

Mathematics Syllabus
Form 3 Track 1

Contents

	<i>Pages</i>
• <u><i>Number and Applications</i></u>	3
• <u><i>Algebra</i></u>	4
• <u><i>Shape Space and Measurement</i></u>	5
• <u><i>Data Handling</i></u>	6

Form III – Track 1: Number and Applications

Formula One Maths C Gold

Ch	Mod	Learning Outcome:	Pg	Level	Notes
1	NA1	i. Use units of length/weight/time and capacity	2		<ul style="list-style-type: none"> • Include converting one metric unit to another. • Through direct proportion. • Through direct proportion.
	NA1	ii. Solve simple problems involving length, weight and capacity.			
	NA1	iii. Understand and use timetables.			
	NA1	iv. Determine time intervals in hours and minutes.			
	NA1	v. Understand the notion of speed.			
	NA1	vi. Express speed in km/h.			
	NA1	vii. Work out the distance/time given the speed and time/distance.			
8	NN2	i. Add negative numbers.	62		
	NN2	ii. Subtract negative numbers.			
	NA2	iii. Apply notions of directed number to practical situations.			
10	NA3	i. Find the percentage of a quantity.	76		
	NA3	ii. Work out the percentage increase/decrease.			
	NA3	iii. Solve problems involving percentage increase/decrease.			
11	NN4	i. The correct use of operations and the use of brackets.	84		<ul style="list-style-type: none"> • Students should explore the correct use of brackets in working out operations such as $4 \times 3 + 4 \times 5$ to facilitate work.
	NN4	ii. Expanding brackets.			
12	NN5	i. Simplify fractions.	90		
	NN5	ii. Use equivalent fractions.			
	NN5	iii. Add and subtract two fractions with same and different denominators			
16	NN6	i. Arrange numbers (including decimals and fractions) in ascending and descending order.	120		<ul style="list-style-type: none"> • Students should be aware of non-terminating decimals.
19	NN7	i. Choose reasonable approximations.	144		
	NN7	ii. Round decimals to up to three decimal places.			
	NN7	iii. Carry out rough estimates to check accuracy.			
21	NN8	i. Use the four rules for calculations with numbers.	160		<ul style="list-style-type: none"> • Paper and pencil methods for multiplication and division by a one- digit number. • Multiplication by a two-digit number using the partitioning method. • Division by large numbers using factors and repeated subtraction. • The calculator is to be used for harder examples.
	NN8	ii. Problems involving the four rules for calculations with numbers.			
25	NA9	i. Money problems on hourly rates including overtime, bank statements, holiday brochures.	200		

Form III – Track 1: Algebra

Formula One Maths C Gold

Ch	Mod	Learning Outcome:	Pg	Level	Notes
2	AL1	i. Evaluate simple formulae with three positive inputs.	12		
6	AL2	i. Solve linear equations in one unknown involving two operations.	46		
9	AL3	i. Construct simple number (function) machines. ii. Obtain the input/output using a number machine. iii. Recognise and generate geometric and number patterns.	68		<ul style="list-style-type: none"> Students should be given opportunities to use a spreadsheet to generate sequences of numbers that they can describe verbally.
13	AL4 AL4	i. Read and plot co-ordinates using ordered pairs in all four quadrants. ii. Generate and plot coordinate pairs that satisfy a simple linear rule. iii. Understand that the equation of a straight line describes the relationship between x - and y -coordinates.	98		<ul style="list-style-type: none"> To include equations of the form $y = mx + c$
17	AL5 AL5 AL5	i. Simplify algebraic expressions by collecting like terms. ii. Multiply a bracket by a single term. iii. Factorise fully expressions containing a numerical common factor.	128		
20	AL6	i. Draw and interpret linear and non-linear graphs arising from real-life situations.	152		<p>E.g. distance-time graphs; conversion graphs; currency etc.</p> <ul style="list-style-type: none"> Exclude the interpretation of the gradient.

Form III – Track 1: Shape, Space and Measurement

Formula One Maths C Gold

Mod	Learning Outcome:	Pg	Level	Notes
3	GG1 i. Sort out shapes into 2D and 3D shapes GG1 ii. Use isometric paper to draw solid shapes. GG1 iii. Discover the meaning of parallel lines and parallelogram. GG1 iv. Learn the meaning of prism and recognise the net of a particular prism.	18		
7	GG2 i. Understand the angle sum property of a triangle. GG2 ii. Solve problems involving the angles of a triangle and quadrilateral. GG2 iii. Discover the angle properties of a parallelogram. GG2 iv. Recognise polygons and learn their names according to the number of sides. (3, 4, 5, 6 and 8 sides). GG2 v. Recognise regular polygons. GG2 vi. Draw regular polygons inside a circle, given the radius, by finding angles at the centre for 3, 4, 5, 6 and 8 sided polygons.			<ul style="list-style-type: none"> LOGO provides an ideal environment for students to experience angle as a measure of turn, in both clockwise and anti-clockwise direction. Besides turtle geometry gives students an opportunity to manipulate angles of different sizes. By drawing simple shapes such as squares, rectangles and triangles using simple LOGO commands such as FD, BK, RT, LT and REPEAT, students reflect upon the properties of these shapes.
14	GG3 i. Use ruler and compasses only to draw the perpendicular bisector of a line segment. GG3 ii. Use ruler and compasses only to draw angles of 60° and 90° GG3 iii. Use ruler and compasses to draw the bisector of an angle.	104		<ul style="list-style-type: none"> Apply the bisector of an angles method to draw angles of 30° and 45°.
18	GM4 i. Find the area of a rectangle and of a right angled triangle as half the area of a rectangle or square. GM4 ii. Discover and learn that the area of a triangle can be found by using the formula: half the base times the height. GM4 iii. Find the volume of compound shapes involving cube, cuboid and prism. GM4 iv. Investigate the relationship between the diameter and circumference of a circle.	134 210		

Form III – Track 1: Data Handling

Formula One Maths C Gold

Ch	Mod	Learning Outcome:	Pg	Level	Notes
4	DH1	i. Draw and interpret bar charts and pie charts for ungrouped discrete data.	28		<ul style="list-style-type: none"> Use a spreadsheet to construct bar graphs and pie charts.
15	DH2	i. Understand, compute and interpret the mode, median, mean and range of a set of ungrouped data.	112		<ul style="list-style-type: none"> Use a spreadsheet to compute the mean and range. Students are given opportunities: <ul style="list-style-type: none"> To formulate questions about relevant issues and answer these questions by collecting data and presenting it in meaningful ways. To use spreadsheets to display and analyse the collected data. To compute statistics and understand its scope and drawbacks. To learn to group data in a meaningful way.
	DH2	ii. Draw and interpret bar charts for grouped data.			
	DH2	iii. Compile and interpret frequency tables for grouped discrete data.			
	DH2	iv. Draw a bar chart with equal intervals from a frequency table.			
23	DH3	i. Find the probability by experiment.	176		
	DH3	ii. Understand and work out the probability of an event.			
	DH3	iii. Compile and use a possibility space.			
	DH3	iv. Work out the probability from a frequency table.			