

MATHEMATICS SYLLABUS

Year 10 Track 1

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Year 10 – Track 1: Number and Applications (i)

SMP Interact Mathematics for Malta: Foundation Level

Ch	Mod	Learning Outcome:	Pg	Level	Notes
4	NN31	i. Know what each digit represents in a given number.	28		<ul style="list-style-type: none"> Students are expected to work out, without using pencil and paper or a calculator, simple computations, and to solve simple problems. E.g. smallest first , increasing order of size, etc. E.g. nearest unit, nearest 10 up to nearest 1 000 000. E.g. 732×28
	NN31	ii. Write in a given order a set of numbers.			
	NN31	iii. Round numbers to a given degree of accuracy.			
	NN31	iv. Round numbers correct to one significant figure.			
	NN31	v. Multiply and divide numbers by numbers ending with zeros.			
	NN31	vi. Carry out rough estimates to check accuracy.			
5	NN31	vii. Convert large metric units to smaller metric units and vice versa.	33		<ul style="list-style-type: none"> To include units of length, capacity (<i>l</i>, <i>ml</i>, cm^3) and weight and simple problems connected with these.
14	NN31	viii. Work out problems using metric units.	92		
7	NN32	i. Read decimal numbers to two decimal places from scales.	41		<ul style="list-style-type: none"> To include decimal numbers. For example fitting in an envelope or inserting a number in a given range.
	NN32	ii. Arrange numbers in ascending and descending order of size.			
	NN32	iii. Use the notion of limits in simple cases.			
11	NA33	i. Estimate height by comparing against a known length.	73		
	NA33	ii. Read and use scales in practical situations.			
14	NN34	i. Round numbers and quantities to the nearest unit.	89		<ul style="list-style-type: none"> To include decimal numbers.
	NN34	ii. Round to one and more than one decimal place.			
	NN34	iii. Multiply and divide by powers of ten.			

Year 10 - Track 1: Number and Applications (ii)

SMP Interact Mathematics for Malta: Foundation Level

Ch	Mod	Learning Outcome:	Pg	Level	Notes
21	NN35	i. Recognise multiples, factors and prime numbers.	138		
	NN35	ii. Identify a common factor and a common multiple of two numbers.			
	NN35	iii. Find perfect squares and perfect square roots without using calculators.			
	NN35	iv. Find perfect cubes without using a calculator.			
22	NN35	v. Use factors to multiply and divide by 4 and 5 mentally.	144		
27	NA36	i. Apply notions of directed number to practical situations.	179		<ul style="list-style-type: none"> To include evaluating simple expressions of addition, subtraction and multiplication by substituting one variable by a directed number.
	NN36	ii. Compare the magnitude of two or more integers.			
	NN36	iii. Add negative numbers.			
	NN36	iv. Subtract negative numbers.			
	NN36	v. Multiply directed numbers by a positive number.			
28	NA37	i. Change percentages to fractions / decimals and vice-versa.	186		
	NA37	ii. Work out the percentage of a quantity.			
37	NN38	i. Round numbers, including decimals, to one significant figure.	260		E.g. $\frac{21.82 \times 3.921}{3.72}$
	NN38	ii. Multiply decimal numbers.			
	NN38	iii. Carry out rough estimates to check accuracy.			
	NN38	iv. Round numbers, including decimals, to one and more than one decimal place.			
39	NA39	i. Work with quantities in a given proportion.	278		E.g. Use recipes and make comparisons by using unit costs.
	NN39	ii. Use the ratio notation to compare two or more quantities.			
	NA39	iii. Solve problems involving direct proportion using ratio and the unitary method.			
	NA39	iv. Mix quantities in a given ratio.			
	NN39	v. Write ratios in their simplest form.			
	NA39	vi. Share quantities in a given ratio.			

Year 10 – Track 1: Algebra

SMP Interact Mathematics for Malta: Foundation Level

Ch	Mod	Learning Outcome:	Pg	Level	Notes
15	AL18	i. Use simple formulae by substituting numbers for the unknown.	95		E.g. Function machines.
32	AL19	i. Simplify algebraic expressions by collecting like terms.	219		
	AL19	ii. Form expressions and formulae.			
35	AL20	i. Generate and plot coordinate pairs that satisfy a simple linear rule/equation.	244		
	AL20	ii. Draw straight-line graphs from linear equations.			
	AL20	iii. Use straight-line graphs to find the value of one coordinate given the other.			
42	AL21	i. Solve linear equations in one unknown involving two or more operations.	306		<ul style="list-style-type: none"> • Solve equations by the balancing method.
	AL21	ii. Construct and solve simple linear equations.			<ul style="list-style-type: none"> • Exclude equations involving brackets and fractions
	AL21	iii. Form and solve equations in one unknown to solve problems.			
46	AL22	i. Evaluate simple expressions and formulae by substituting numbers for the unknown.	341		E.g. Function machines- arrow diagram.
	AL22	ii. Construct and use simple formulae/linear equations.			<ul style="list-style-type: none"> • Students should be given opportunities to use a spreadsheet and/or a CAS to explore algebraic relationships.
	AL22	iii. Evaluate simple formulae with two or more positive inputs.			
70	AL23	i. Use conversion graphs.	536		<ul style="list-style-type: none"> • Students are not required to draw conversion graphs.

Year 10 – Track 1: Shape, Space and Measurement

SMP Interact Mathematics for Malta: Foundation Level

Ch	Mod	Learning Outcome:	Pg	Level	Notes
5	GM20	i. Use metric units of length, mass and capacity.	33		<ul style="list-style-type: none"> To include $1\text{ml} = 1\text{cm}^3$ and $1\text{litre} = 1000\text{ml} = 1000\text{cm}^3$
8	GG21	i. Identify and draw shapes having reflection symmetry.	48		<ul style="list-style-type: none"> Limited to shapes in 2D only.
	GG21	ii. Understand the symmetrical properties of a regular polygon.			
	GG21	iii. Determine the order of rotational symmetry.			
	GG21	iv. Identify shapes having rotational symmetry.			
23	GG22	i. Solve problems involving angles at a point, angles on a straight line and vertically opposite angles.	145		<ul style="list-style-type: none"> To include alternate and corresponding angles. Only an outline notion is required with one step statements. Proofs of geometric statements from geometric diagrams will not be required.
	GG22	ii. Identify parallel lines in geometric figures.			
	GG22	iii. Solve problems involving parallel lines.			
	GG22	iv. Give reasons for deducing true statements from geometric diagrams.			
25	GG23	i. Draw different views of a given solid.	160		<ul style="list-style-type: none"> To draw the plan, front and side view of a solid on squared paper.
	GG23	ii. Identify a prism and draw its uniform cross section.			
	GG23	iii. Identify and construct the net of a cuboid, triangular prism and square based right pyramid.			
29	GM24	i. Know and understand the meaning of terms related to the circle: centre, radius, diameter and circumference.	194		<ul style="list-style-type: none"> Discover through practical activity that as ratio of circumference to diameter π is approximately equal to 3. Learn to use the π key on the calculator.
	GM24	ii. Understand the notion of π .			
	GM24	iii. Work out the circumference of a circle using π as a multiplier.			
31	GM25	i. Derive and use the formula for the area of a parallelogram.	211		<ul style="list-style-type: none"> Use squared paper to demonstrate that the area of a parallelogram is equal to that of a rectangle on an equal base and having the same perpendicular height. Identify the perpendicular height with respect to a given side.
40	GM26	i. Derive the formula $\frac{1}{2} \times \text{base} \times \text{perpendicular height}$ for the area of a triangle.	291		
	GM26	ii. Use the formula for the area of a triangle in composite shapes.			

Year 10 – Track 1: Data Handling

SMP Interact Mathematics for Malta : Foundation Level

Ch	Mod	Learning Outcome:	Pg	Level	Notes
2	DH10	i. Interpret information tables.	12		<ul style="list-style-type: none"> Understanding the difference between discrete and continuous data is not expected.
	DH10	ii. Read line graphs and bar charts.			
	DH10	iii. Construct ungrouped frequency tables.			
	DH10	iv. Understand, compute and interpret the mean, mode and range of a set of data.			
20	DH11	i. Group data and compile grouped frequency tables.	134		<p>Students should be given opportunities</p> <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. It is important that pupils not only learn how to compute statistics but understand their scope and drawbacks. Learn to group data in a meaningful way.
	DH11	ii. Draw bar charts for grouped data.			
30	DH11	iii. Collect, classify and tabulate statistical data.	204		
36	DH12	i. Find the probability by experiment.	251		
	DH12	ii. Understand and work out the probability of an event.			