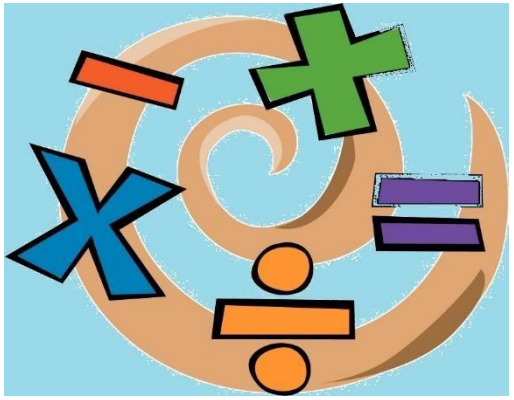
INSPIRE

CURRICULUM

Maths



Maths

Intent:

At Burnside Academy, mathematics is given high priority as a core subject. We aim to ensure that our children have access to a high-quality mathematics curriculum that is both challenging and enjoyable. Through our Mathematics curriculum, we strive towards shaping assured, enthusiastic and resilient mathematicians who have a commitment to and passion for the subject. We aim to open children's minds to embrace the value of learning from mistakes and relish the challenge of Maths through facilitating independent and reflective thinking. Children are taught to think with increased independence and persevere when faced with challenges, showing a confidence of success that will promote a positive attitude towards maths. We deliver a curriculum that provides children with the vital skills to tackle important concepts and the ability to make connections within Maths. Across our school, we endeavour to ensure that children are exposed to a broad range of skills in using and applying maths that are integral to all aspects of life. Additionally, it is our aim that children will develop fluency of basic skills and recall number facts with increased confidence. It is our intention that we expose children to a range of mathematical vocabulary that supports them in solving problems in a wide range of contexts. Within this including: reasoning, generalising and making sense of solutions. We make great efforts to ensure that our pupils develop a positive Mathematics curriculum that equips pupils with a powerful set of tools to help them understand and change the world. These tools include making connections, logical reasoning, and the ability to think in abstract ways, following a solid understanding of concrete methods.

Implementation:

Curriculum Design

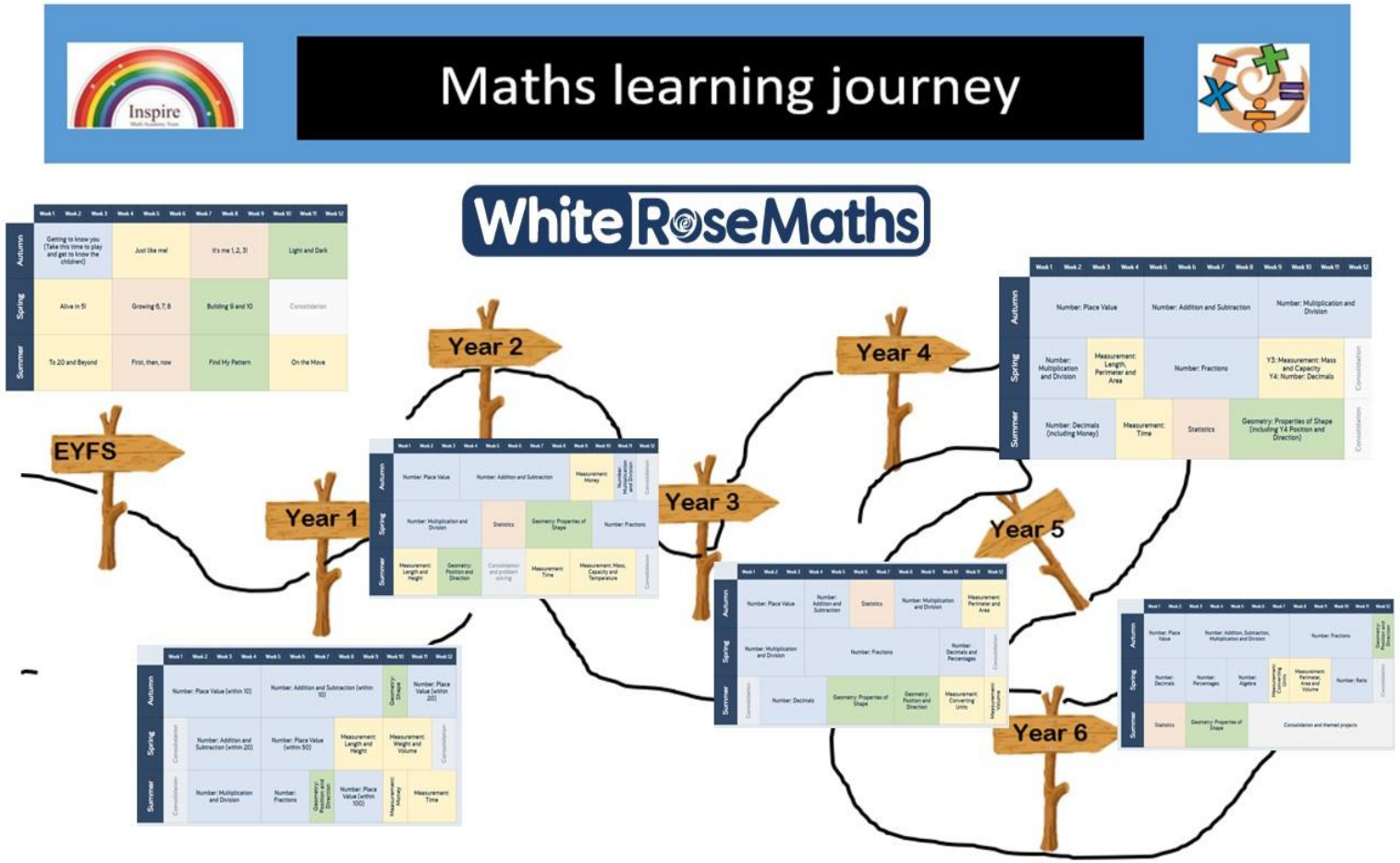
Our Maths curriculum journey begins in the Early Years, where children explore numbers within 20 in their exciting, inviting environment as well as their specific Maths lessons. In Early Years, maths is also woven into the school day, to allow children to learn mathematical skills through their environment and routines, exposing them and extending their mathematical thinking.

In Nursery we follow the planning structure of 'Master the Curriculum', as well as learning mathematics concepts through song, story and the early years environment. In Reception we begin teaching the 'Mastering Number' programme. This project aims to secure firm foundations in the development of good number sense for all children from Reception through to Year 1 and Year 2. The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number. Attention will be given to key knowledge and understanding needed in Reception classes, and progression through KS1 to support success in the future.

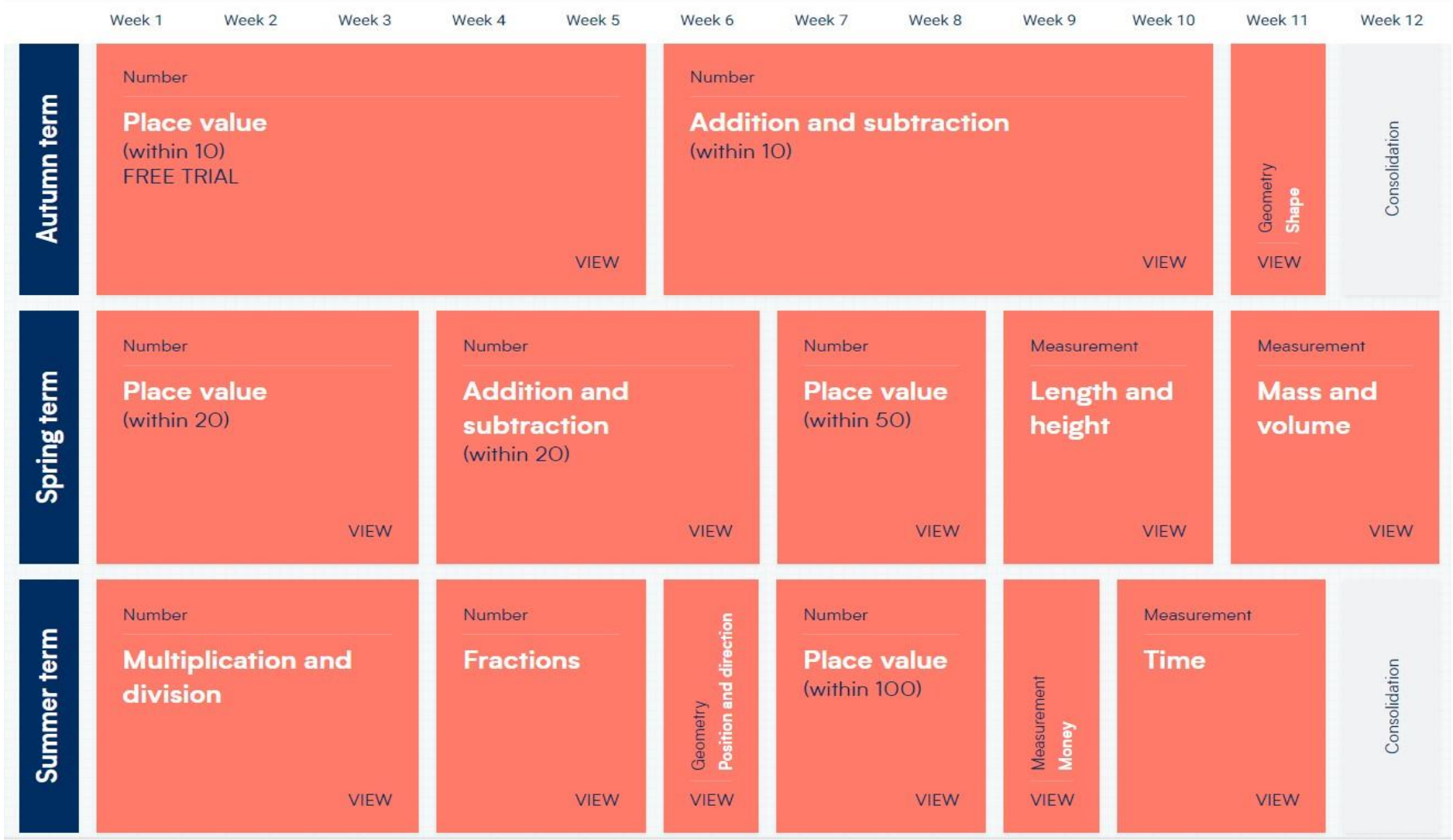
In Key Stage One, as well as accessing Mastering Number in a discreet 'Number Knowledge' session, children extend their knowledge of numbers to 100 and begin to develop their knowledge, skills and understanding within other areas of Maths. We use the 'White Rose Hub' planning structure as a guide for Key Stage 1 and 2 lessons, however, this is adapted to suit the need. Please see an example of this Long-Term Planning structure below.

Key Stage Two breadth of study focuses on the development of all areas of Maths, including written methods and building upon the children's fluency of key mathematical facts. To ensure the children are provided with high quality teaching, that is progressive, we follow the White Rose scheme that has been adapted to suit our school needs. Though we follow the steps of White Rose, all staff use a range of resources to support their lessons such as: NCETM, Twinkl, Planpanion and their own resources.

Maths Long term planning



Year 1- Long Term Plan example



These categories are mapped out progressively within each domain across Year 1 to Year 6, so that pupils are repetitively learning each category in different contexts, allowing them to build upon their prior knowledge and develop their understanding further and deeper as they progress through the domains as they move through school.

Mastery Approach

Throughout our learning at Burnside, we follow a mastery approach. We use concrete, practical resources to ensure that children are introduced to mathematical ideas in a more 'hands on' approach to embed their learning. We believe that using exposing the children to ideas through the use of concrete resources is key to conceptual understanding. Initially supported, children can use these practical resources if and when they need them throughout the small steps of learning. We also understand that pictorial representations allow children to make links between the practical resources and mathematical concepts. This is a key stepping stone before using more abstract mathematical notations. Manipulatives and representations are used to effectively develop and deepen understanding.

This is outlined in our calculation policy.

Fluency of number facts

To ensure all children build on their fluency and recall of mathematical facts, at Burnside, we rum streamed groups across school which allow the children to make progress against number and fact recall at their own individual level.

Each day, we run 'Number Knowledge' sessions with the children from Year 1-6. These sessions are streamed to meet the need and tasks are adapted to suit each group accordingly.

Some of these groups access the 'Mastering Number' programme to achieve fluency with bonds, number composition and addition and subtraction.

In the groups aimed more towards the Key Stage 2 students, the children access the 'Number Sense' programme which focusses in times table facts. This highly visual, research informed programme provides the structure and depth to times tables teaching that children need to achieve fluency in essential multiplication and division facts and concepts.

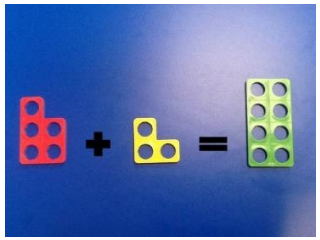
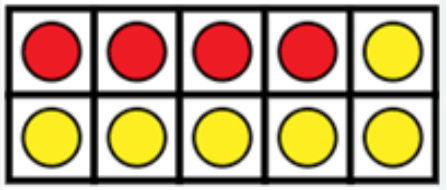
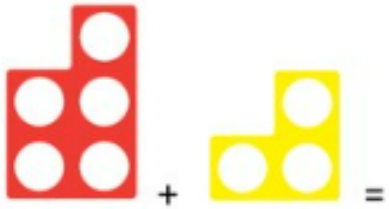
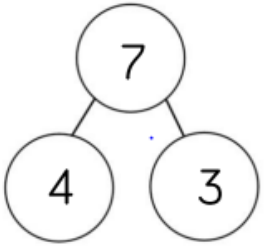
As the children move into upper Key Stage 2, they continue to access the 'Number Sense' programme but then use these facts and apply them to problem solving questions. The children who are confident with times table and division facts make links between mathematical concepts and answer questions which focus on applying deeper thinking,

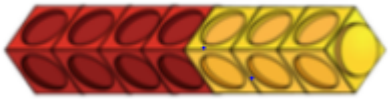
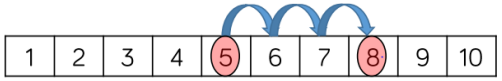
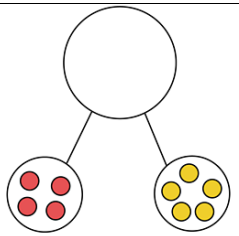
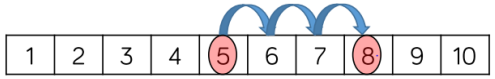
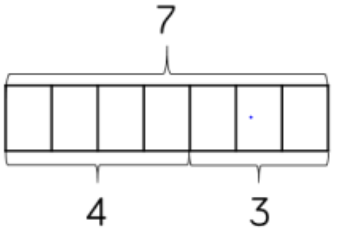
Calculation Policy

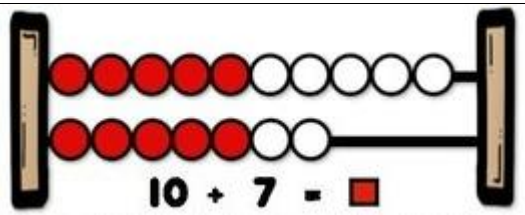
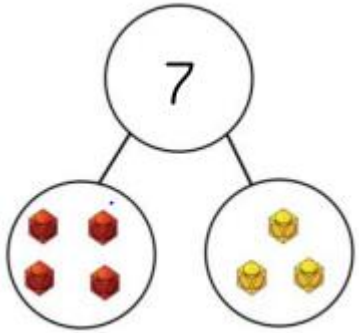
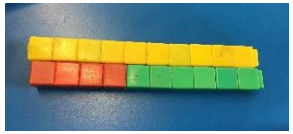
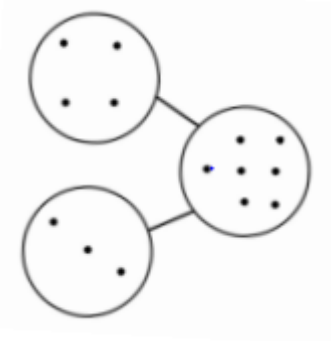
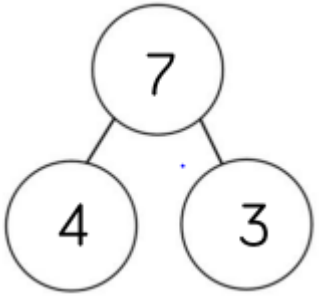
This policy contains the key recording methods that will be taught within our school. It has been written to ensure consistency and progression throughout all year groups. All children will be encouraged to enjoy mathematics and understand it in multiple ways including: practical aspects, pictorial representations, written form and spoken language. Teachers and teaching assistants will support and guide children through:

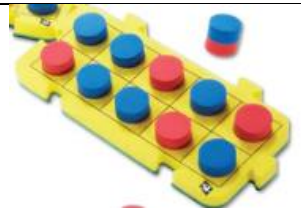
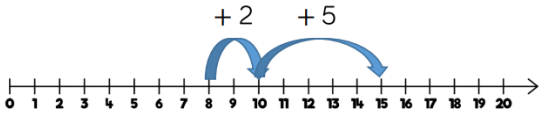
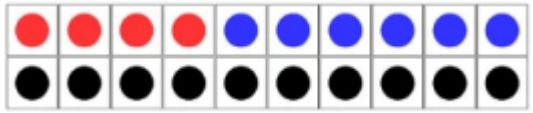
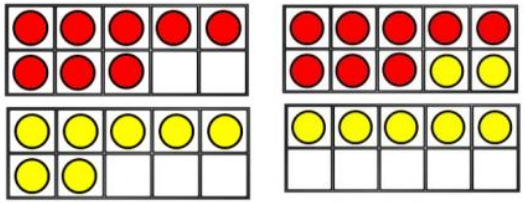
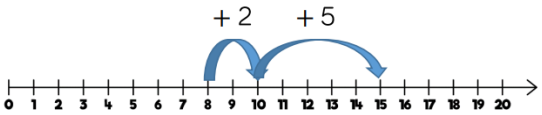
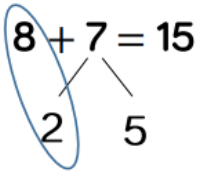
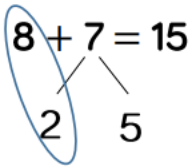
- the use of practical equipment
- the use of pictures, words and symbols
- the use of standard symbols and conventions
- the use of jottings to aid a mental strategy
- the use of formal written methods

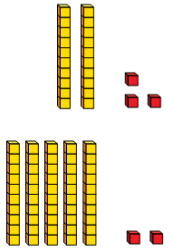
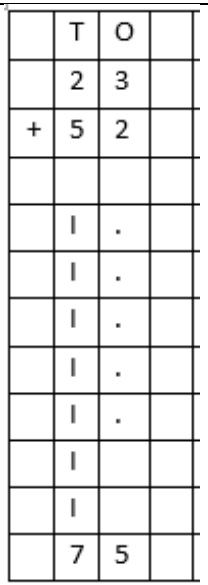
Our aim is for all children to be able to select an efficient method in order to solve calculations that are used in everyday life and relate this to given problems.

	Concrete	Pictorial	Abstract
EYFS **The EYFS also provide many mathematical opportunities within their continuous provision.**	**Tens Frame (with counters)**  **Numicon**  **Part- part- whole model (with counters)** 	 	**Children to know their number bonds to 10 fluently and show how they can apply this effectively to answer addition questions e.g.** **4 + 6= 10** **The use of sentence stems is encouraged to support the children e.g.** **4 and 6 make 10.** **6 and 4 make 10.** 

	Multilink  **Number track**  **Rekenreks** 	  	 **5 + 3 = 8** **10 + 7 = 17**

			
Year 1 Continuing to use the resources from EYFS and expand on them.	Part- part- whole model  Bar Model  Tens Frame		 $4+6=10$ | $6+4=10$ $\square$ | $10-6=4$

	 Number line 	  	 

Year 2	No Exchange  23 + 52 = 75 Exchanging		Children would be expected to count abstractly. One method for this would be to add the initial number then to tens e.g. 24+ 32= 24 + 30= 54 54 + 2 = 56 45 + 30 = 75 75 + 7 = 82

	T	O	
	2	3	
+	5	2	
	I	.	
	I	.	
	I	.	
	I	.	
	I	.	
	I		
	I		
	7	5	

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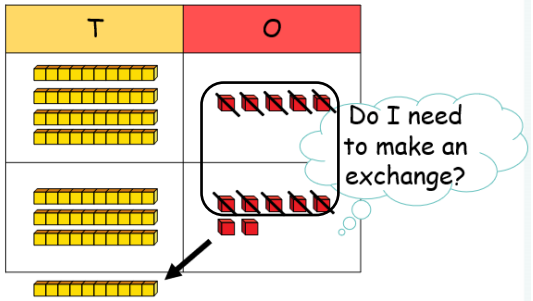
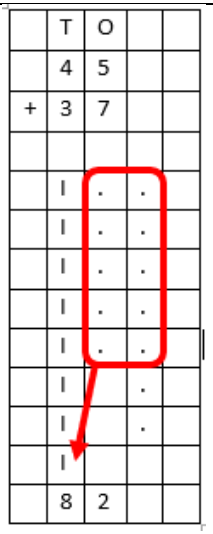
<td>Use base 10 to calculate 45 + 37
 

There are 8 tens and 2 ones.
45 + 37 =82</td>
<td> 
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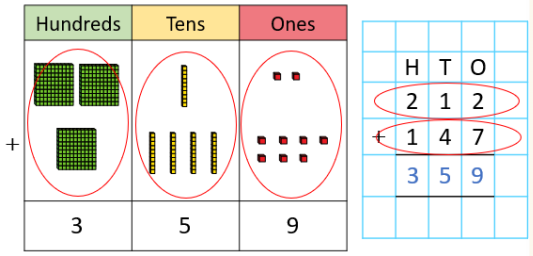
<tr>
<td><u>Key Stage 2</u></td>
<td><u>No Exchange</u>
212 + 147 = 359
 

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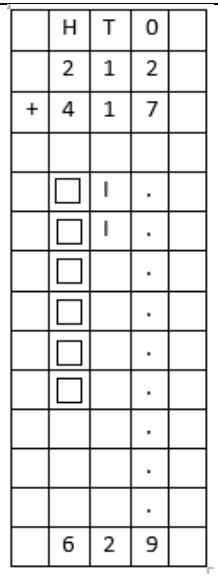
<td> 
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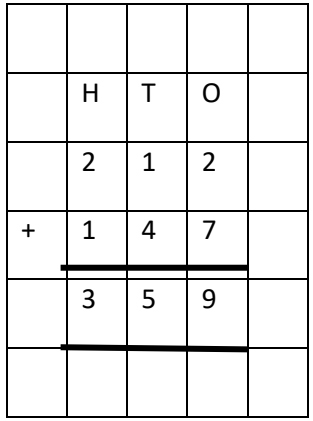
<td>Formal written methods.
 
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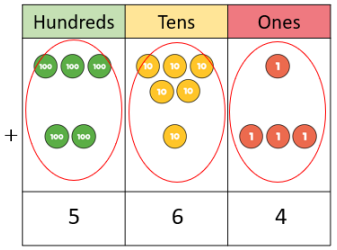
$351 + 213 = 564$



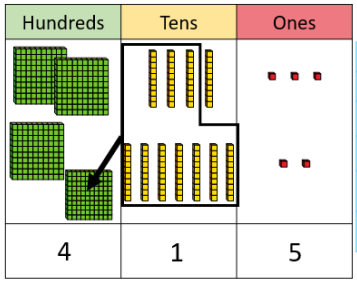
	H	T	O
	3	5	1
+	2	1	3

	H	T	O	
	3	5	1	
+	2	1	3	
	H	T	O	
	H	T	O	
	H	T	O	
	H	T	O	
	H	T		
		T		
	5	6	4	

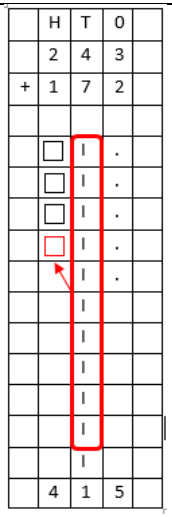
	H	T	O	
	3	5	1	
+	2	1	3	
	5	6	4	

<u>Exchanging</u>

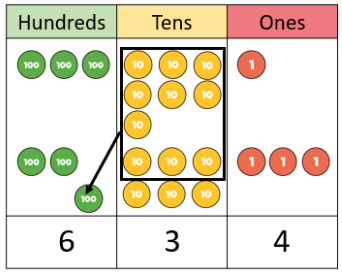
243 + 172 = 415



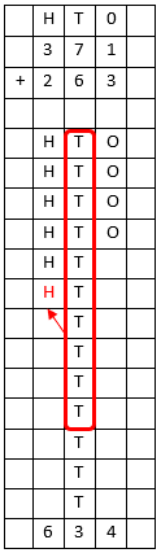
	H	T	O
	2	4	3
+	1	7	2
	4	1	5



371 + 263 = 634



	H	T	O
	3	7	1
+	2	6	3
	6	3	4



	H	T	O	
	2	4	3	
+	1	7	2	
	4	1	5	

					H	T	O			
					3	7	1			
				+	2	6	3			
					6	3	4			