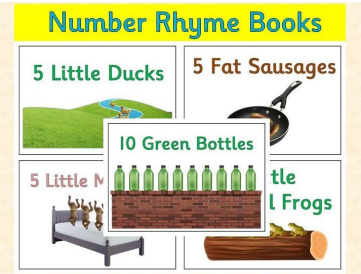
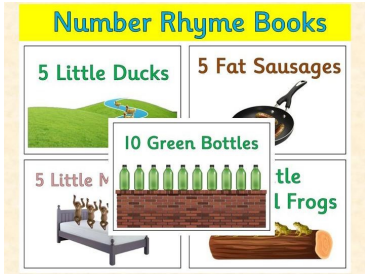
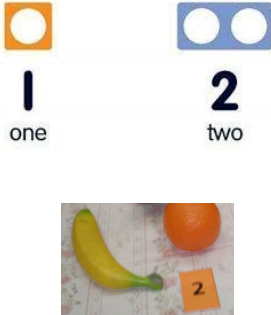
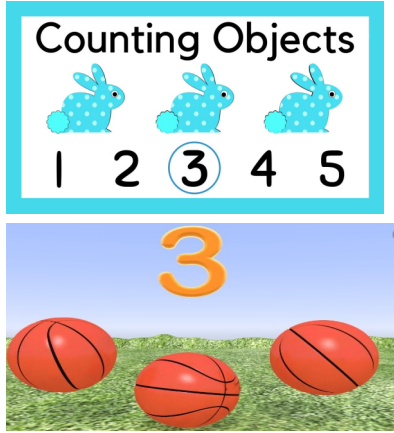
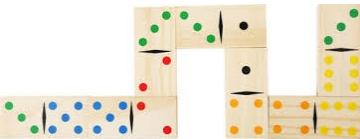
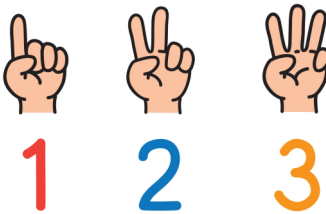


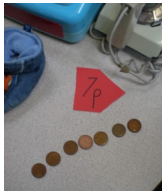
Counting

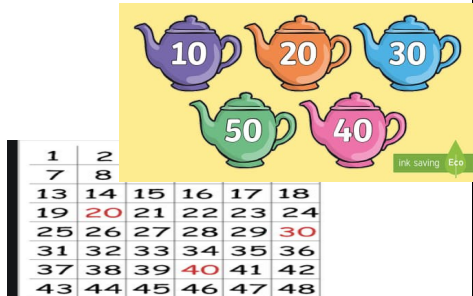
The cardinal value of a number refers to the quantity of things it represents, e.g. the numerosity, ‘howmanyness’, or ‘threeness’ of three. When children understand the cardinality of numbers, they know what the numbers mean in terms of knowing how many things they refer to. Counting is one way of establishing how many things are in a group, because the last number you say tells you how many there are. Children enjoy learning the sequence of counting numbers long before they understand the cardinal values of the numbers—counting should take place every day, in different ways and can include counting beyond a child’s cardinal ability. If a child is working on understanding cardinal value to three, they can be involved in rote counting to 10, or if they are working on understanding the cardinal value to 5 or 10, they can take part in rote counting to 20. Subitising is another way of recognising how many there are, without counting.

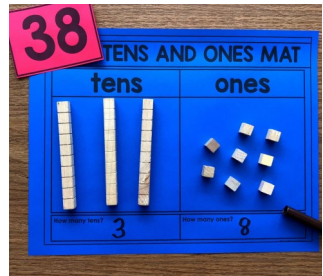
Skill	Teaching Strategy	Environment	1:1 Correspondence
Counting Awareness of counting— Saying number words in sequence (to 5 and then 10, when developmentally ready—beyond)	Children need to know number names, initially to five, then ten, and extend to larger numbers, including crossing boundaries 19/20 and 29/30. Counting back is a useful skill, but young children will find this harder because of the demand this places on the working memory. Activities and opportunities: Pupil follows a sequence as indicated by an adult, - e.g. the sequence of the rhythm of counting as in a rhyme, or a sequence of pictures used to show a simple rhyme, 5 frogs as they jump off the log. - Participate in number rhymes anticipating what will happen e.g. removing—when adult modelling - counting backwards, for example <i>number rhymes</i> - Counting starting from different numbers.	Have resources for known rhymes in the classroom Have numbers (large tiles, magnetic numbers) for children to order and rote count at the same time When children are in areas, engaged in snack, count objects as they are put out and put away (take any opportunity to count!) 	Use fingers when counting, encourage children to do the same if able 

Counting			
Skill	Teaching Strategy	Environment	1:1 Correspondence
Awareness of and counting 1	Use a finger to indicate 1 (explain hands/digits to use for counting when adult modelling) Ask child for 1 object, can you give me one.....	 A collage of four cards from 'Number Rhyme Books'. The cards are: '5 Little Ducks' with a pond scene, '5 Fat Sausages' with a frying pan, '10 Green Bottles' with a row of green bottles, and '5 Little M' with a bed scene.	 A close-up of a right hand with the thumb extended upwards, representing the number 1.
Counting 1 and 2.	Pupil can indicate one or two by copying an adult (in any way appropriate and to support physical development <i>e.g. puts up just one or both hands.</i>) Being able to show 1 finger and name it as one, then show 2 fingers and name it as 2– this may involve using an adult hand and lifting the thumb or fingers if can't manipulate own fingers Number songs with visual representation. Reference to numerals when counting Child lines up and touches objects to count to 2	 Visual aids for the numbers 1 and 2. For '1', there is an orange square with a white circle, the numeral '1', and the word 'one'. For '2', there is a blue rectangle with two white circles, the numeral '2', and the word 'two'. Below these is a photograph of a banana and an orange with a small orange card with the number '2' next to them.	 Two hands are shown. The left hand shows one finger (index) extended, and the right hand shows two fingers (index and middle) extended, representing the number 2.
Recognising numerals 1,2 and 3 Counting out to 3.	Numeral recognition 1, 2 and 3 Activities and opportunities • 1,2,3 counting concrete objects in a line and placed randomly. • Number songs with visual represent. • Reference to numerals when counting • Pupils need to be able to count out sets from a larger set of objects so that they understand the last number in the count represents that set (the stopping number) • Teach careful counting and pointing	 Two photographs. The top one shows three green cards with the numerals 1, 2, and 3 on a paved surface. The bottom one shows a sandpit scene with three small toy cars (green, red, and blue) lined up, with a small orange card with the number '3' next to them.	 Two images. The top one is a graphic titled 'Counting Objects' showing three blue rabbits and a sequence of numbers 1, 2, 3, 4, 5, with the number 3 circled. The bottom one shows three red basketballs on a green field with a large orange number 3 above them.

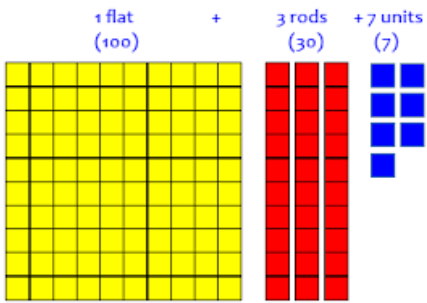
Skill	Teaching Strategy	Environment	1:1 Correspondence
Counting out to 5, recognising numerals to 5 and understand that numeral always represents that quantity Respond to the question how many?	Children now need lots of opportunities to count things in irregular arrangements. For example, how many play people are in the sandpit? How many cars have we got in the garage? These opportunities can also include counting things that cannot be seen, touched or moved. Activities and opportunities • 1,2,3,4,5 counting concrete objects in a line and randomly. • Number songs with visual representation • Reference to numerals when counting . • Match pattern on a dice to the numeral • Counting things of different sizes – this helps children to focus on the numerosity of the count • Counting things that can't be seen, such as sounds e.g. bangs on a drum		 
Counting One more / One less	• Counting objects up to 5—responds to adding or removing one objects - “one more” or “one less” • Ref Addition/Subtraction policies.		
Subitising—recognising small quantities without having to count them Subitising is recognising how many things are in a group without having to count them one by one	Children need opportunities to see regular arrangements of small quantities, e.g. a dice face, structured manipulatives such as numicon, etc. Activities and opportunities • Ask children to say the quantity represented by the regular arrangement and match it to numerals if appropriate • Children also need opportunities to recognise small amounts (up to five) when they are not in the ‘regular’ arrangement, e.g. small handfuls of objects. • Using dot cards, dominoes and dice as part of a game, including irregularly arranged dots (e.g. stuck on) • playing hidden objects games where objects are revealed for a few seconds, for example, small toys hidden under a bowl – shuffle them, lift the bowl briefly and ask how many there were • ‘all at once fingers’ – show me four fingers.	 	If physically able (have the motor skills) Show me 3 Show me 4 Show me 1 Using fingers  If not, ask show me 3, 2, 5 on the dice, numicon etc

Skill	Teaching Strategy	Environment	1:1 Correspondence
Counting to 10, recognising numerals 1-9 and relate numeral to the correct quantity Understand numeral always represents that quantity Reverse counting from 10 down to 1 by rote and by removing objects Rote count beyond 10 Estimating	When children are confident with amounts to 5, build from 5 to 10, counting concrete objects in a line and randomly. Also regularly rote count to 10 and beyond Activities and opportunities - Count objects and sounds regularly every day - Rote count on from a given small number - Introduce number lines/squares to 10 when rote counting beyond 10 - Begin to estimate small quantities of numbers—ask child to estimate how many cups needed for snack, how many plates do we have? How much fruit do we need for all the children?		
Counting 10-20	Introduction of number lines and number squares between 10 and 20. Focus on the pronunciation and recognition of teen numbers as this can be confused with 'ty' numbers later Begin to rote count beyond 20 and have a 100 square in the classroom to use in whole class counting activities	 	 
Pupil can continue the rote count onwards from a given small number.	Through out the counting policy—count together from a given small number—refer to a number line or 100 square		
Pupil can use ordinal numbers (1st, 2nd or 3rd) when describing the position of objects, people or events.	Find opportunities to use ordinal language—e.g.are you going first to wash your hands?you are first in the line,is second andis third.....is last today and standing very smartly—etc. Outside play racing games and describe who has come first, second, third		Give cards to children indicating where they are in a line Have ordinal numbers on display when focusing on this area

Skill	Teaching Strategy	Environment	1:1 Correspondence								
Counting 20+ Counting in tens (you can begin counting 20+ in ones much earlier)	Number Lines and Squares moving up in 10s when appropriate. Counting backwards and forwards beyond 30 Make sure teen and ty numbers are clear Always use the language of tens and ones when looking at teen numbers—this will begin to introduce the concept Count each day using 100 squares	 See MA for teen numbers to display	<table><thead><tr><th>Tally Marks</th><th>Number</th></tr></thead><tbody><tr><td> </td><td>10</td></tr><tr><td> </td><td>4</td></tr><tr><td> I</td><td>6</td></tr></tbody></table>	Tally Marks	Number		10		4	I	6
Tally Marks	Number										
	10										
	4										
I	6										
Pupils can count to and across 100 Read and write numbers to 100 in numerals	Count forwards and backwards from given numbers Count in tens—starting a different numbers and link to adding ten/ten more/less e.g. Recite a sequence of number names in the right order forwards and backwards between any two pairs of numbers 28 and 41, 74 and 58, 93 and 104. Can the child say what comes next when the following numbers are recited: 8, 9, 10 26, 25, 24..... 87, 88, 89.... 103, 102, 101 e.g. Put a selection of number carpet tiles/ cards 0 -100 randomly on the floor. Which tile has the number 37 on it? 51? 99? Recognise and say numbers in the environment. Say the numbers 0100 in a random order. Write the number spoken in numerals.										

Skill	Teaching Strategy	Environment	1:1 Correspondence								
Demonstrate an understanding of place value (10s and 1s in 2 digit numbers) using resources to help them	Use various resources to understand tens and ones including numicon, dienes equipment (large), Compare 2 numbers up to 20 and identify the larger and smaller number	Use place value mats 									
Begin to record numbers of objects initially by making marks, progressing to simple tallying and writing numbers to 10 and beyond.	e.g. Put the number carpet tiles 1-20 randomly on the floor Which tile has the number 8 on it? 13? 19? Recognise and say numbers in the environment. Say the numbers 1-10 in a random order. Write the number spoken.		<table><tr><th>Tally Marks</th><th>Number</th></tr><tr><td> </td><td>10</td></tr><tr><td> </td><td>4</td></tr><tr><td> </td><td>6</td></tr></table>	Tally Marks	Number		10		4		6
Tally Marks	Number										
	10										
	4										
	6										
Count in multiples of twos, fives and tens. (see multiplication policy at this stage)	Count verbally Kinaesthetic counting Colouring numbers on number line & 100 square	Using pairs / sets of 5 / 10s cards									
Pupil can use the language of: equal to, more than, less than (fewer), most, least. Given a number, pupil can identify one more and one less.	e.g. Using different representations of numbers (counters, objects, straws – bundles of tens and ones, base 10 apparatus, place value cards) pick two different numbers between 0 and 30 and compare two numbers and representations using the language of: equal to, more than, less than (fewer), most and least. What number is one more than 7, 15, 24? What number is one less than 6, 17 and 29?										

Skill	Teaching Strategy	Environment	1:1 Correspondence
Identify, represent and estimate numbers using different representations, including the number line.	e.g. Show different amounts using counters, straws (bundles of tens and ones), base 10 equipment, place value cards and money (10p and 1p coins). Ask the pupil to estimate the amount shown and then check by counting. Can the pupil position the number on an unmarked 0 – 100 number line. Put a selection of number carpet tiles/cards 0 -100 randomly on the floor. Pick a card and get the pupil to represent from a selection of resources to show tens and ones (base 10 equipment, straws- bundles of ten and ones, place value cards). Can the pupil show the position of the number on a 0-100 number line?		
Pupil can compare and order numbers from 0 up to 100; and use <, > and = signs.	Can they compare two numbers and say which is the largest/smallest? Select five numbers from 0 – 100 and put them in order from smallest to largest. Explain how you have done this. Place the sign <, > and = in the empty box to make these correct: 16 93 47 24 60 32 65 60 + 5		
Pupil can round numbers to at least 100 to the nearest 10.	Which of these numbers round to 40? 43, 46, 33, 44, 38. How do you know? Round these numbers to the nearest 10: 18, 57, 93, 85, 104, 118.		

Skill	Teaching Strategy	Environment	1:1 Correspondence
Pupil can recognise the place value of each digit in a two-digit number (tens, ones). Pupil can partition numbers in different ways (e.g. $23 = 20 + 3$ and $23 = 10 + 13$)	e.g. Write a number in the empty box to make these correct: $96 = \square + 6$ $96 = 80 + \square$ $\square = 50 + 3$ $\square = 40 + 17$ Write a number with 6 tens and 3 ones? 4 tens and 9 ones? 1 ten and 5 ones? How many tens are there in the number eighty two? 51? 30?		

Note

When teaching children to count objects, sounds, subitise etc, children need to have the opportunity to match a number symbol with a number of things. Look for opportunities to have a range of number symbols available, e.g. wooden numerals, calculators, handwritten - include different examples of a number.

Children need the opportunity to recognise amounts that have been rearranged and to generalise that, if nothing has been added or taken away, then the amount is the same—this is conservation, knowing the number does not change if things have been rearranged. This helps us to know with certainty, children understand quantities and numbers.

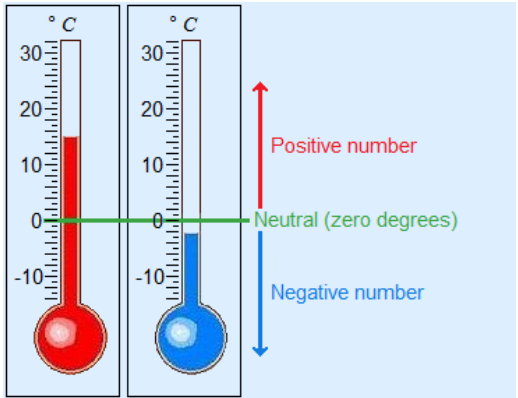
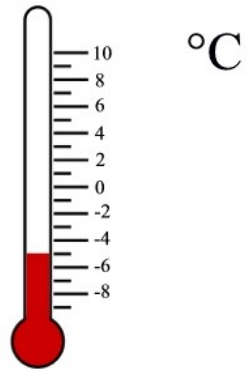
Common misconceptions when counting

- missing out an object or counting an object twice
- when asked how many cars are in a group of four, simply recounting '1, 2, 3, 4,' without concluding that 'there are four cars in the group'
- when asked to 'get five oranges' from a trayful, a child just grabs some, or carries on counting past five
- when objects in a group are rearranged, the child (unnecessarily) recounts them to find how many there are
- difficulties in counting back
- confusion over the 'teen' numbers – they are hard to learn
- missing a number like 15 (13 or 15 are commonly missed out) or confusing 'thirteen' and 'thirty'.

What to look for

Can a child:

- consistently recite the correct sequence of numbers and cross decade boundaries?
- collect nine from a large pile, e.g. nine pencils from a pot?
- subitise (instantly recognise) a group that contains up to four, then five, in a range of ways, e.g. fingers, dice, random arrangement?
- select a numeral to represent a quantity in a range of fonts, e.g. 4, 4, 4?
- correct a puppet who thinks the amount has changed when their collection has been rearranged?

Skill	Teaching Strategy	Environment
Pupil can count from 0 in multiples of 4, 8, 50 and 10. Pupil can find 1,10 or 100 more or less than a given number 0	<i>e.g. Find 1 more and 1 less, 10 more and 10 less and then 100 more and 100 less of the following numbers: 123, 254, 306, 699, 811</i>	
Pupil can describe and extend number sequences involving counting on or back in different steps.	<i>Find the next two numbers: 279, 282, 285, __, __ Find the missing numbers: __, 535, 525, 515, __, __</i>	
Pupil can count in multiples of 6, 7, 9, 25 and 1000.		
Pupil can count backwards through zero to include negative numbers.	<i>e.g. Continue the count: 4, 3, 2, __, __, __ 8, 6, 4, __, __, __ 7, 3, -1, __, __, __</i>	 

Common misconceptions when counting with negatives

- Forgetting to include 0 when counting across positives & negatives
- Using dates AD/BC or ACE/BCE as examples of negative counting (there is no year 0)
- Making numbers more negative when asked to count up from a negative number e.g. count up from -4: “-4, -5, -6,...”
- Correspondingly making numbers less negative when counting down from a negative number

Skill	Teaching Strategy	Environment
Pupil can describe and extend number sequences involving counting on or back in different steps, including sequences with multiplication and division steps	<i>This sequence follows the rule 'to get the next number, add the two previous numbers'.</i> <i>1, 1, 2, 3, 5, 8, (Fibonacci sequence)</i> <i>Write the next two numbers in the sequence:</i> <i>1.3, 1.4, 2.7, 4.1, __, __</i> <i>Find the next two numbers:</i> <i>2, 4, 8, __, __</i> <i>25, 16, 9, __, __</i> <i>The numbers in this sequence increase by the same amount each time. Write in the missing numbers:</i> <i>1, __, __, 25</i>	Find out about Fibonacci in nature and art Fibonacci Spirals 