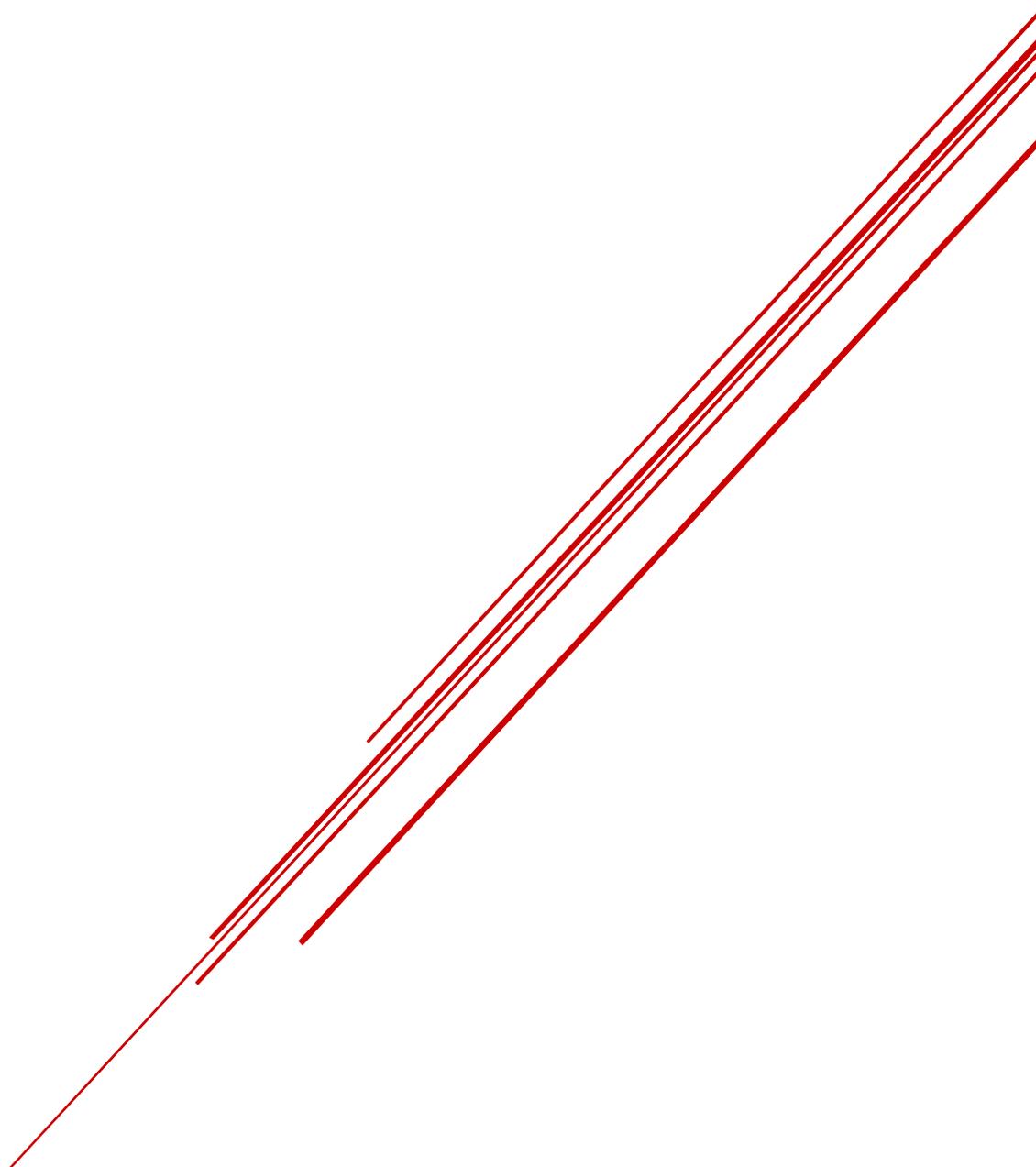


MATHEMATICS SYLLABUS

Year 9 Lev 1-2



Learning Outcomes Framework
September 2022

| Year 9 Lev 1-2 | | Ref to SEC |
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| 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 and order whole numbers to one billion in figures and words. | 1.1a/b/c |
| 3 | I can recognise the place value of any digit in a whole number up to one billion. | 1.1h |
| 4 | I can compare and order whole numbers up to one billion and include symbols such as $<$, $>$ or $=$. | 1.1i |
| 14 | I can identify <u>all</u> factors of any two-digit number. E.g. factors of 24 are 1,2,3,4,6,8,12,24. | 1.2q |
| 20 | I can define what a prime number is and can identify prime numbers up to 100. | 1.1w/x |
| 35 | I can recognise the relationship between fractions (limited to fractions with denominators that are factors of 100), decimals and percentages. | 1.1/2as |
| 37 | I can state one number lying between two given decimal numbers. | 1.1au |
| 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. | 1.1av/aw |
| 41 | I can use assistive technology (e.g. tablets, computers & calculators) and other learning resources to learn about numbers and their properties | 1.1/2bb |
| 42 | I can work on tasks and activities including worded problems that are related to mathematical content in this strand at this level. | 1.1/2bd |
| | I can use appropriate mathematical processes to work on tasks and/or activities that are related to mathematical content at this level and which involve one or more modes of assessment such as solving, investigating, modelling, maths trails, and research projects. | 1.1/2bc |

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| 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 | | |
| 23 | I can work through situations involving, addition, subtraction, multiplication and/or division of integers. I can also give a rough estimate of the answer of such situations and I can check the reasonableness of the answer. | 2.1e/p/bl |
| 24 | I can round any whole number to the nearest ten, hundred & thousand. | 2.1bm |
| 31 |  I can use column addition or subtraction methods using decimal numbers up to three decimal places. | 2.1v |

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| 36 | I can use written methods for multiplication and division of numbers by up to 2 digits. (Division by decimals restricted to division by single digit decimal numbers). (i) 125×9 (ii) $256 \div 8$ (iii) 54×36 (iv) $391 \div 23$ (v) 175×1.4 (vi) 18.6×2.7 (vii) $2.4 \div 0.6$ | 2.1x/y 2.2z |
| 38 | I can add and subtract directed numbers. | 2.2ab |
| 40 | I can round any decimal number up to two decimal places. | 2.2bo |
| 42 | I can find fractions of a number without using assistive technology. | 2.1ad |
| 45 | I can change an improper fraction into a mixed number and vice versa. I can change fractions into decimals and vice versa. (Restricted to fractions with denominators that are factors of 100) | 2.1af 1.1ao |
| 46 |  I can read and interpret scales involving decimals up to 2 d.p. | 2.2ag |
| 51 | I can convert percentages (< 100%) to fractions (limited to fractions with denominators that are factors of 100) and vice versa. E.g. $60\% = \frac{3}{5}$ | 2.2an |
| 52 | I can convert percentages to decimals that are less than 1 and up to 2 d.p. and vice versa. E.g. $34\% = 0.34$ | 2.2an |
| 53 | I can find the percentage of a quantity where the percentage <100%. E.g. (i) Find 62% of €88.00 E.g. (ii) 2.5 % of 250 l of water is lost. How much water is lost? | 2.2am |
| 67 | I can work through simple situations involving personal and household finance (e.g. finding out how much it will cost to prepare a meal, calculating which item is the best buy when items come in various sizes.) | 2.2ay |
| 73 | I can work through simple situations that involve direct proportion using the unitary method (including price and mass). | 2.1bg |
| 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. | 2.1/2bq |
| 77 | I can work on tasks and activities including worded problems that are related to mathematical content in this strand at this level. | 2.1/2bs |
| | I can use appropriate mathematical processes to work on tasks and/or activities that are related to mathematical content at this level and which involve one or more modes of assessment such as solving, investigating, modelling, maths trails, and research projects. | 2.1/2br |

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| 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 tabulate the terms corresponding to the first few stages of a pictorial pattern and determine the terms in the next stages. | 3.1/2d |
| 8 | I can simplify linear algebraic expressions by collecting like terms resulting in expressions containing positive terms only. E.g. $3a + 2b - a + 4b$ | 3.2i |
| 28 | I can write and plot the coordinates of a set of points for equations of the form $y = \pm mx$, $y = c$ and $x = c$ in the first quadrant. | 4.2c/d/f |
| 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. | 3.1/2am |
| 53 | I can work on tasks and activities including worded problems that are related to mathematical content in this strand at this level. | 3.1/2ao |
| | I can use appropriate mathematical processes to work on tasks and/or activities that are related to mathematical content at this level and which involve one or more modes of assessment such as solving, investigating, modelling, maths trails, and research projects. | 3.1/2an |

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| Strand 4: Learning Area Outcome: I understand and can use forms of measurement and can make reasonable estimations. | | |
| Subject Focus: Shape, Space & Measures – Measures | | |
| 1 |  I can label the eight main compass points. | 5.1a |
| 5 |  I can estimate, measure, sketch and draw angles up to 360° with a protractor. | 5.2h/i/j/k |
| 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. | 5.2ah |
| 25 | I can calculate the perimeter of squares, rectangles and other regular/ irregular shapes. | 5.1ac |
| 26 | I can work out the areas of irregular shapes by counting squares on a grid. | 5.1ai |
| 27 | I can derive and use formulae to find the area of a square and a rectangle. | 5.1/2aj |
| 28 | I can derive and use the formula to find the area of a triangle. | 5.2ak/al |
| 29 | I can calculate the area of compound shapes that include squares, rectangles and right-angled triangles. | 5.2am |
| 33 | I can use formulae to calculate the volume of cubes and cuboids, including compound shapes made of cubes and cuboids. | 5.2at/au |
| 45 | I can convert and use larger to smaller standard units of time (years, days, hours, minutes and seconds) and vice versa. E.g. 2.5 hours = 150 minutes. | 5.2bj |
| 49 | I can read and use the 12-hour and 24-hour digital and analogue clock. I can convert between the 12-hour and 24-hour clock times. | 5.1bo/bp |
| 50 | I can read and use a time-line. | 5.1bq |
| 51 | I can work out the duration of a time interval, the starting time and the finishing time. | 5.1br |
| 52 | I can determine time intervals in days, hours and minutes. | 5.2bs |

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| 53 | I can solve word problems involving addition and subtraction of time given in days, hours and minutes. | 5.1/2bu |
| 54 | I can use assistive technology (e.g. tablets, computers and calculators) and other resources (e.g. 2D and 3D plastic shapes, measuring instruments) appropriate to this level to learn about measures. | 5.1/2bw |
| 55 | I can work on tasks and activities including worded problems that are related to mathematical content in this strand at this level. | 5.1/2bx |
| | I can use appropriate mathematical processes to work on tasks and/or activities that are related to mathematical content at this level and which involve one or more modes of assessment such as solving, investigating, modelling, maths trails, and research projects. | 5.1/2by |

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| <p>Strand 5: Learning 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 geometric statements.</p> <p>Subject focus: Shape Space and Measures – Euclidean Geometry</p> | | |
| 5 |  I can deduce that the angles on a straight line add up to 180° . I can also work out the size of missing angles in diagrams showing angles on a straight line. | 6.1r/s |
| 6 |  I can deduce that the angles around a point add up to 360° . I can also work out the size of missing angles in diagrams showing angles at a point. | 6.1p/q |
| 8 | I can state that the sum of the angles of a triangle is 180° . I can also work out the size of missing angles in triangles. | 6.1u/v |
| 9 |  I can use the properties of triangles (equilateral, isosceles, scalene and right-angled triangles) in order to solve problems involving missing angles. | 6.1/2v |
| 12 | I can classify quadrilaterals (square, rectangle, rhombus, parallelogram, trapezium and kite) according to the length of their sides and the size of their angles. | 6.2ag |
| 13 |  I can state that the sum of the angles of a quadrilateral is 360° . I can also work out the size of missing angles in quadrilaterals. | 6.2aj/ak |
| 14 |  I can use the properties of quadrilaterals (square, rectangle, parallelogram, and trapezium) in order to solve problems involving missing angles. | 6.2al |
| 20 | I can identify and count faces, vertices and edges of a cube, cuboid, triangular prism and pyramid. I can identify and count the flat and curved surfaces of a cylinder and a cone. | 6.1bp/bq/br |
| 21 | I can identify nets which are possible or not possible for a cube (open/ closed), a cuboid, a triangular prism and a square-based right pyramid. | 6.1/2bt |
| 27 | I can use positive and negative coordinates to plot points and draw shapes. | 4.2b |
| 28 | I can find the coordinates of a missing vertex of a shape. | 4.2b |
| 34 | I can use assistive technology (e.g. tablets and computers, including dynamic geometry software packages and LOGO) and other resources (e.g. 2D and 3D plastic shapes) appropriate to this level to learn about properties of shapes. | 6.1/2bv |

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| 35 | I can work on tasks and activities including worded problems that are related to mathematical content in this strand at this level. | 6.1/2bx |
| | I can use appropriate mathematical processes to work on tasks and/or activities that are related to mathematical content at this level and which involve one or more modes of assessment such as solving, investigating, modelling, maths trails, and research projects. | 6.1/2bw |

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| Strand 6: Learning Area Outcome: I can describe position and movement of shapes in a plane. | | |
| Subject Focus: Shape, Space & Measures – Transformation Geometry | | |
| 6 | I can classify triangles and quadrilaterals (square, rectangle, parallelogram, trapezium, rhombus and kite) using reflective symmetry. | 8.1/2d |
| 7 | I can complete symmetrical patterns given one or two lines of symmetry at right angles. | 8.1e |
| 13 | I can state the order of rotational symmetry of unshaded and partly shaded 2D shapes. | 8.2j |
| 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. | 8.2w |
| 22 | I can work on tasks and activities including worded problems that are related to mathematical content in this strand at this level. | 8.2y |
| | I can use appropriate mathematical processes to work on tasks and/or activities that are related to mathematical content at this level and which involve one or more modes of assessment such as solving, investigating, modelling, maths trails, and research projects. | 8.2x |

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| 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. | 9.2g |
| 5 |    I can construct a bar graph and a /bar-line graph using grouped or ungrouped discrete data from a frequency table. | 9.2k |
| 6 | I can extract and interpret data from frequency tables, bar graphs and bar-line graphs. | 9.1e/9.2j |
| 7 |   I can read and interpret a pictograph where the symbol represents a number of units. | 9.1l/m |
| 8 |   I can draw a pictograph where the symbol represents a number of units. | 9.1n |
| 13 | I can interpret and construct a Carroll diagram. | 9.1u/v/9.2v |
| 23 | I can use assistive technology (e.g. tablets, computers and calculators) and other learning resources to learn about statistics. | 9.1/2an |
| 24 | I can work on tasks and activities including worded problems that are related to mathematical content in this strand at this level. | 9.1/2ap |
| | I can use appropriate mathematical processes to work on tasks and/or activities that are related to mathematical content at this level and which involve one or more modes of assessment such as solving, investigating, modelling, maths trails, and research projects. | 9.1/2ao |

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| Strand 8: Learning Area Outcome: I understand ideas of chance and uncertainty | | |
| Subject Focus: Data Handling & Chance – Probability | | |
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