



MATHEMATICS

Year 7 Track 2



MATHEMATICS DEPARTMENT
Learning Outcomes Framework
SEPTEMBER 2021

Strand 1

Learning Area Outcome: I understand the structure of the number system and the relationship between numbers

Subject Focus: Number – The number system

1	 I can read and write whole numbers to one million in figures and words.
3	I recognise the place value of any digit in a whole number up to one million.
4	I can compare and order whole numbers up to one million and include symbols such as $<$, $>$ or $=$.
10	I can recall the first 10 multiples of the numbers 2 to 10.
12	I can identify common multiples of two numbers.
13	I can identify the least common multiple (LCM) of two numbers.
14	I can identify all factors of any two-digit number. E.g. factors of 24 are 1, 2, 3, 4, 6, 8, 12, and 24.
16	 I can work out the square of a number and recall the first ten square numbers.
18	 I can work out the cube of a number and recall the first five cube numbers.
20	 I can define what a prime number is and can identify prime numbers up to fifty.
21	I can use decimal notation for tenths, hundredths and thousandths and know what each digit represents.
22	From a one-digit number I can count forward and backwards in steps of 0.1, 0.2, 0.25 and 0.5.
31	I can compare and order simple fractions, mixed numbers and decimals and position them on a number-line.
33	I can describe percentage as the number of parts in every hundred. Hence, I can represent 1% as a hundredth.
34	I can associate 25% with one quarter, 50% with one half and 75% with three quarters.
35	I can recognise the relationship between fractions (limited to fractions with denominators that are factors of 100), decimals and percentages.

38	I can recognize, represent, understand and use directed numbers in real life situations such as temperature, floor levels and debt. I can represent directed numbers on a number line.
Assistive technology, mathematical resources and activities.	
41	<i>I can use assistive technology (e.g. tablets, computers & calculators) and other learning resources (e.g. Cuisenaire rods, Unifix cubes, base 10 blocks) to learn about numbers and their properties.</i>
42	I can work on tasks, investigations and activities including worded problems that are related to mathematical content in this strand at this level.

Strand 2	
Learning Area Outcome: I can calculate using mental methods, pencil and paper methods, and, assistive technology methods. I can check calculations by rounding numbers and making rough approximations. I can calculate to the most appropriate level of accuracy. I can also check the reasonableness of answers.	
Subject focus: Number – Numerical calculations	
Whole Numbers, Decimal Numbers & Fraction Numbers – The Four Operations	
6	<p>● I can use column addition and subtraction with up to four-digit numbers.</p> <p>I can use assistive technology to add and subtract numbers that involve four or more digits.</p>
7	<p>● I can work through situations involving addition and subtraction with four or more digit numbers.</p>
18	<p>I recognise unit fractions and use them to find fractions of shapes, numbers and quantities. I can interpret the relationship between division and fractions.</p> <p>E.g. $\frac{2}{3}$ means $2 \div 3$ and vice versa.</p>
22	<p>● I can find remainders after division and express the remainder as a fraction and as a decimal rounded, up to two decimal places.</p>
23	<p>I can work through situations involving, addition, subtraction, multiplication and/or division of integers.</p> <p>I can also give a rough estimate of the answer of such situations and I can check the reasonableness of the answer.</p>
24	I can round any whole number to the nearest ten, hundred & thousand.

31	 I can use column addition or subtraction methods using decimal numbers up to two decimal places.
36	<p>I can use written methods for multiplication and division of numbers by up to 2-digit numbers.</p> <p>(Division by decimals restricted to division by single digit decimal numbers).</p> <p>E.g.</p> <p>125×9</p> <p>$256 \div 8$</p> <p>54×36</p> <p>$391 \div 23$</p> <p>175×1.4</p> <p>18.6×2.7</p> <p>$2.4 \div 0.6$</p>
38	I can add and subtract directed numbers.
39	I can use the BIDMAS rule with positive numbers.
40	I can round any decimal number up to two decimal places.
42	I can find fractions of a number without using assistive technology where the number is a multiple of the denominator. E.g. find $\frac{3}{5}$ of 65.
44	I can reduce a fraction in its simplest form.
45	<p>I can change an improper fraction into a mixed number and vice versa.</p> <p>I can change fractions into decimals and vice versa. (Restricted to fractions with denominators that are factors of 100)</p>
46	 I can read and interpret scales involving decimals up to 1 d.p.
47	I can find equivalent fractions of a given fraction.
48	I can add and subtract two proper fractions, with different denominators using equivalent fractions.
49	I can multiply two fractions. (excluding mixed numbers)
50	I can work through situations involving the addition and subtraction of fractions.
51	I can convert percentages to fractions (limited to fractions with denominators that are factors of 100) and vice versa. E.g. $60\% = \frac{3}{5}$.

Percentages	
52	I can convert percentages to decimals that are less than 1 and up to 2 d.p. and vice versa. E.g. 34% = 0.34
53	🔴 I can find percentages of quantities.
Money & Consumer Mathematics	
67	I can work through simple situations involving personal and household finance (e.g. pocket money invested in a bank account, finding out how much it will cost to prepare a meal, calculating which item is the best buy when items come in various sizes e.g. oil in one litre bottles vs oil in two litre bottles).
Ratio & Proportion	
73	I can work through simple situations that involve direct proportion using the unitary method (including price, distance, time and mass).
Assistive technology, mathematical resources and activities.	
76	I can use assistive technology (e.g. tablets, computers and calculators) and other resources (e.g. Cuisenaire rods, Unifix cubes, base 10 blocks) appropriate to this level to calculate and to learn about numerical calculations.
77	I can work on tasks, investigations and activities including worded problems that are related to mathematical content in this strand at this level.

Strand 3	
Learning Area Outcome: I can recognise and describe patterns and relationships in various mathematical ways and can use algebraic manipulations.	
Subject Focus: Algebra – Fundamentals of Algebra	
1	I can write a sequence given the first term and the rule. I can recognise and extend pictorial patterns and number sequences.
6	🔵 I can use algebraic notation to represent two or more unknown values in expressions involving +, −, x, and ÷.
7	I can derive a formula from a situation involving two unknown values with positive inputs.

8	I can simplify linear algebraic expressions by collecting like terms.
14	I can evaluate linear expressions by substituting positive integers.
16	 I can solve an equation using balancing scales involving unknown and whole numbers with unknown on one side only.
27	 I can plot points and read coordinates from a grid in all four quadrants.
28	 I can write the coordinates of a set of points for equations of the form $y = mx$ that lie in the first quadrant where m is positive
30	I can plot the graph of a linear function from a set of values in the first quadrant.
46	I can work out the input/output of number (function) machines involving up to two operations.
Assistive technology, mathematical resources and activities.	
52	I can use assistive technology (e.g. tablets, computers, and calculators) and other resources (e.g. algebra blocks) appropriate to this level to learn about the fundamentals of algebra.
53	I can work on tasks, investigations and activities including worded problems that are related to mathematical content in this strand at this level.

Strand 4	
Learning Area Outcome: I understand and can use forms of measurement and can make reasonable estimations.	
Subject Focus: Shape, Space & Measures – Measures	
Angles	
5	 I can estimate, measure and draw angles up to and including 360° with a protractor.
6	I can identify and distinguish between right, acute, obtuse and reflex angles.
Length, Area, Volume, Mass & Capacity	
16	I can define the volume of a solid shape as the measure of the amount of space that it occupies.
21	I can convert larger to smaller standard metric units of mass (kg, g), length (km, m, cm, mm) and capacity (l, ml), and vice versa.

26	 I can work out the areas of irregular and regular shapes by counting squares on a grid.
27	I can derive and use formulae to find the area of a square and a rectangle.
28	I can derive and use the formula to find the area of a triangle.
29	I can calculate the area of compound shapes that are made up of squares and rectangles.
33	I can use formulae to calculate the volume of cubes and cuboids, including compound shapes made of cubes and cuboids.

Time

43	 I can read and write vocabulary related to time.
45	I can convert and use larger to smaller standard units of time (days, hours, minutes and seconds) and vice versa. E.g. 2.5 hours = 150 minutes.
49	I can read and use the 12-hour digital and analogue clock at 5-minute intervals.
50	 I can read and use a calendar and a timetable.

Assistive Technology & Other Resources

54	I can use assistive technology (e.g. tablets, computers and calculators) and other resources (e.g. plastic money, cardboard clocks, 2D and 3D plastic shapes, measuring instruments) appropriate to this level to learn about measures.
55	I can work on tasks, investigations and activities including worded problems that are related to mathematical content in this strand at this level.

Strand 5

Learning Area Outcome: I can recognise and describe the properties of shapes. I can use these properties to construct shapes using appropriate mathematical instruments and to prove given geometric statements.

Subject Focus: Shape, Space & Measures – Euclidean Geometry

Lines & Line Segments

2	I can recognise and draw examples of parallel lines and transversals.
3	I can recognise vertically opposite angles and alternate angles within sets of parallel lines and transversals.

Angles

4	I can work out the size of missing angles in situations involving vertically opposite angles and alternate angles within sets of parallel lines and transversals.
Triangles	
9	 I can use the properties of triangles (equilateral, isosceles, scalene and right-angled triangles) in order to solve problems involving missing angles.
Quadrilaterals	
12	  I can classify quadrilaterals (square, rectangle, parallelogram, and trapezium) according to the length of their sides and the size of their angles
13	 I can prove that the sum of the angles of a quadrilateral is 360° . I can also work out the size of missing angles in quadrilaterals.
Polygons	
15	  I can sort, name and classify polygons (pentagon, hexagon, heptagon, octagon, nonagon and decagon) using properties such as the number of sides).
16	 I understand the terms 'regular polygon' and 'irregular polygon'
3D Shapes	
21	 I can identify nets that are possible or not possible for a closed and an open cube.
Coordinate Geometry	
27	I can use positive and negative coordinates to plot points and draw shapes.
28	I can find the coordinates of a missing vertex of a shape.
33	I can use simple LOGO commands such as PU, PD, FD, BK, RT and LT.
Assistive technology, mathematical resources and activities.	
34	I can use assistive technology (e.g. tablets, computers, dynamic computer software and LOGO) and other resources (e.g. 2D and 3D plastic shapes) appropriate to this level to learn about properties of shapes.
35	I can work on tasks, investigations and activities including worded problems that are related to mathematical content in this strand at this level.

Strand 6

Reflections

Learning Area Outcome: I can describe position and movement of shapes in a plane.

Subject Focus: Shape, Space & Measures – Transformation Geometry

5	I can identify and draw lines of symmetry in 2D shapes and pictures e.g. flags and dominoes.
6	I can classify quadrilaterals (square, rectangle, parallelogram and trapezium) using reflective symmetry.

Assistive technology, mathematical resources and activities.

21	I can use assistive technology (e.g. tablets and computers) and other resources (e.g. 2D and 3D plastic shapes) appropriate to this level to learn about transformation geometry.
22	I can work on tasks, investigations and activities including worded problems that are related to mathematical content in this strand at this level.

Strand 7

Learning Area Outcome: I can collect, analyse, interpret and communicate statistical information.

Subject Focus: Data Handling & Chance – Statistics

3	  I can construct a frequency table with grouped or ungrouped discrete data.
5	   I can construct a bar chart using grouped or ungrouped discrete data from a frequency table.
6	I can interpret data from frequency tables and bar charts.
13	I can complete and interpret a Carroll diagram.
14	I can find the mean of a set of ungrouped data.
15	I can differentiate between the mean, median, mode and range of a set of ungrouped data.
16	I can find the median of a set of ungrouped data.
17	I can find the mode of a set of ungrouped data.
18	I can find the range of a set of ungrouped data.

Assistive technology, mathematical resources and activities.

23	I can use assistive technology (e.g. tablets, computers and calculators) and other learning resources to learn about statistics.
24	I can work on tasks, investigations and activities including worded problems that are related to mathematical content in this strand at this level.

Strand 8

Learning Area Outcome: I understand ideas of chance and uncertainty

Subject Focus: Data Handling & Chance – Probability

1	 I can mention events that are certain to happen, and others that will not.
2	 I can describe events as certain, very likely, likely, evens, unlikely, very unlikely, or impossible.
3	 I can estimate a probability by experiment.
4	I can work out the probability of an event. e.g. the probability of getting 4 when throwing a die = $\frac{1}{6}$; the probability of not getting 4 when throwing a die = $\frac{5}{6}$.
6	I can deduce that the probability of a certain event is 1 and the probability of an impossible event is 0.
7	I can mark the probability on a probability scale.
8	I can identify the set of all possible outcomes of a single event.

Assistive technology, mathematical resources and activities.

14	I can use assistive technology (e.g. tablets, computers, and calculators) and other learning resources to learn about probability.
15	I can work on tasks, investigations and activities including worded problems that are related to mathematical content in this strand at this level.