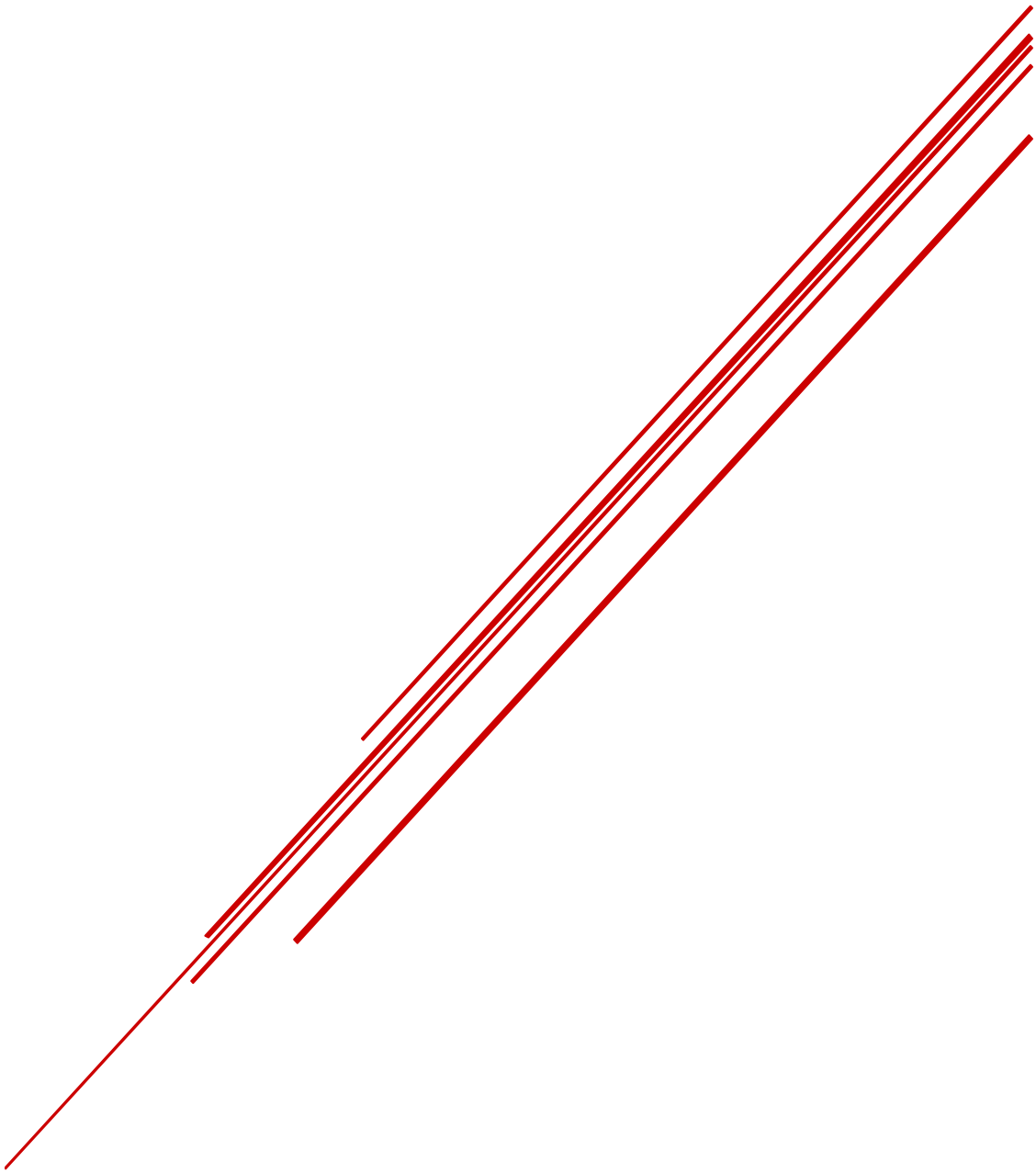
MATHEMATICS SYLLABUS

YEAR 11 Lev 1-2



Learning Outcomes Framework

September 2022

Year 11 Lev 1-2		Ref to SEC
Strand 1: Learning Area Outcome: I understand the structure of the number system and the relationship between numbers. Subject Focus: Number – The number system		
11	I can write multiples of numbers using power notation. E.g. i) $2 \times 2 \times 2 = 2^3$ ii) $3 \times 3 \times 5 \times 5 \times 5 = 3^2 \times 5^3$	1.2n
39	I can write numbers greater than 1 in standard form and vice-versa.	1.2ax/ay
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

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			
25	I can use rounded numbers to make rough approximations, *E.g.* $37 \times 5.8 \approx 40 \times 6 = 240$. I can round up or round down decimal numbers to the nearest whole number depending on the context. *E.g.* How many 50-seater buses are needed to transport 130 students? How many yoghurts can be bought with €5, if each yoghurt costs €1.30?	1	2.1bn
26	I can work out mentally the square root of squares up to 100 and the cube root of cubes up to 125 without a calculator and use a calculator for other values. I can work out mental calculations involving powers and roots. *E.g.* $\sqrt{1600}$, 90^2, 20^3, $\sqrt[3]{8000}$.	1 2	2.1q 2.2q
28	I can work out problems involving the LCM.	2	1.1/2p 1.1/2bd
38	I can add, subtract, multiply and divide directed numbers by a positive integer.	2	2.2ab
39	I can use the BIDMAS rule with both positive and negative numbers.	2	2.2ac
48	I can add and subtract two fractions (including mixed numbers) with different denominators using equivalent fractions.	2	2.2ah/ai
49	I can multiply and divide two fractions including mixed numbers.	2	2.2aj/ak
50	I can work through situations involving the addition, subtraction, multiplication and division of fractions and mixed numbers.	2	2.2al

67	I can work through simple situations involving directed numbers, personal and household finance (E.g. pocket money accrued, finding out how much it will cost to prepare a meal, calculating which item is the best buy when items come in various sizes, simple interest.)	2.2ay
68	I can write ratios in their simplest form. (Including decimal numbers and numbers with different units)	2.2az
69	I can find one quantity of a ratio given the other and divide a quantity in a given ratio.	2.2ba/bb
73	I can work through simple situations that involve direct proportion using the unitary method (including price, distance, time, mass and capacity).	2.1bg
74	I can use the rules for multiplying and dividing positive integer powers of numbers. E.g. i) $7^3 \times 7^5 = 7^8$ ii) $6^5 \div 6^2 = 6^3$ iii) $(2^3)^5 = 2^{15}$	2.2bh
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

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		
9	I can simplify algebraic expressions by multiplying linear terms, E.g. i) $-4 \times 5b$, ii) $-2a \times -3b$ iii) $x \times (-3x)$ I can multiply a single term over a bracket E.g. i) $-2(a + 3)$ ii) $3(x + 4) + 2(x - 1)$ iii) $2(1 - x) - 3(x + 2)$	3.2j/k
15	I can change the subject of a formula that uses one or two operations.	3.2u
16	I can write down and solve linear equations involving unknown and integers on both sides.	3.2w/x 3.2z

17	I can use and solve simple linear equations involving brackets. E.g. i) $3(2x-1)=8(x-2)$ ii) $4(x-4)=1-5(x-2)$	3.2y
28	I can write and plot the coordinates of a set of points for equations of the form $y = \pm mx \pm c$ in all four quadrants.	4.2b/c
29	I can construct tables of values of linear functions.	4.2d
30	I can plot the graph of a linear function from a table of values.	4.2f
34	I can find the gradient of a line from the coordinates of two points on the line.	4.2l
35	I can write the equation of a straight line given the gradient and the y-intercept.	4.2m
38	I can interpret straight line graphs in real life situations. E.g. Conversion graphs and distance-time graphs, etc.	4.2p
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 and graphs.	3.1/2 am
53	I can work on tasks and activities including worded problems that are related to mathematical content in this strand at this level.	3.1/2 ao
	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

Strand 4: Learning Area Outcome: I understand and can use forms of measurement and can make reasonable estimations. Subject Focus: Shape, Space & Measures – Measures		

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. **Subject focus:** Shape Space and Measures – Euclidean Geometry		
3	I can recognise corresponding vertically opposite angles, alternate angles and interior angles within sets of parallel lines and transversals.	6.2h/i/j/k
4	I can work out the size of missing angles in situations involving vertically opposite angles, alternate angles, corresponding and interior angles within parallel lines cut by transversals.	6.2l/m/n/o
24	I can construct, (using a straight edge and compasses only): i) the perpendicular bisector of a line segment; ii) the perpendicular from a point to a line; iii) the perpendicular at a point on a line; iv) the angle bisector of a pair of intersecting lines.	7.2d/e/f/g
25	I can construct triangles (involving 60° and 90° angles) using ruler and compasses only.	7.2k/l
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

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. 1/2 bw

Strand 6: Learning Area Outcome: I can describe position and movement of shapes in a plane. Subject Focus: Shape, Space & Measures – Transformation Geometry		
7	I can draw and describe reflections in the x and y axis; in $y = \pm c$ and $x = \pm c$	8.2e/g
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.	8.1/2w
22	I can work on tasks and activities including worded problems that are related to mathematical content in this strand at this level.	8.1/2y
	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.	8.1/2x

Strand 7: Learning Area Outcome: I can collect, analyse, interpret and communicate statistical information. Subject Focus: Data Handling & Chance – Statistics		
14	I can find the mean of a set of ungrouped data from a frequency table.	9.2z
15	I can work through simple problems involving the mean, mode median and range; and decide when best to use each type of average using words like “outlier”.	9.2ad
16	I can find the median of a set of ungrouped data from a frequency table.	9.2ae
17	I can find the mode of a set of ungrouped data from a frequency table.	9.2ag
18	I can find the range of a set of ungrouped data from a frequency table.	9.2ah
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

Strand 8: Learning Area Outcome: I understand ideas of chance and uncertainty. Subject Focus: Data Handling & Chance – Probability		
10	I can construct a possibility space of two events and use it to work out the probability of an outcome.	10.2k/l
14	I can use assistive technology (E.g. tablets, computers and calculators) and other learning resources to learn about probability	10.1/2q

15	I can work on tasks and activities including worded problems that are related to mathematical content in this strand at this level.	10.1/2s
	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.	10.1/2s