

Mathematics Syllabus – Year 3

3.1 NUMBER AND ALGEBRA

Learning Outcome	Notes
<p>* Counting, properties of numbers and number sequences</p>	
<ul style="list-style-type: none"> Say the number names in order to at least 100, from and back to zero. 	
<ul style="list-style-type: none"> Count reliably up to 100 objects by grouping them. 	e.g. in tens, then in fives or twos.
<p>3.1.1 Describe and extend simple number sequences:</p>	
<p>count on or back in ones or tens, starting from any two-digit number;</p>	
<p>count in hundreds from and back to zero;</p>	
<p>count on in twos from and back to zero or any small number, and recognise odd and even numbers to at least 30;</p>	
<p>count on in steps of 3, 4 or 5 to at least 30, from and back to zero, then from and back to any given small number.</p>	
<ul style="list-style-type: none"> Begin to recognise two-digit multiples of 2, 5 or 10. 	
<p>* Place-value and ordering</p>	
<p>3.1.2 Read and write whole numbers to at least 100 in figures and words.</p>	
<p>3.1.3 Know what each digit in a two-digit number represents, including 0 as a place holder, and partition two-digit numbers into a multiple of ten and ones (TU).</p>	
<ul style="list-style-type: none"> Use and begin to read the vocabulary of comparing and ordering numbers, including ordinal numbers to 100. 	e.g. 27 is less than 72.
<ul style="list-style-type: none"> Use the = sign to represent equality. 	6 follows 5.
<ul style="list-style-type: none"> Compare two given two-digit numbers, say which is more or less, and give a number which lies between them. 	
<ul style="list-style-type: none"> Say a number that is 1 or 10 more or less than any given two-digit number. 	
<p>3.1.4 Order whole numbers to at least 100, and position them on a number line and 100 square.</p>	

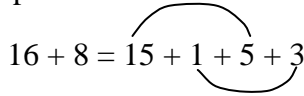
Mathematics Syllabus – Year 3

3.1 NUMBER AND ALGEBRA (contd)

Learning Outcome	Notes
* Estimating	
<ul style="list-style-type: none"> Use and begin to read the vocabulary of estimation and approximation; give a sensible estimate of at least 50 objects. 	e.g. There are about 35 objects. (It is important to build on estimation skills initiated in Years 1 and 2)
<ul style="list-style-type: none"> Round numbers less than 100 to the nearest 10. 	e.g. 24 rounds to 20, 27 rounds to 30.
* Fractions	
<ul style="list-style-type: none"> Begin to recognise and find one half and one quarter of shapes and small numbers of objects. 	
<ul style="list-style-type: none"> Begin to recognise that two halves or four quarters make one whole and that two quarters and one half are equivalent. 	
* Understanding addition and subtraction	
<ul style="list-style-type: none"> Extend understanding of the operations of addition and subtraction. 	
<ul style="list-style-type: none"> Use and begin to read the related vocabulary. 	
<ul style="list-style-type: none"> Use the +, – and = signs to record mental additions and subtractions in a number sentence, and recognise the use of a symbol such as ζ or Γ to stand for an unknown number. Recognise that addition can be done in any order, but not subtraction. 	e.g. $3 + 21 = 21 + 3$, but $21 - 3 \neq 3 - 21$
<ul style="list-style-type: none"> Understand that more than two numbers can be added. Begin to add three single-digit numbers mentally (totals up to about 20) or three two-digit numbers with the help of apparatus (totals up to 100). 	e.g. $7 + 2 + 1$ worked out as $7 + 2 = 9$ $9 + 1 = 10$ N.B. For 3 two-digit numbers use apparatus such as the number line, counters and interlocking cubes.
3.1.5 Understand that subtraction is the inverse of addition. (subtraction reverses addition)	$10 + 5 = 15$ $15 - 5 = 10$ $15 - 10 = 5$

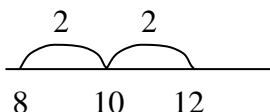
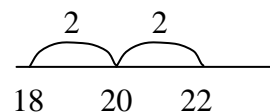
Mathematics Syllabus – Year 3

3.1 NUMBER AND ALGEBRA (contd)

Learning Outcome	Notes
<p>* Rapid recall of addition and subtraction facts</p>	
<p>3.1.6 Know by heart: all addition and subtraction facts for each number to at least 10; all pairs of numbers with a total of 20; all pairs of multiples of 10 with a total of 100.</p>	<p>e.g. $13 + 7, 6 + 14$ e.g. $30 + 70$</p>
<p>* Mental calculation strategies (+ and –)</p>	
<p>3.1.7 Use knowledge that addition can be done in any order to do mental calculations more efficiently (assisted by informal jottings).</p>	<p>e.g. put the larger number first and count on in tens or ones; add three small numbers by putting the largest number first and/or finding a pair totalling 10; partition into ‘5 and a bit’ when adding 6, 7, 8 or 9, then recombine</p> <p style="text-align: center;"> $16 + 8 = 15 + 1 + 5 + 3 = 20 + 4 = 24;$  </p> <p>partition additions into tens and units, then recombine.</p>
<ul style="list-style-type: none"> Find a small difference by counting up from the smaller to the larger number. 	<p>e.g. $42 - 39$: counting up from 39 ... 40, 41, 42 (3)</p>
<ul style="list-style-type: none"> Identify near doubles, using doubles already known. 	<p>e.g. $8 + 9, 40 + 41$</p>
<ul style="list-style-type: none"> Add/subtract 9 or 11. 	<p>e.g. add/subtract 10 and adjust by 1.</p>
<ul style="list-style-type: none"> Begin to add/subtract 19 or 21. 	<p>e.g. add/subtract 20 and adjust by 1.</p>
<ul style="list-style-type: none"> Use patterns of similar calculations. 	<p>e.g. $2 + 4 = 6, 20 + 40 = 60$</p>
<p>3.1.8 State the subtraction corresponding to a given addition, and vice versa.</p>	
<ul style="list-style-type: none"> Use known number facts and place-value to add/subtract mentally. 	<p>e.g. $26 + 8$ seen as $26 + 4$ (30) and 4 (34)</p>

Mathematics Syllabus – Year 3

3.1 NUMBER AND ALGEBRA (contd)

Learning Outcome	Notes
<p>* Mental calculation strategies (+ and –) (contd)</p>	
<ul style="list-style-type: none"> Bridge through 10 to 20, then adjust. 	<p>e.g. Bridging to 10 $8 + 4$ seen as</p>  <p>e.g. Bridging to 20 $18 + 4$ seen as</p> 
<p>* Understanding multiplication and division</p>	
<p>3.1.9 Understand the operation of multiplication as repeated addition or as describing an array, and begin to understand division as grouping (repeated subtraction) or sharing.</p>	
<ul style="list-style-type: none"> Use and begin to read the related vocabulary. Use the \times, \div and $=$ signs to record mental calculations in a number sentence, and recognise the use of a symbol such as \square or \triangle to stand for an unknown number. 	
<p>3.1.10 Know and use halving as the inverse of doubling.</p>	
<p>* Rapid recall of multiplication and division facts</p>	
<p>3.1.11 Know by heart: multiplication facts for the 2 and 10 times-tables; doubles of all numbers to 10 and the corresponding halves; multiplication facts up to 5×5.</p> <ul style="list-style-type: none"> Begin to know multiplication facts for the 5 times-table. Derive quickly: division facts corresponding to the 2 and 10 times-tables; doubles of all numbers to at least 15; 	<p>e.g. 4×3</p> <p>e.g. $11 + 11$ or 11×2</p>

Mathematics Syllabus – Year 3

3.1 NUMBER AND ALGEBRA (contd)

Learning Outcome	Notes
* Rapid recall of multiplication and division facts (contd)	
doubles of multiples of 5 to 50;	e.g. 20×2 seen as $20 + 20$ make 40. 35×2 seen as $30 + 30$ (60) and $5 + 5$ (10) make 70.
halves of multiples of 10 to 100.	e.g. half of 70 seen as half of 60 (30) and half of 10 (5) make 35.
* Mental calculation strategies (\times and \div)	
<ul style="list-style-type: none"> Use known number facts and place-value to carry out mentally simple multiplications and divisions. 	
* Checking results of calculations	
<ul style="list-style-type: none"> Repeat addition in a different order. 	e.g. $6 + 7$ or $7 + 6$
<ul style="list-style-type: none"> Check with an equivalent calculation. 	e.g. $8 + 7 = 15$ (combining two sets) or $8 + 7 = 15$ (counting on from 8)

Mathematics Syllabus – Year 3

3.2 MEASURES, SHAPE AND SPACE

Learning Outcome	Notes
* Measures	
<ul style="list-style-type: none"> Use and begin to read the vocabulary related to length, mass and capacity. 	
3.2.1 Estimate, measure and compare lengths, masses and capacities, using standard units.	m, cm, kg, litre
3.2.2 Suggest suitable units and equipment for such measurements.	e.g. Would you measure the length of a car in metres or cm? e.g. Would you measure the length of a pencil in metres or cm?
3.2.3 Read a simple scale to the nearest labelled division, including using a ruler to draw and measure lines to the nearest centimetre, recording estimates and measurements.	e.g. '3 and a bit metres long' or 'about 8 centimetres' or 'nearly 3 kilograms heavy'
<ul style="list-style-type: none"> Use and begin to read vocabulary related to time. Use units of time and know the relationships between them. 	second, minute, hour, day, week N.B. The emphasis should be on their relationship not on calculation.
<ul style="list-style-type: none"> Suggest suitable units to estimate or measure time. Order the months of the year. Read the time to the hour, half hour or quarter hour on an analogue clock and a 12-hour digital clock, and understand the notation 7:30. 	
* Shape and space	
3.2.4 Use the mathematical names for common 3-D and 2-D shapes, including the pyramid, cylinder, pentagon, hexagon, octagon ...	
3.2.5 Sort shapes and describe some of their features, such as the number of sides and corners, symmetry (2-D shapes), or the shapes of faces and number of faces, edges and corners (3-D shapes).	

Mathematics Syllabus – Year 3

3.2 MEASURES, SHAPE AND SPACE (contd)

Learning Outcome	Notes
* Shape and space (contd)	
<ul style="list-style-type: none"> ● Make and describe shapes, pictures and patterns. 	e.g. using solid shapes, templates, pinboard and elastic bands, squared paper, IT software ...
<ul style="list-style-type: none"> ● Relate solid shapes to pictures of them. 	
<ul style="list-style-type: none"> ● Begin to recognise line symmetry. 	
<ul style="list-style-type: none"> ● Use mathematical vocabulary to describe position, direction and movement. 	e.g. describe, place, tick, draw or visualise objects in given positions.
<ul style="list-style-type: none"> ● Recognise whole, half and quarter turns, to the left or right, clockwise or anticlockwise. 	
<ul style="list-style-type: none"> ● Know that a right angle is a measure of a quarter turn, and recognise right angles in squares and rectangles. 	
<ul style="list-style-type: none"> ● Give instructions for moving along a route in straight lines and round right-angled corners. 	e.g. to pass through a simple maze ...

Mathematics Syllabus – Year 3

3.3 DATA HANDLING

Learning Outcome	Notes
* Organising and using data	
<ul style="list-style-type: none">• Solve a given problem by sorting, classifying and organising information in simple ways. Discuss and explain results.	such as: in a list or simple table, in a pictogram, in block graph.

Mathematics Syllabus – Year 3

3.4 PROBLEM SOLVING

Learning Outcome	Notes
* Making decisions	
3.4.1 Choose and use appropriate operations and efficient calculation strategies to solve problems.	e.g. mental, mental with jottings.
* Reasoning about numbers or shapes	
<ul style="list-style-type: none"> Solve mathematical problems or puzzles, recognise simple patterns and relationships, generalise and predict. Suggest extensions. 	e.g. by asking What if ...? or What could I try next?
<ul style="list-style-type: none"> Investigate a general statement about familiar numbers or shapes by finding examples that satisfy it. 	e.g. Colour the shapes with the same number of sides.
3.4.2 Explain how a problem was solved orally and, where appropriate, in writing.	N.B. Writing includes pictorial representations and informal jottings.
* Problems involving ‘real life’, money or measures	
<ul style="list-style-type: none"> Use mental addition and subtraction, simple multiplication and division, to solve simple word problems involving numbers in ‘real life’, money or measures, using one or two steps. 	
<ul style="list-style-type: none"> Explain how the problem was solved. 	e.g. $30c - 20c = 10c$ Ask the child “How did you work it out?”
<ul style="list-style-type: none"> Recognise all coins and begin to use €c notation for money. 	e.g. know that €465 indicates €4 and 65c.
<ul style="list-style-type: none"> Find totals, give change, and work out which coins to pay. 	

Opportunities should be sought to link mathematics to other subjects by using the Thematic Approach ... this being “*the kind of pedagogical approach that comes closest to the idea of a holistic education, and the methodology (that) should be the dominant feature of our schools.*” (NMC Creating the Future Together” p. 78) Mathematics contributes to many subjects of the primary curriculum, such as *Language, Science, Art & Craft, Social Studies and Physical Education*, often in practical ways.

Computer Software available in the classroom should be used to enhance, reinforce and consolidate any learning outcomes related to each of the four strands in this syllabus, namely: Number and Algebra; Measures, Shape and Space; Data Handling; Problem Solving.