The Oratory Roman Catholic Primary School

Maths Calculation Policy – Reception

Mathematical Language in Reception

Autumn Term

Key Terminology	
Unit 1: Numbers to 5	
• 1, 2, 3, 4, 5, one, two, three, four, five, number • count, count forwards, count backwards • how many, total, altogether	• five frame, cube • same, different • next, after, arrange
Unit 2: Sorting	
• one, two, three, four, five, 1, 2, 3, 4, 5 • sort, group, object • same, different, odd one out	• size, shape, colour, pattern, triangle, square, bigger, smaller, counter, cube • how many, more than, describe, explain
Unit 3: Comparing groups within 5	
• one, two, three, four, five, 1, 2, 3, 4 5 • more, fewer, same, different, every	• count, represent, match, sort, compare • equal, less than, fewer than, greater than, more than, equal amount
Unit 4: Change within 5	
• one, two, three, four, five, 1, 2, 3, 4, 5, none, zero • count, forwards, backwards, how many • first, then, now	• one less, one more, order, fewer, take away, add, altogether • number story, represent, five frame
Unit 5: Time	
• first, next, later, then h before, after, every day • time, clock face, o'clock	• order, timetable, sequence

Spring Term

<table>
<tr><th colspan="2">Key Terminology</th></tr>
<tr><th colspan="2">Unit 6: Number bonds within 5</th></tr>
<tr><td>one, two, three, four, five, 1, 2, 3, 4, 5
sort, group, parts, whole, part-whole model</td><td>how many, count/counting, more than
same, different</td></tr>
<tr><th colspan="2">Unit 7: Numbers to 10</th></tr>
<tr><td>one, two, three, four, five, six, seven, eight, nine, ten, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
ten frame, count, how many, total, altogether
count forwards, count backwards</td><td>same, different, odd one out
more, fewer, collections, group
dice, method</td></tr>
<tr><th colspan="2">Unit 8: Comparing numbers within 10</th></tr>
<tr><td>greater/greatest, smaller/smallest, large/largest, taller/tallest, shorter/shortest</td><td>compare, how many/how many more, different/difference
more, fewer/fewest</td></tr>
<tr><th colspan="2">Unit 9: Addition to 10</th></tr>
<tr><td>count, part, whole,
altogether, how many, total
1, 2, 3, 4, 5, 6, 7, 8, 9, 10</td><td>addition, adding together, counting
more, fewer</td></tr>
<tr><th colspan="2">Unit 10: Number bonds to 10</th></tr>
<tr><td>group, count, counters, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
how many altogether, how many more, how many fewer, more than, fewer than, less than, each</td><td>ten frame, part-whole model, whole, part, bead string
missing number, one more, one less, add, number bond to 10</td></tr>
<tr><th colspan="2">Unit 11: Shape and Space</th></tr>
<tr><td>in, on, below, under, above, in front of, behind, next to
up, down, across, forwards, backwards, left, right
roll, stack, push, curved, straight, round,
corners, face, edge, sides
square, rectangle, circle, triangle</td><td>sphere, cube, cuboid, cylinder, cone
big, little, flat, like a box, like a can, slides, pointy
odd one out, same, difference, different properties, characteristics</td></tr>
</table>

Summer Term

Key Terminology	
Unit 12: Exploring Patterns	
• next, continue • repeat/repeats, unit of repeat, core • cube, round	• pattern/patterns • complex, size, shape, colour, action, elements • bigger, smaller, same, different, tall, short, stripes, squares
Unit 13: Counting on and counting back	
• 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, number • count on/count back, move forwards, go back, jump forwards, jump back • more, less, before, after • add, take away	• forwards, backwards, direction, moves, jumps • start, stop, first, then, now, finish • altogether, total • number track, dice • largest, smallest, possibilities
Unit 14: Numbers to 20	
• eleven, twelve, thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen, twenty, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 • count/count on/count back, forwards, backwards • represent, show	• more, less, fewer, how many, altogether • largest, smallest • order, compare
Unit 15: Numerical Patterns	
• double, equal groups, double facts, doubling • more, same, different, continue, pattern, next, predict • how many, altogether, count, groups, more, fewer, less, amount, teams	• five frame, counters, dice, domino, number track, represent • half, halving, share, fair share, equal, each, uneven, unequal, fair, solution • odd, even, odd number, even number
Unit 16: Measure (weight; Volume and Capacity; Length, height and distance)	
• large/larger/largest, bigger, small/smaller • longer/longest, shorter/shortest, tall/taller/tallest, further/furthest • heavy/heavier/heaviest, light/lighter/lightest • full, empty, nearly full, nearly empty, more, most, less, least, nothing	• same, different, amount, fill, shortest, widest, thinnest • float, sink • length, width, height, weight, capacity, volume • equal, the same, balanced, balance scale, weigh • estimate, predict, check, measure, compare, order

Early Years Maths Objects

Number ELG	Number Pattern ELG
Children at the expected level of development will: • 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.	Children at the expected level of development will: • 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.

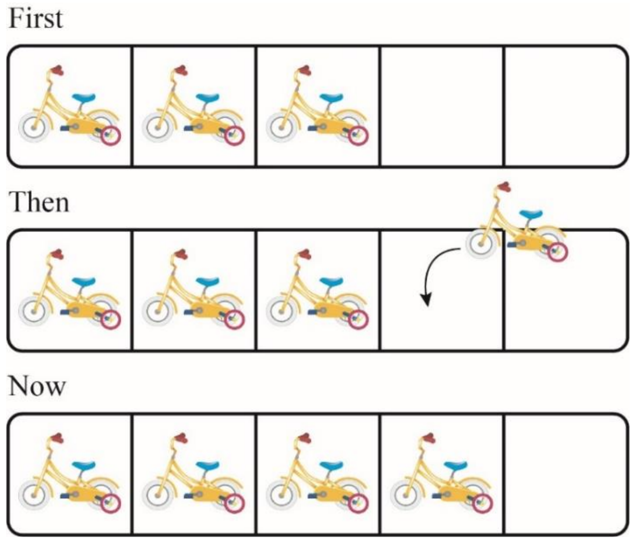
Power Maths calculation policy

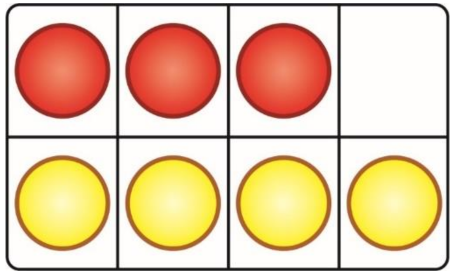
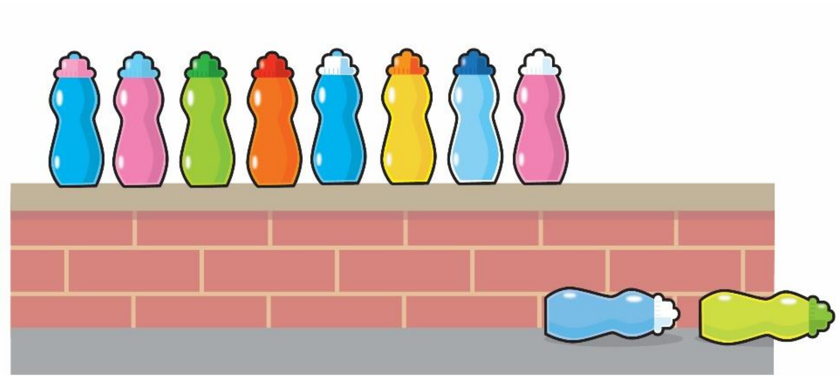
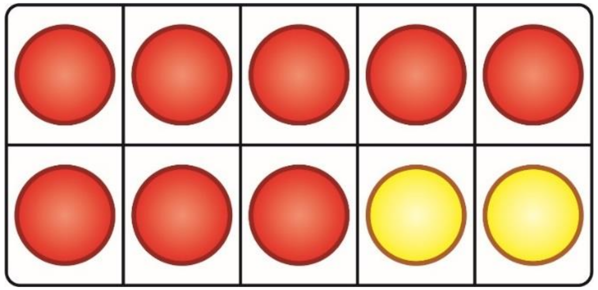
Reception

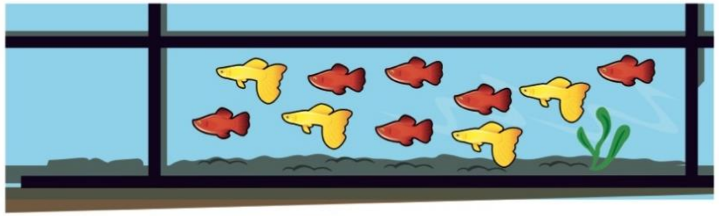
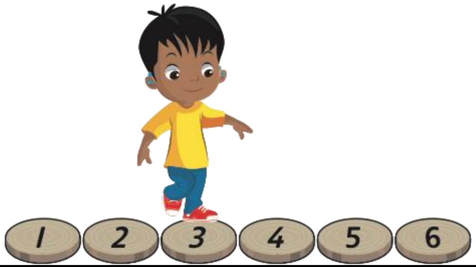
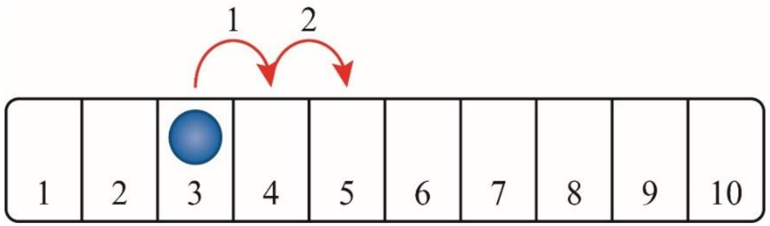
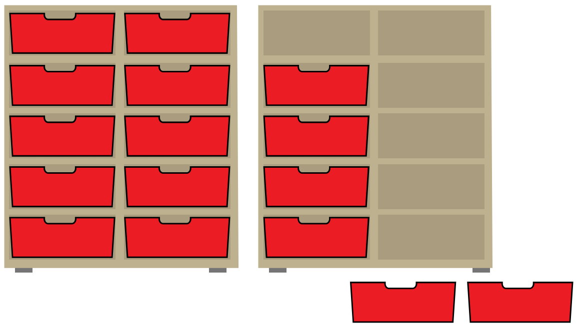
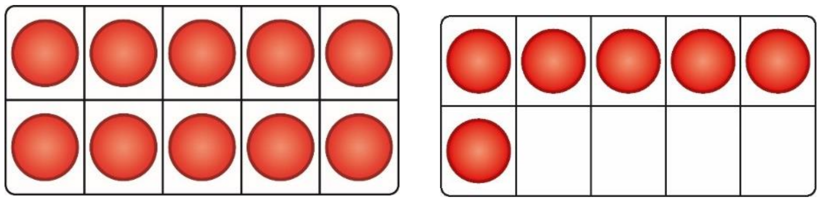
The following pages show the *Power Maths* progression in calculation (addition, subtraction, multiplication and division). The consistent use of the CPA (concrete, pictorial, abstract) approach across *Power Maths* helps children develop mastery across all the operations in an efficient and reliable way. In Reception, children focus on concrete and pictorial representations. At this stage, children focus on representing objects in different ways e.g. understanding that 5 cars can also be represented as 5 counters, 5 cubes, 5 pictures of cars etc.

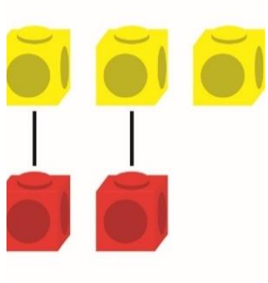
In Reception, children are encouraged to record their findings in their own way. This may include writing number sentences e.g. 3 + 4 = 7, however this is not a requirement until Year 1.

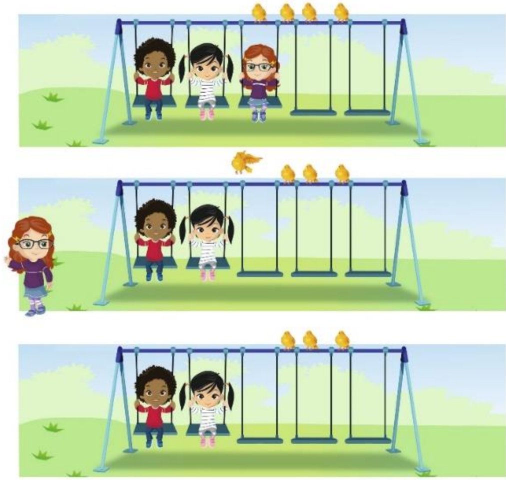
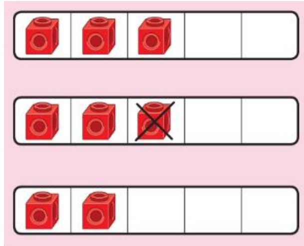
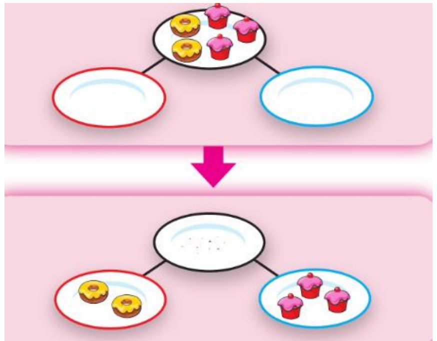
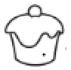
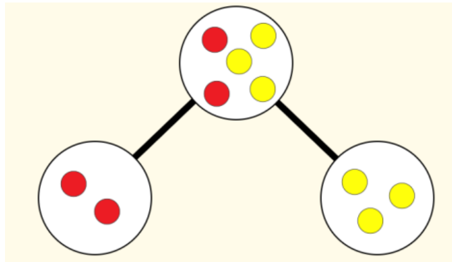
***Power Maths* calculation policy Reception**		
Children develop the core ideas that underpin all calculation. They begin by connecting calculation with counting on and counting back, but they should learn that understanding wholes and parts will enable them to calculate efficiently and accurately, and with greater flexibility. Children record their calculations in their own ways, there is no expectation of number sentences at this stage however children may choose this way to record their thinking.		
Key language: whole, part, ones, ten, tens, number bond, add, addition, plus, total, altogether, subtract, subtraction, find the difference, take away, minus, less, more, group, share, equal, equals, is equal to, groups, equal groups, divide, share, shared equally		
Addition: Children start to explore addition by sorting groups. They then use sorting to develop their understanding of parts and wholes. Children combine groups to find the whole, using a part-whole model to support their thinking. They also use the part-whole model to find number bonds within and to 10. Using a five frame and ten frame, children add by counting on. They start by finding one more before adding larger numbers using counters or cubes on the frames. Children use a number track to add by counting on. Linking this learning to playing board games is an effective way to support children's addition.	**Subtraction:** Children start to explore subtraction by sorting groups. They use sorting to develop their understanding of parts and wholes. When comparing groups, children use the language more than and fewer than. This will lead to finding the difference when they move into KS1. Children then connect subtraction with the idea of counting back and finding one less using a five frame to support their thinking. They explore subtraction by partitioning numbers, developing their understanding of parts and wholes. This links to their developing recall of number bonds. Children count back within 20 using number tracks and ten frames to see the effect of taking away.	**Multiplication and Division:** Children first start to look at the idea of equal groups through their exploration of doubles. They use five frames and objects to check that groups are equal. Children then explore halving numbers by making 2 equal groups. They highlight patterns between doubling and halving seeing that double 2 is 4 and half of 4 is 2. As well as halving, children also explore sharing into more than 2 equal groups. They share objects 1 by 1, ensuring that each group has an equal share.

Reception		
	Real-life representation	**Other representations**
Addition	**Sorting groups** Children sort everyday objects into groups. 	
	Counting and adding more (within 5) Children add one more person or object to a group to find one more.  *One more than 3 is 4*	**Counting and adding more (within 5)** Children represent first, then, now stories on a five frame. They make the first number and then add one more.  *First, there are 3 bikes.* *Then, 1 more bike came.* *Now, there are 4 bikes.*

	Combining groups to find the whole Children sort people and objects into parts and combine them to find the whole.  *The parts are 3 and 4. The whole is 7.*	**Combining groups to find the whole** Children use counters or cubes in a part-whole model to find the whole.  *The parts are 3 and 4. The whole is 7.*
	Finding number bonds to 10 Children combine 2 groups to find a number bond to 10  *There are 8 bottles on the wall.* *There are 2 bottles on the floor.* *There are 10 bottles altogether.*	**Finding number bonds to 10** Use ten frames and part-whole models to represent key number bonds.  *8 and 2 is 10* *There are 10 altogether.*

		 *6 and 4 is 10* *There are 10 altogether.*
	Adding by counting on (number track) Children jump along a physical number track. They start at the larger number and count on the smaller number to find the total.  	**Adding by counting on (number track)** Children use a number track and a counter. They start at the larger number and count on the smaller number to find the total 
	Adding by counting on (ten frames) Children find the total number by counting on from the larger number. 	**Adding by counting on (ten frames)** Children make the larger number on the ten frames and then make the smaller number, counting on to find the total. They can use counters, cubes or other objects on the ten frames. 

Subtraction	**Sorting groups** Children sort everyday objects into groups. 	
	Comparing groups Children line up objects to compare the amount. They line the objects up either horizontally or vertically.  *Ella has more conkers.* *Tom has fewer conkers.*	**Comparing groups** Children line up cubes or counters to compare the amount in each group. Lines can either be horizontal or vertical. A starting line helps to line the objects accurately.  *There are more yellow cubes.* *There are fewer red cubes.*

	Counting back and taking away (within 5) Children remove one more person or object from a group to find one less.  *First, there were 3 children.* *Then, 1 child left.* *Now, there are 2 children.*	**Counting back and taking away (within 5)** Children use five frames and objects to make a number. They then remove or cross out one object to find one less.  *One less than 3 is 2*
	Introducing the part-whole model Children sort everyday objects into parts.  *One part is the*  *The other part is the* 	**Introducing the part-whole model** Children use counters or cubes to represent objects in a part-whole model.  *The whole is 5.* *2 is a part.* *3 is a part.*

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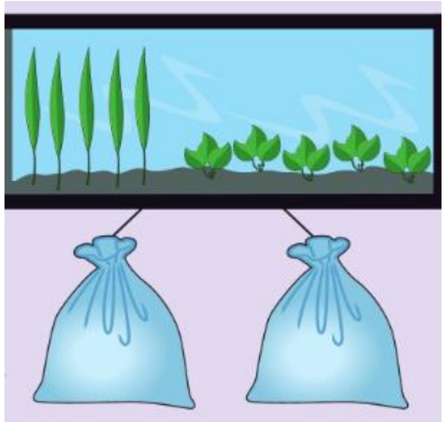
Finding number bonds to 10

Children partition 10 into different groups to find the number bonds to 10



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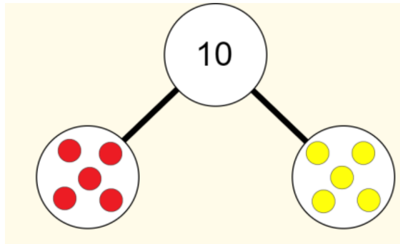
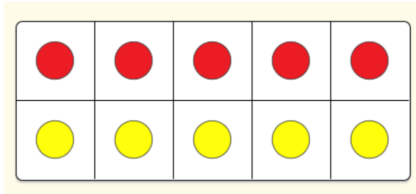
Finding number bonds to 10

Children use part-whole models, ten frames and counters to find the number bonds to 10



10 is the whole.
5 is a part and 5 is a part.



10 is the whole.
5 is a part and 5 is a part.

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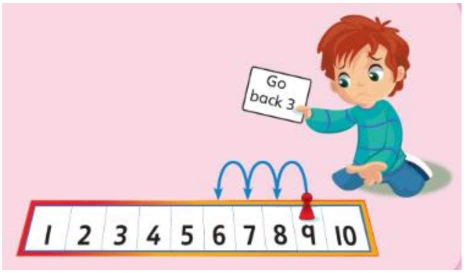
Counting back and taking away (number track)
Children use game boards and human number tracks to subtract by counting back.



9 take away 3 equals 6
9…8…7…6

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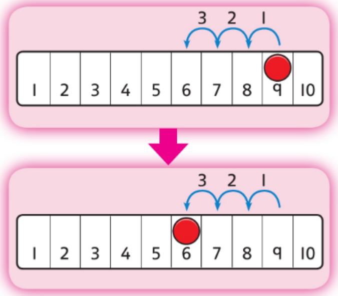
Counting back and taking away (number track)
Children use a number track and a counter. They start at the larger number and count back the smaller number to find the answer.



9 take away 3 equals 6
9…8…7…6

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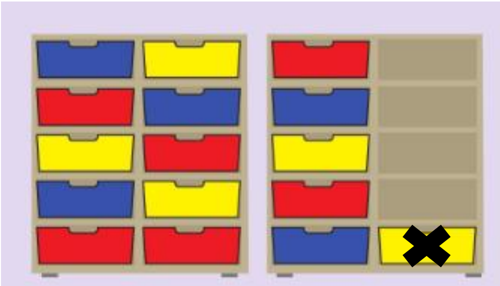
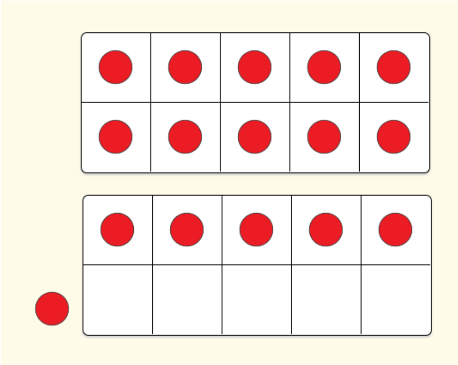
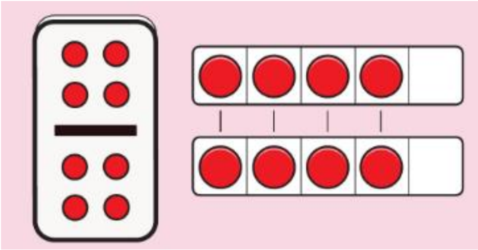
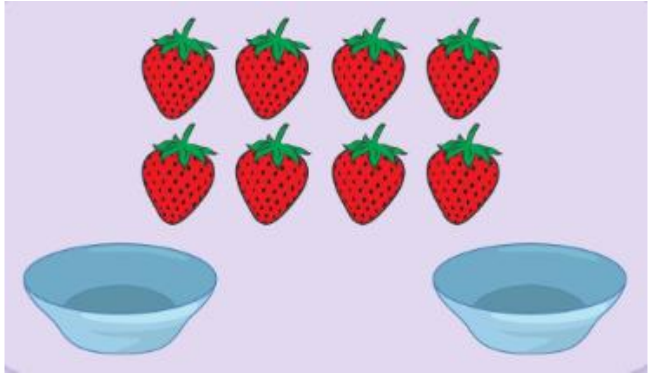
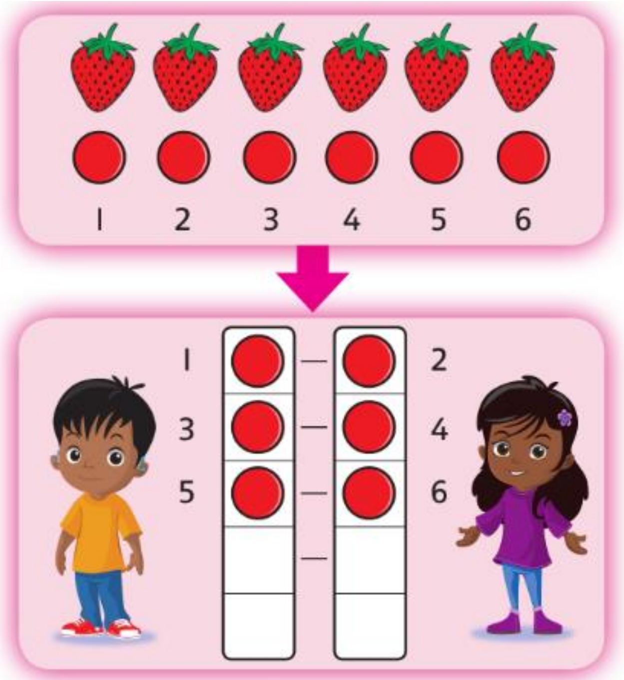
	Counting back and taking away (ten frames) Children count backwards to find one less with numbers up to 20  *One less than 16 is 15*	**Counting back and taking away (ten frames)** Children remove counters from ten frames to support in counting back with numbers up to 20.  *One less than 16 is 15*
Multiplication	**Making doubles** Children explore doubles in their environment including in games such as on dominoes or dice. They focus on the understanding of doubles being 2 equal groups.  *Double 4 is 8* *Double 2 is 4* *Double 3 is 6*	**Making doubles** Children use five frames to find doubles by lining up counters or cubes.  *Double 4 is 8*

Division	**Halving and sharing**	**Halving and sharing**
	Children explore halving and sharing through practical sharing using real life scenarios including sharing fruit or classroom equipment.  *Half of 8 is 4*	Children use five frames to share amounts fairly and to check that the groups are equal. They share the counters/cubes one by one.  *Half of 6 is 3*