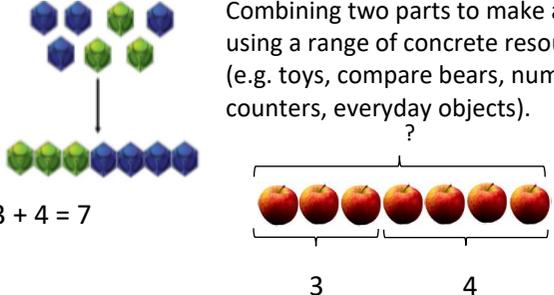
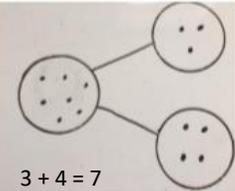
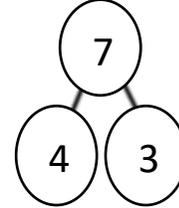
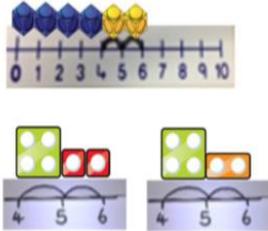
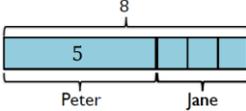
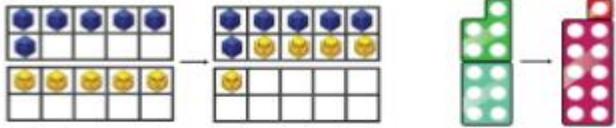
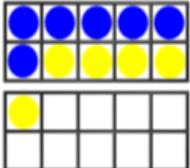
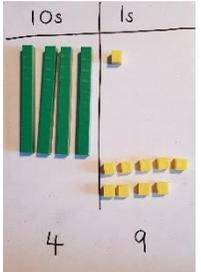
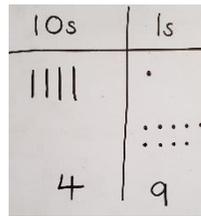
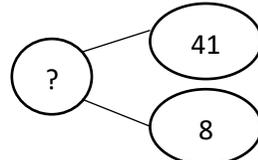


Sunnyside Primary Academy Addition Calculation Policy

Use NCETM Sentence Stems to support

https://nottinghamacademy.sharepoint.com/:b:/r/sites/spa_primary/Shared%20Documents/a4.%20CURRICULUM%20DOCUMENTS/Maths/Planning%20and%20Resources/NCETM%20Sentence%20Stems%20Addition%20and%20Subtraction.pdf?csf=1&web=1&e=NEHtzn

Prior to beginning to explore addition children need to be confident in counting using 1:1 correspondence through a rich experience of counting objects and in a range of contexts (e.g. role play, small world, real life context).

Skills	Concrete	Pictorial	Abstract
<p>1. Combining two parts to make a whole. Add on, more than, bigger, most, increase, part, whole, altogether</p>	 <p>Combining two parts to make a whole using a range of concrete resources (e.g. toys, compare bears, numicon, counters, everyday objects).</p>	 <p>Children to represent the cubes using dots or crosses. They could put each part on a part whole model too. <u>Bar Model</u>- as concrete image with drawn circles to represent the concrete objects.</p>	<p>Children use the numerical system and symbols to represent $3+4=7$. Four is a part, three is a part and the whole is seven. The two parts combined make the whole.</p> 
<p>2. Counting on using number lines and tracks. Count on, number line, number track</p>	 <p>Counting on using number lines, number tracks using cubes or Numicon. Numicon should be represented horizontally and vertically.</p>	<p>A bar model which encourages the children to count on, rather than count all.</p>  <p><i>Peter has 5 apples. Jane has 3. How many do they have altogether? $5 + 3 = 8$</i></p>	 <p>The abstract number line: <i>What is 2 more than 4? What is the sum of 2 and 4? What is the total of 4 and 2? $4 + 2$</i></p>
<p>3. Regrouping to make a given number. (Starting with 10). Bonds, counters</p>	 <p>Regrouping to make 10; using ten frames and counters/cubes or using Numicon. $6 + 5$. Also use term, 'make 10 strategy.'</p>	 <p>Children to use ten frames and draw circles or crosses to show the two different numbers.</p>	<p>Children to develop an understanding of equality and that the equal sign is balance- each side of the equals symbol should have the same value. Use balance scales and Numicon to show this (they are weighted for this purpose).</p>
<p>4. Two digit add a one digit. (Partition and place value). Partition, place value</p>	<p>Continue to develop understanding of partitioning and place value using base 10 and place value counters. Put resources on top of place value grid to reinforce place value understanding. Use 10s vertically and 1s in rows of 5 to begin with (as shown- to follow on from tens frame and so children can see bonds to 10), then show in different orientations. $41 + 8 = 49$</p> 	<p>Children to represent the base 10 equipment pictorially (e.g. lines for tens and dots for ones). Ensure children line the lines and dots in the correct place value columns.</p> <p>$41 + 8 = 49$</p> 	<p>Children to use their number fact knowledge and recall to add a single digit to a two digit number. $41 + 8 = 49$ Partition the two digit number (40 and 1). Add the ones ($1+8=9$). Combine the tens and ones ($40 + 9 = 49$).</p> 

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Mental Strategies

- Count in thousands, hundreds, tens, ones and hundredths as appropriate
- Reorder numbers in a calculation
- Partition into hundreds, tens and ones and in different ways and recombine by breaking units of 6, 7, 8 or 9 into '5 and abit' ($724 = 600 + 110 + 14$)
- Add three 1 digit numbers; put the largest number first, using known facts (pairs to 10, doubles)
- Look for near doubles
- Begin to bridge through 10 when, then adjust
- Use known facts and place value to add
- Add 9, 19 and 11 or 21 by rounding and compensating
- Continue to use the relationship between addition and subtraction

Progression in Written Methods for Addition

Partitioning 2d+2d

Children need a secure understanding of place value.

23+52 (no exchange)

T	O	T	O		
2	3	+	5	2	= 75
20	3				
50	2	+			
70	5	=			75

23+59 (1s crossing 10)

T	O	T	O		
2	3	+	5	9	= 82
20	3				
50	9	+			
70	12	=			82

23+59 (exchange 1s)

T	O	T	O		
2	3	+	5	9	=
20	3				
50	9	+			
80	2	=			82
10					

Teaching Point

Start with adding ones.
Reinforce place value columns language.

Expanded 2d+2d

23+52 (no exchange)

T	O		
2	3		
5	2	+	
	5		
7	0		
7	5		

Teaching Point

Start with adding ones.
 $3+2=5$
 $20+50=70$
Reinforce recording in 1s and 10s place.

23+59 (1s crossing 10)

T	O		
2	3		
5	9	+	
1	2		
7	0		
8	2		

Teaching Point

The total of 3 and 9 is 12. The 1 digit in 12 is in the 10s place so the 1 digit is recorded in the 10s column (place).

Compact 2d+2d

23+52 (no exchange)

T	O		
2	3		
5	2	+	
7	5		

23+59 (exchange 1s)

T	O		
2	3		
5	9	+	
8	2		
	1		

Teaching Point

After adding 1s reinforce that the 2 and 5 digits are in the 10s column so the total of 7 in the tens columns has a value of 70.

Teaching Point

Total of ones is 12 so we exchange 10 ones for 1 ten and this is shown by placing the 1 digit in the tens column (as shown).

74+85 (exchange 10s)

T	O		
7	4		
8	5	+	
1	5	9	
	1		

Teaching Point

7 tens + 8 tens = 15 tens. Exchange 10 tens for 1 hundred which is recorded in the hundreds column.

46+89 (exchange 1s and 10s)

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Ensure children progress from no exchange then 1 exchange, 2 exchanges, 3 exchanges, various exchanges.

- Add with up to 3 digit numbers using formal written method. **End of Year 3 expectation**
- Add with up to 4 digit numbers using formal written method. **End of Year 4 expectation**
- Add with more than 4 digit numbers using formal written method. **End of Year 5 expectation**

Introduce addition with decimal points using the context of money or measures. The decimal recording of money is introduced formally in Year 4 (National Curriculum Non Statutory).

Also include:

- Add more than two numbers
- Mixed number of digits (e.g. $3d+4d+3d$)

Important to Consider

Model 'thinking out loud' about which strategy to use so that children can start to reflect on their choice of strategies. *Can I do this calculation in my head using a mental strategy? What is the most efficient strategy? Can I use jottings? Do I need to use a formal written method?*