 8 \div 4 \\ 4 &= 8 \div 2\end{aligned}$$

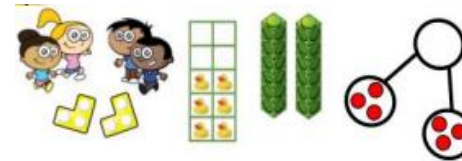
Children to understand that the inverse of multiplication is division and vice versa.

Two Year Old Provision and Nursery



➤ Children will learn about equal grouping in practical concepts and everyday activities.
e.g at snack time 'There are 2 groups of 3 bananas.'

➤ Children will explore the language of doubling and halving



➤ Allow opportunities for children to explore different ways of building

doubles.

Reception

➤ Children are given opportunities to sort doubles and non doubles.

➤ Children will be given opportunities to explore halving, understanding that it is sharing between 2 equal groups. Use incidental learning throughout continuous provision to embed and reinforce language and exploration.

➤ Activities such as 'show me how you could share these strawberries fairly'



➤ The children begin to explore odds and evens. They begin to understand that objects that can be shared equally are even and ones with left overs are odd.

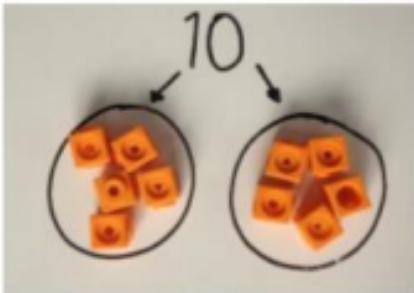
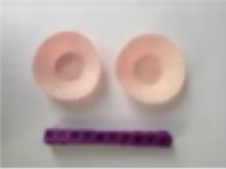





➤ Children will be given opportunities to sort objects into odd and even groups using familiar apparatus such as tens frames and numicon.

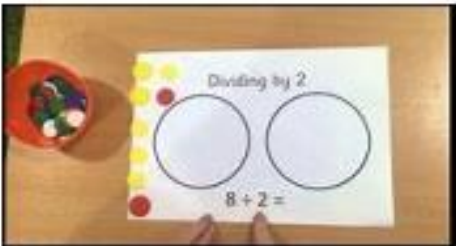
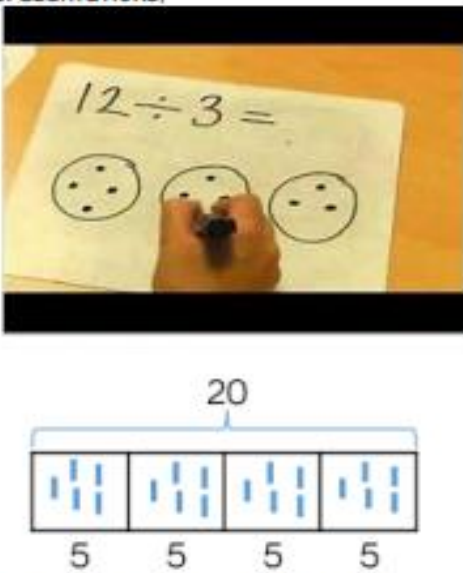

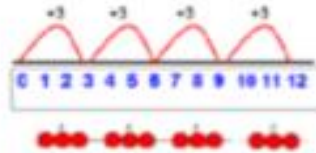



*Underlined statements relevant to Division

Year 1 - Division (÷)

Objective and Strategy	Concrete	Pictorial	Abstract
<p>Division as sharing (Use Gordons ITP as a good resource to support learning)</p>	<p>Use countables to show concrete representations of sharing.</p>  <p>I have 10 cubes, can you share them equally in 2 groups?</p> <p>Use representations such as dienes to exchange a 10 rod for 10 ones.</p>  	<p>Children use pictorial representations or shapes to share quantities.</p> 	<p>Children use stem sentences to describe what they see once they have solved calculations.</p> <p>8 ÷ 2 = 4</p> <p>Share the muffins equally between the two plates. Complete the sentence. ___ cakes shared equally between 2 is ___</p>  <p>Children use pictorial representations alongside abstract to ensure calculations are shared correctly. One for you, one for me etc.</p> <p>(Only use symbol when children are completely secure with the idea of sharing)</p>

Year 2- Division (+)

Objective and Strategy	Concrete	Pictorial	Abstract
<p>Division as sharing in equal groups.</p>	<p>Children to understand word problems and solve calculations using concrete representations by sharing.</p> 	<p>Children to understand word problems and solve calculations using pictorial representations.</p>  <p style="text-align: center;">20</p> <p style="text-align: center;">5 5 5 5</p> <p>Children use bar models as pictorial representations.</p>	<p style="text-align: center;">$12 \div 3 = 4$</p> <p style="text-align: center;">$20 \div 4 = 3$</p>
<p>Division as grouping</p>	<p>Divide quantities into known groups.</p>  <p>e.g dividing 10 into groups of 2. Use stem sentences to reinforce understanding.</p>	<p>Use number lines and bead strings as pictorial representations of grouping.</p>  <p style="text-align: center;">$12 \div 3 = 4$</p>	<p>Mo is putting 12 flowers into pots.</p>  <p>He puts 2 flowers into each pot. How many pots does he need?</p> <p>Children to circle the flowers to show groups and solve the equation. $12 \div 2 = 6$</p>

Key Vocabulary

Addition	Subtraction	Multiplication	Division
<p>sum, total, parts and wholes plus add altogether more than 'is equal to' 'is the same as'</p>	<p>take away less than the difference subtract minus, fewer decrease 7 take away 3 the difference is four'</p>	<p>double time multiplied by the product of groups of lots of 'is equal to' 'is the same as'</p>	<p>Share group, divide divided by half 'is equal to' 'is the same as'</p>



Calculation Policy

Author's Name	Grindon Infant School
Review Date	February 2026

Date Ratified by Governing Body	February 2024
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SIGNATURES:

Head Teacher	
Chair of Governors	