

## Numeration and counting

Children should be given opportunities to demonstrate how the knowledge and skills gained in this strand can be used to link, reinforce and progress learning across the other four interconnected strands.

	<b>a</b> The learner	<b>b</b> The learner	<b>c</b> The learner	<b>d</b> The learner	<b>e</b> The learner	<b>f</b> The learner	<b>g</b> The learner
<b>Elements</b>	<b>Numeration and counting</b>						
<b>Understanding and Connecting</b>	<p>Participates in counting activities.</p> <p>Explores, through the immediate environment, opportunities to count, measure, calculate or express things in numbers and subitise.</p>	<p>Explores how numbers are used for counting and that the last number in the count indicates the quantity of objects in a set.</p> <p>Recognises numbers, initially within 10.</p> <p>Recites forward to at least 10.</p> <p>Engages in counting of concrete objects in their environment.</p>	<p>Connects numbers to counted objects.</p> <p>Explores how the layout of or size of elements in a set has no effect on the overall total [conservation of number].</p> <p>Identifies the empty set and the numeral zero.</p> <p>Demonstrates a growing understanding of the five principles of counting [The five principles of counting are: one-one, stable order, cardinal, order relevance and abstraction].</p>	<p>Develops an understanding of the conservation of number (11-20).</p> <p>Counts, individually and chorally, forwards and backwards within 20 starting at any given number using verbal, concrete and pictorial supports.</p>	<p>Counts to at least 100, counting fluently across decades.</p> <p>Skip counts multiples of twos, fives and tens from a given multiple using verbal, concrete and pictorial supports.</p> <p>Counts forwards and backwards in tens from any given number using verbal, concrete and pictorial supports.</p> <p>Explores a range of approaches to support calculation strategies (For example: doubles, near doubles, add one).</p>	<p>Counts combinations of wholes and parts (For example: 3 whole units and 4 halves make 5).</p> <p>Counts with fractional parts forwards and backwards (For example: in halves between 0 to 10).</p> <p>Demonstrates ability to count forward and backwards in 100s.</p>	<p>Explores and counts forwards and backwards whole numbers, across tens and hundreds, to 1000 and beyond (For example: 698, 699, 700, 701).</p> <p>Uses splitting (splitting or partitioning into hundreds, tens and units), jumping or counting forward or back in tens or hundreds and other strategies to undertake calculations involving large numbers.</p>
<b>Communicating</b>	<p>Responds to number rhymes, songs, jingles and stories.</p>	<p>Counts objects or people by touching, gesture or verbalisation from 1.</p> <p>Uses ideas about number and quantity to communicate with others (For example: You have more cards than me).</p> <p>Demonstrates an awareness of and uses numerals in personally meaningful contexts.</p>	<p>Discusses, draws and writes representations of numbers 1-10, using manipulatives.</p> <p>Keeps track of counting acts by using numerical patterns such as tapping or fingers.</p> <p>Makes numerals creatively.</p>	<p>Discusses, draws and writes representations of numbers up to at least 20.</p> <p>Responds to questions by counting mentally 1, 2, and 3 more than/less than a given number.</p> <p>Explains different strategies used to count arrays [items arranged in rows and columns].</p>	<p>Explains and justifies choices of counting and calculation strategies used and compares with the choices of others.</p>	<p>Represents numbers up to at least 100 using different models, illustrations and number expressions.</p> <p>Describes mental strategies used to count or compute.</p>	<p>Represents understanding of numbers up to at least 1000 using different models or representations.</p> <p>Records answers and suggests strategic approaches to calculations (For example: starting with the higher number in a calculation such as <math>23 + 75</math>; compensating in a calculation such as <math>200 - 37</math> where you subtract 37 from 199 and add 1).</p>

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<b>Elements</b>	<b>Numeration and counting</b>						
<b>Reasoning</b>	Engages with the concept of zero, none, empty, all gone.	Establishes that zero, as a numeral, represents nothing/none in terms of quantity.  Identifies the empty set.  Subitises, and counts the number of objects in sets up to at least 5.  Orders and distinguishes between sets without counting (For example: through subitising).	Orders sets without counting and check by counting.  Subitises, and counts the number of objects in a set 0–10.  Recognises that each subsequent number in a sequence is one more than the one that precedes it and one smaller than the one that comes after it.  Estimates and counts the number of objects in a set, up to 10.	Estimates the number of objects in a set 0–20 and checks by counting.  Subitises 'how many' in various regular and irregular arrangements (For example: dot patterns, arrays, frames and dice), without having to count.  Establishes the number immediately before or after another number without having to start at one.	Uses knowledge of simple fact groups [doubles, bonds of 5 and 10, adding 10] to develop more calculation strategies (For example: near doubling, bridging through 5 and 10, add 1, add 0, compensation).  Checks the reasonableness of calculations by comparing the final solution with the estimate.	Uses mental strategies to estimate and count quantities within at least 100.	Explains and models the part/whole relationship in counting (For example: 1, 1½, 2, 2½).  Explains and justifies formal and informal strategies used to calculate with large numbers.  Estimates quantities, sums of and differences between sets.
<b>Applying and Problem-Solving</b>	Engages with a range of manipulatives and explores how quantifying is applicable in their personal lives.	Investigates the role of quantifying in real-life situations.  Explores how counting can be used to solve problems related to everyday life.  Undertakes tasks involving counting in other areas of learning.	Begins to use simple number paths and/or lines for counting all, counting on and counting back, as appropriate.  Selects and uses appropriate materials to make a variety of sets for a given number.	Selects and uses materials to make sets for a given number up to and beyond 20.  Uses a range of counting strategies to determine quantities and justifies their efficiency.	Selects and uses a range of mental strategies to solve problems (For example: change the numbers in the problem or reword the problem).  Uses skip counting to extend number patterns.	Explores a variety of counting and estimation strategies to support computation.  Uses number lines, benchmarks numbers [5, 10, 100], and patterns to count forward and backwards.  Solves problems using known number and property facts and knowledge of mental strategies.	Selects an appropriate method for solving a problem for example mental estimation and mental or written strategies (For example: drawing a model, guessing and checking, arithmetic strategy, algebraic strategy).  Analyses, evaluates and justifies answers to problems involving estimation and/or calculation.