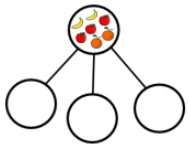
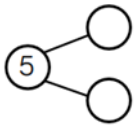
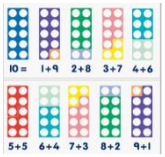
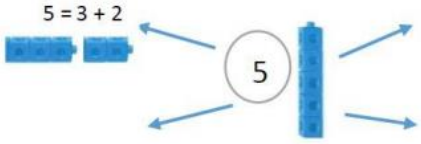
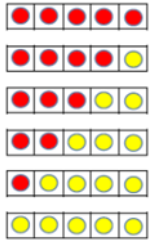
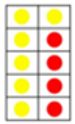
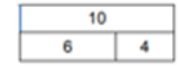
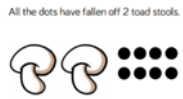
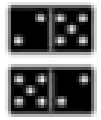
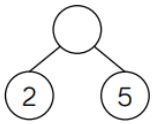
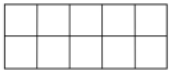
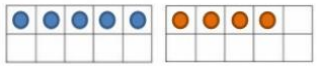
GROVE PRIMARY SCHOOL AND NURSERY
ADDITION

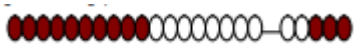
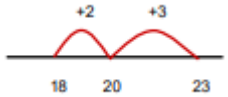
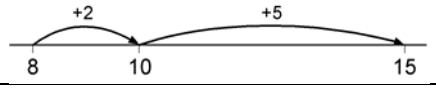
Nursery & Reception	Nursery & Reception Addition Calculation
Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number.	Principles of counting: 1. Stable Order Principle – knowing number names in order; 2. One to one correspondence – touch, move and place in a pattern; 3. Cardinality Principle – last name of your count is the value / quantity; 4. Abstraction Principle – quantities are the same e.g. 5 elephants is the same as 5 mice – also beyond the physical; 5. Order Irrelevance Principle – it doesn't matter which order you count them in; 6. Conservation Principle – same quantity but looks different, e.g. counters close together and spread out; 7. Unitizing Principle – understanding that ten ones is one ten etc. How do you show that visually? Understanding number, quantity and measure
Using quantities and objects, they add two single-digit numbers and count on or back to and the answer.	Addition has two aspects and both need to be developed in parallel: 1. Adding as counting on Children need to understand that adding involves increase. Combining two sets of objects. Then adding on a set. 2. Adding as splitting sets: number bonds Knowing that 5 can be split into 4 and 1, into 3 and 2 and even into 5 and 0, is the basis for this aspect of addition.

GROVE PRIMARY SCHOOL AND NURSERY
ADDITION

Year 1 Addition			
	Concrete	Picture	Abstract
Count 1 more			
	Concrete	Picture	Abstract
Part whole model	 Use objects in the classroom or linked to the topic. Use plates to sort the objects.  The fruit is the whole. Bananas, apples and oranges are the part.	 Convert working with concrete to working with numerals.	Work in groups of up to eight children. Can you split yourselves into different groups? Think of different ways to group yourselves: hair colour, eye colour, gender, shoe size etc. Can you partition into more than 2 groups?
read, write and interpret mathematical statements involving addition (+) and equals (=) signs Introduce + = symbols	 Coloured cubes  coloured counters  Bead string  Counting objects		Using the numbers 0 – 9 how many ways can you fill in the boxes to make the calculation correct? You can only use each number once. □ + □ = □ How many different calculations are there?

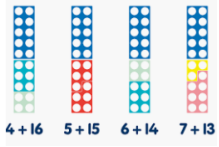
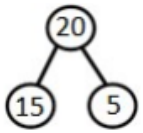
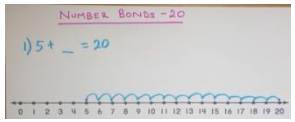
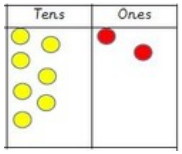
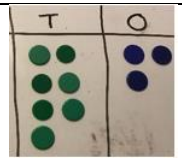
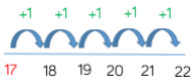
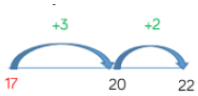
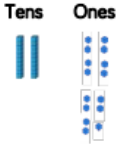
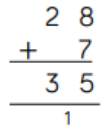
GROVE PRIMARY SCHOOL AND NURSERY
ADDITION

	Concrete	Picture	Abstract
Represent and use number bonds facts within 10 Fact families and number bonds	  	    	  What could the and the be worth? How many different ways can you put them back on? Use the number cards to make 4 addition sentences. 4 7 3
Adding together	  Dominoes dice pegs 	 5 + 2 = 7  3 + ? = 5 	There are 8 cubes. Some are red and some are yellow. How many different ways can you make a total of 8?   You could show your working on a part whole model or a ten frame.
Adding more	 What else can we use to represent the cars? Can we only use counters and ten frames? 	 Use concrete and pictures to make up maths stories.  	Sid has two bean bags. He is throwing them into jars. What is the highest score he can get? What is the lowest score he can get? Explain why he can't get a total of 9 

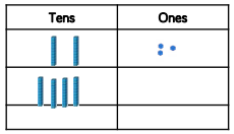
• add one-digit and two-digit numbers to 20, including zero	 bead string	 	

GROVE PRIMARY SCHOOL AND NURSERY
ADDITION

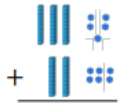
Year 2 Addition

	Concrete	Picture	Abstract
Fact Families (building on Year 1)		  	
TO + multiples of 10	Dienes equipment    Place value counters 	 13 + 40 = Use 100 / 200 square to explore patterns of adding 10. Spiders jumps down 	 Tomas says, "I know that 10 more than 72 is 82 because I only have to look at the tens digit." Is he correct? Explain your reasoning.
Two digit + 1 digit bridging ten	 Use place value counters or base 10 and add ones Exchange where necessary	or 17 + 5 =  	Combine equipment with column addition  

GROVE PRIMARY SCHOOL AND NURSERY
ADDITION

<table>
<tr>
<td>TO + TO
(not bridging, then bridging 10s)</td>
<td> 

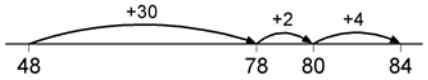
Using base 10 / place value counters and adding just tens first.

 
Teaching exchanging tens ones for one ten.

• Partition both the numbers.
• Add together the ones. Have we got 10 ones?
• Exchange 10 ones for 1 ten.
• How many ones do we have? Add together the tens.
• How many do we have altogether?</td>
<td>48 + 36 = 84

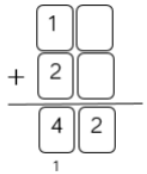
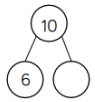
 

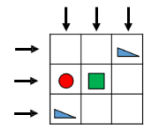
or

 
</td>
<td>Partitioning

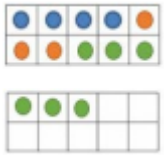
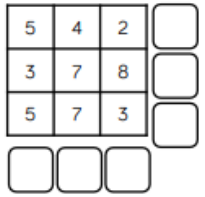
76 + 46 = Start with the largest number and add the tens,e.g.

76 + 40 = 116 Then add the ones, e.g. 116 + 6 = 122

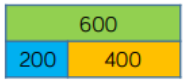
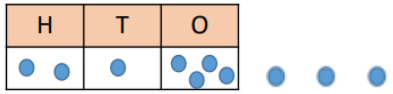
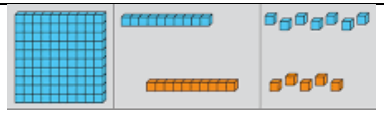
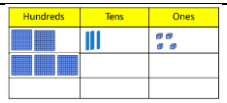
 
Find all the possibilities</td>
</tr>
<tr>
<td>• Bonds to 100</td>
<td></td>
<td> 
 


</td>
<td> 
Squares are worth 10 Triangles are worth 20 Circles are worth 30 Can you complete the grid above so that all horizontal and vertical lines equal 60?</td>
</tr>
</table>

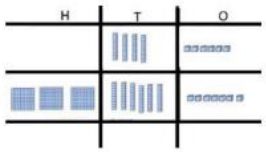
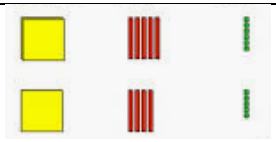
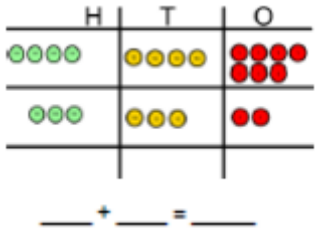
GROVE PRIMARY SCHOOL AND NURSERY
ADDITION

• O + O + O	**numicon**		Find the totals of each row and column. 

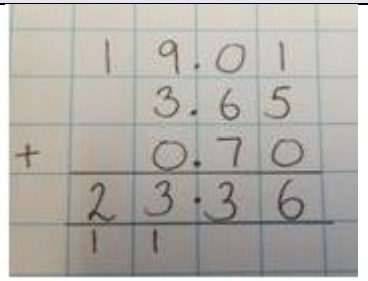
Year 3 & 4 Addition

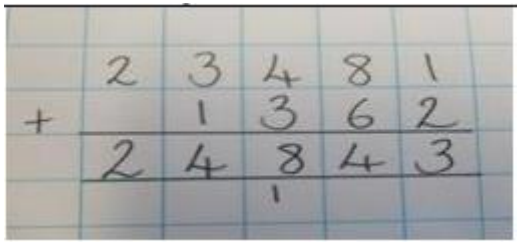
Year 3	Concrete	Picture	Abstract
Add multiples of 100			**Expanded Vertical Method** Write the numbers in columns. *ALWAYS ADD LEAST SIGNIFICANT DIGITS FIRST WHEN WORKING VERTICALLY Adding the units first: 47 + 76 13 110 123 **Compact Vertical Method**
HTO + O	Dienes and place value counters 		
HTO + T HTO + TO	Dienes and place value counters		
HTO + H	Dienes and place value counters		

GROVE PRIMARY SCHOOL AND NURSERY
ADDITION

<table>
<tr><td>2 digit + 3 digit</td><td>Dienes and place value counters</td><td>  </td><td rowspan="2">47 + 76 = 123 (11)
258 + 87 = 345 (11)
366 + 458 = 824 (11)
Column addition remains efficient when used with larger whole numbers and decimals. Once learned, the method is quick and reliable.
789 + 642 becomes
7 8 9
+ 6 4 2
1 4 3 1
1 1
Answer: 1431</td></tr>
<tr><td>+ Two 3 digit</td><td>Dienes and place value counters</td><td> 
  </td></tr>
<tr><td>Year 4</td><td>Concrete</td><td>Picture</td><td>Abstract</td></tr>
<tr><td>add numbers with up to 4 digits using the formal written methods of columnar addition</td><td colspan="2">Building on Year 3 using place value counters and dienes</td><td>1432 + 2157 = 3589
1832 + 3357 = 5189
1</td></tr>
</table>

GROVE PRIMARY SCHOOL AND NURSERY
ADDITION

<table>
<tr><th colspan="4">Year 5 & 6 Addition</th></tr>
<tr><th>Year 5</th><th>Concrete</th><th>Picture</th><th>Abstract</th></tr>
<tr>
<td>Add whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)</td>
<td>Building on Year 4 using place value counters and dienes</td>
<td>
<table>
<tr><td colspan="2">6.2</td></tr>
<tr><td>3.4</td><td>2.8</td></tr>
</table>
3.4 + 2.8 = 6.2
2.8 + 3.4 = 6.2
6.2 – 3.4 = 2.8
6.2 – 2.8 = 3.4
</td>
<td> 


</td>
</tr>
<tr>
<td>Year 6
Solve addition multi-step problems in contexts, deciding which operations and methods to use and why</td>
<td colspan="2">Building on Year 5 using place value counters and dienes</td>
<td> 
</td>
</tr>
</table>