

Denmead Infant School Calculation Policy 2025

Part One – Addition & Subtraction



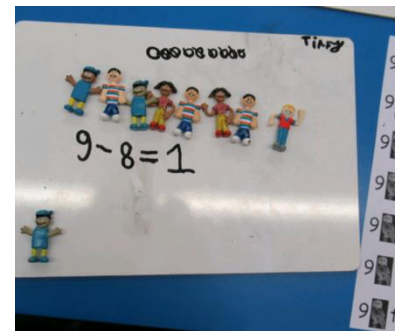
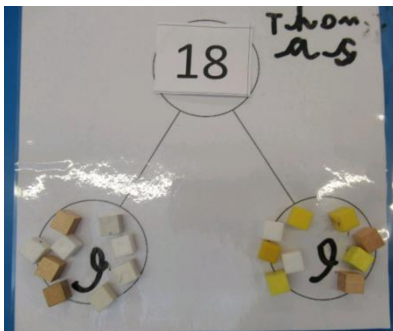
The Denmead Infant School calculation policy is set out in year group stages; however, it is important that we take into account prior attainment of our children and move on only when they are ready to take on the next challenge.

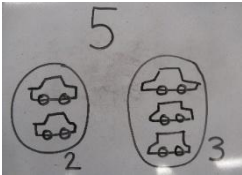
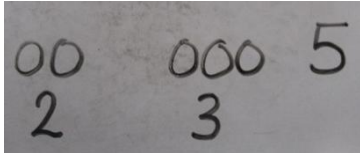
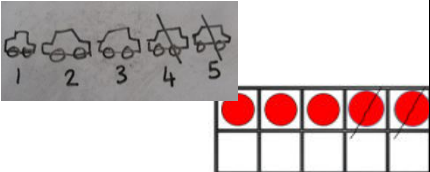
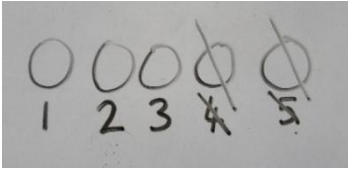
This calculation policy is for all school staff, parents and carers. It documents the methods used when teaching calculation at Denmead Infant School; this guidance can be used by parents and carers to support their children with maths learning at home.

At Denmead Infant School we use the CPA approach to teaching maths. This stands for Concrete, Pictorial, Abstract. Children will only be able to sufficiently master new mathematical concepts in the abstract form (i.e. $7 + 5 = 12$) if they have first explored the concept through use of concrete objects and pictorial images. Even once a child is able to successfully access abstract recordings they should still continue to be exposed to, and encouraged to use, both concrete and pictorial approaches so that they can continue to develop strong links between the three approaches.

The children have opportunities to develop fluency, reasoning and problems solving skills in each Mathematical journey and flexible groupings ensure support and challenge is provided for all children. Key Instant Recall facts are shared with parents each half term and practised at school to develop children's automatic recall of number facts to support them to gain confidence and fluency in more complex mathematical thinking and build a strong foundation for reasoning and problem-solving.

The teaching and learning of Maths at Denmead Infant School is developed in line Hampshire Schemes of Learning units and we use the Hampshire assessment model in Years 1 and 2 which can be found on our website.

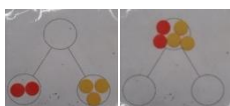


Year R	Progression in Addition & Subtraction	Concrete resources	Pictorial image	Abstract recording
	Using quantities and objects, children add two single-digit numbers and count on to find the answer.	Counting altogether/combining sets using real objects. <i>You have 2 cars and Jess has 3 cars. How many cars do you have altogether?</i>  Objects onto a number track to support counting.  ten frame  part part whole model 	Children represent the problem through their own symbols and mark making.  Children are encouraged to add numerals to their drawings when they are ready to.	Children begin to use representations such as circles. At this stage children are not expected to use abstract symbols such as + or -. 
	Initially children will combine two sets always starting at 1, i.e. counting the cars above '1,2,3,4,5'. Progression from this is to count on from the first set i.e. with the cars we know there are 2 in the first set so we count on '3,4,5'.			
	Using quantities and objects, children subtract two single-digit numbers and count back to find the answer.	Children will physically take objects 'away' and count how many are left. Progress to taking away on a number track or 5 or 10 frame. <i>'There are 5 cars and we need to give 2 to Jess. How many cars do we have now?'</i> 	They will cross or rub out objects to show subtraction in their own drawings. 	
	Initially children will take away by removing a set number of objects and then counting the remaining objects. Progression from this is to count back from the total i.e. counting '5, 4, 3' as they remove two cars.			

Add one-digit and two-digit numbers to 20, including zero.

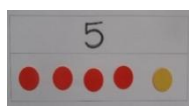
Combining sets of objects or counting on to find a total with oral modelling of number sentence.

*There are 2 red toys and 3 yellow toys.
How many toys are there all together?*



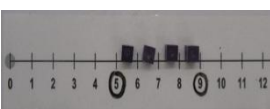
$$3 + 2 = 5$$

Part Part Whole Model



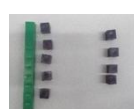
$$4 + 1 = 5$$

Bar Model



$$5 + 4 = 9$$

Number line

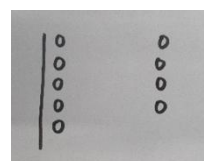
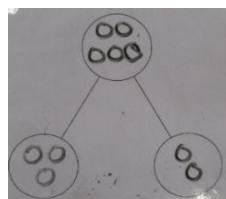


$$15 + 4 = 19$$

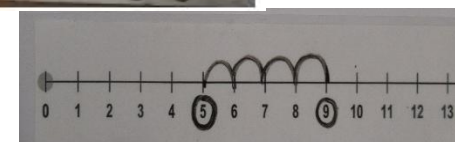
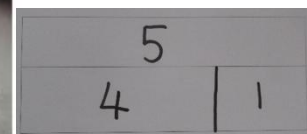
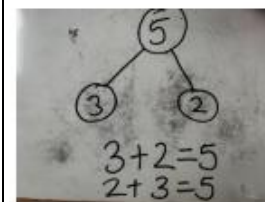
tens and ones

Children will be taught to start with the greatest number for more efficient adding.

Children will draw the problem, maybe annotating with numerals and be able to **explain** what they have drawn.



Before recording a number sentence in the abstract form of ' $2 + 3 = 5$ ' children will orally rehearse the calculation using words such as '2 and 3 is 5' or '2 add 3 equals 5'. They will then write the number sentences alongside the images and models.



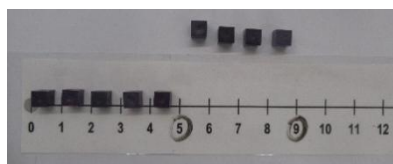
Jumps on a number line.

$$15 + 4 = 19$$

Subtract one-digit and two-digit numbers to 20, including zero.

Taking away a smaller set of objects from a larger set with oral modelling of number sentence.

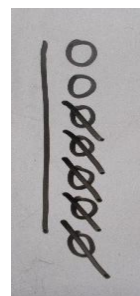
*There were 9 sweets and 4 were eaten.
How many sweets are there now?*



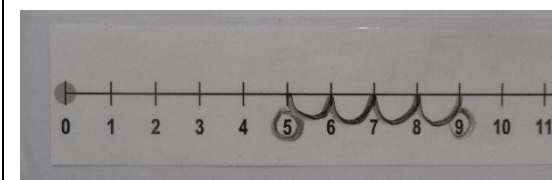
$$17 - 5 = \square$$



Children are encouraged to draw pictures for subtraction problems.



When children are confident using number lines, they can use them without concrete objects and make individual jumps counting back below the line from the first number.



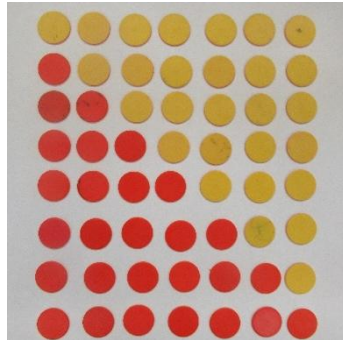
$$17 - 5 = 12$$

Children will learn about number bonds for numbers up to 20 with particular significance on the number bonds of 10 as this will support the fluency of their addition and subtraction calculations further on in the curriculum.

Represent and use number bonds and related subtraction facts within 20.

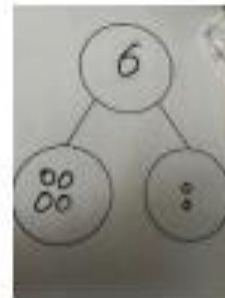
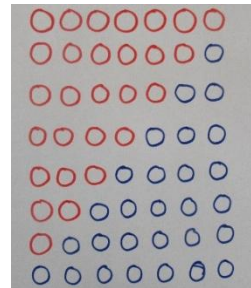
There are 7 cars in a car park. Some are red and some are yellow. How many cars could be red? Can you find all the possibilities?

(Number bonds of 7 represented with counters)



Children will be taught to work systematically to find all possibilities.

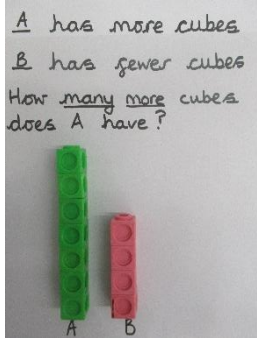
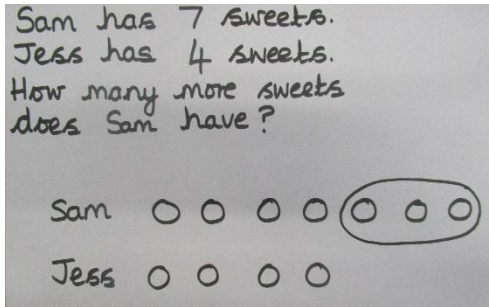
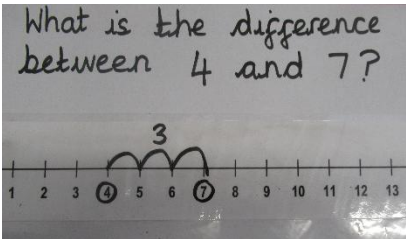
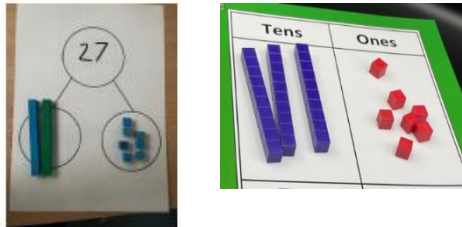
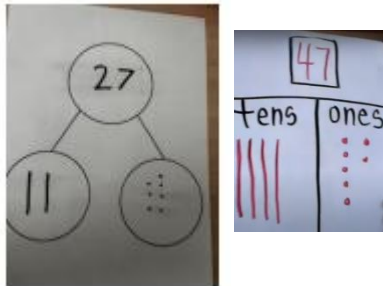
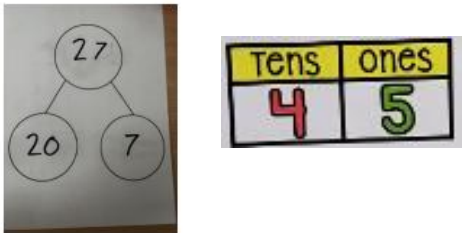
Sam has 6 conkers. He gives some to Jess. How many conkers might Sam have left? Can you find all the possibilities?

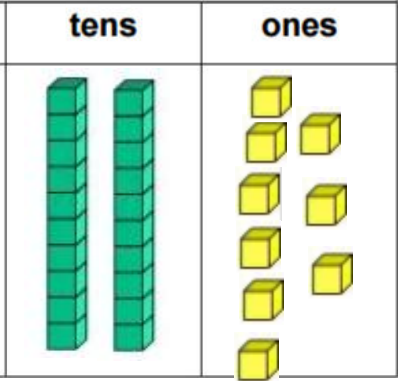
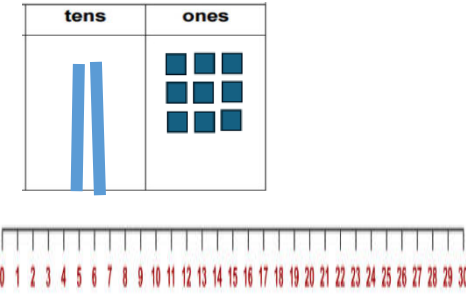
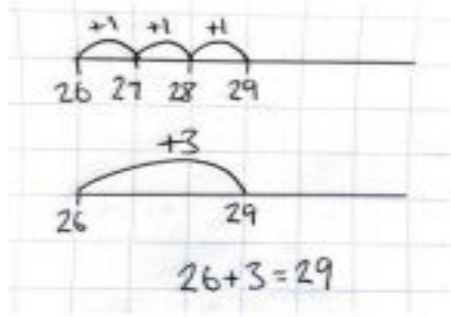
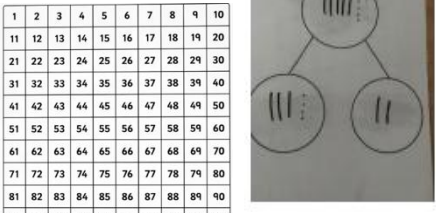
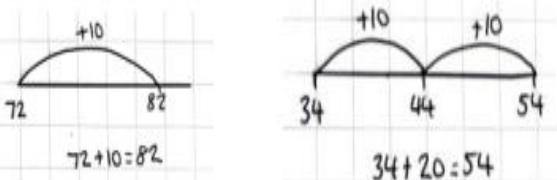
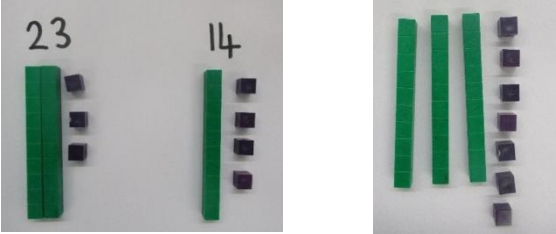
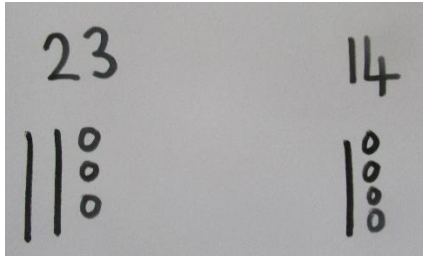
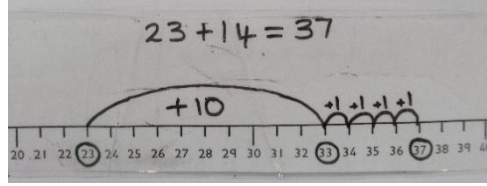


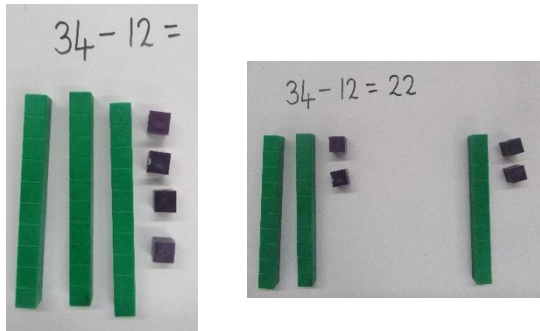
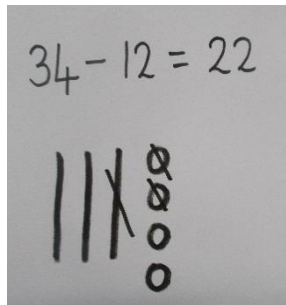
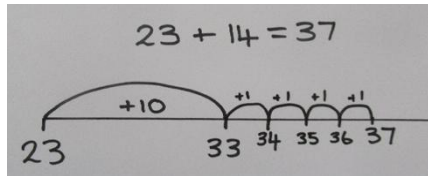
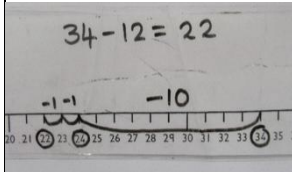
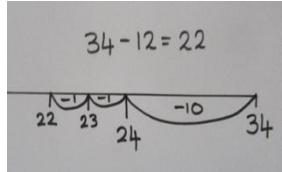
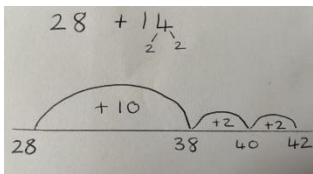
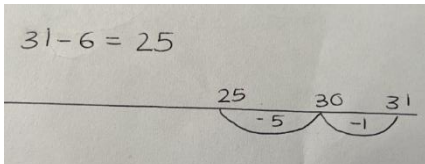
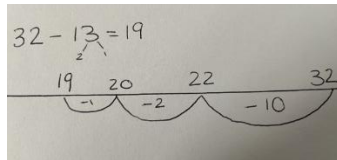
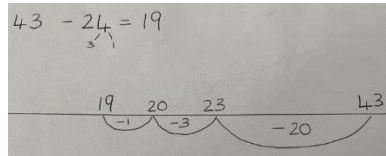
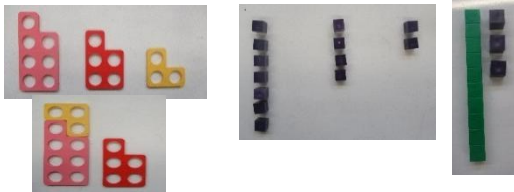
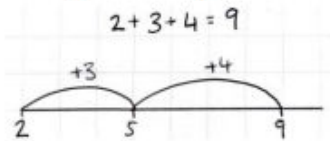
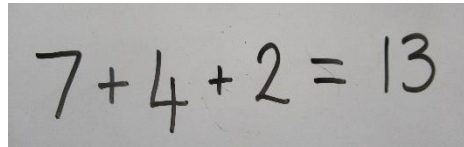
$$\begin{aligned} 7 + 0 &= 7 \\ 6 + 1 &= 7 \\ 5 + 2 &= 7 \\ 4 + 3 &= 7 \\ 3 + 4 &= 7 \\ 2 + 5 &= 7 \\ 1 + 6 &= 7 \\ 0 + 7 &= 7 \end{aligned}$$

They will also begin to think about other related facts.

$$\begin{aligned} 7 - 1 &= 6 \\ 7 - 2 &= 5 \\ 7 - 3 &= 4 \\ 7 - 4 &= 3 \\ 7 - 5 &= 2 \\ 7 - 6 &= 1 \end{aligned}$$

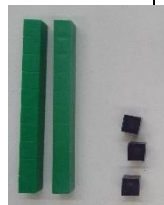
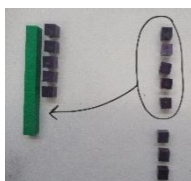
	Finding the difference.	Before finding the difference, children will learn to compare groups or objects using vocabulary such as 'fewer', 'more', 'less' and 'greater than'. 		Children will learn that you can count on or count back to find the difference. 
Year 2	Add and subtract numbers including:	In order for children to successfully add and subtract using two digit numbers, they need to be able to confidently partition numbers into tens and ones: 27 partitioned into tens and ones using a part part whole model or tens and ones chart: 	The children will then draw: 	When secure, they will write numerals: 

A two-digit number and ones.	Concrete resources are used. $26 + 3 =$ 	Children use concrete resources to support drawings and structured number lines: 	Children begin to draw unstructured number lines: 
A two-digit number and tens.	Children will need to be able to orally count on and back in 10s from any number before they are ready to count on and back in 10s on a number line i.e. 43, 33, 23, 13, 3 $34 + 20 =$ 		After using a structured number line to add tens, children will draw unstructured number lines. 
Two two-digit numbers.	$23 + 14 =$ 		 Children will first add the tens and then add the ones on a structured number line.

Two two-digit numbers continued.	$34 - 12 = \square$ 	Crossing out drawings: 	 Then they can begin to draw their own number lines (unstructured number line) to add 10s and 1s. For subtraction, we teach the children to make jumps backwards under the number line. First:  Then: 
Two two-digit numbers including bridging.	The children will begin with single jumps of one until confident to make larger jumps of a single digit. 1-digit  	The children will begin with jumps of 1s and 10s until they are more confident. 2-digit  	
Adding three one-digit numbers.	Children are taught that once they have 10 ones they exchange them for a ten. 	Adding three 1-digit numbers. 	

Recall and use addition and subtraction facts to 20 fluently.

Children will use their number bond knowledge to 10 to solve number bonds to 20 and 100.



In the number sentence $15 + 8$ children will know that 5 more than 15 makes 20. 5 and 3 are bonds to 8. They can use this to solve the problem.

