ST. MAARTEN ACADEMY

MATHEMATICS DEPARTMENT

FORM 2

SYLLABUS FOR
2023 - 2024

Caring, Learning, Achieving, Excelling

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FORM TWO

GENERAL OBJECTIVES

1. To provide opportunities for the acquisition of mathematical concepts such as equations, inequations, fractions, decimals, percents, percentages, sets and integers.

2. To extend the use of numbers to include integers.

3. To provide an understanding of certain geometrical concepts like triangles, parallel lines, symmetry and reflection.

4. To expose the applicability of consumer mathematics, relations and mapping to familiar everyday situations.

5. To set the foundation for the use of statistics.

6. To master computational skills in fraction, decimals, percents and percentages.

7. To develop the ability to estimate the results given certain conditions.

8. To provide opportunities for the development of alternative approaches to solve problems.

1. To perceive that mathematical concepts are interrelated.

2. To appreciate the precision, use and power of the language of mathematics.

3. To develop the skills of critical thinking and analysis.

TOPICS: FORM TWO

TERM ONE

1.	Integers and Algebraic Expressions	2 weeks
2.	Equations and Inequalities	3 weeks
3.	Sets	3 weeks
4.	Statistics and Probability	2 weeks
5.	Triangles	3 weeks

TERM TWO

1.	Parallel Lines and Angles	2 weeks
2.	Relations and Mappings	3 weeks
3.	Symmetry and Reflection	3 weeks
4.	Translation	1 week
5.	Algebra: Expressions & Equations	2(3) weeks

TERM THREE

1.	Algebra (continuation from term 2)	1 week
2.	Approximation (including significant figures)	1 week
3.	Squares, square roots	2 weeks
4.	Indices/Standard Form	2 weeks
5.	Revision	

NB: For various reasons, often the last topic (or topics) from term one is/are carried over into term two; the same goes for term two to term three.

FORM TWO *TERM ONE*

WK	TOPIC	OBJECTIVES	ASSESSMENT
1	**INTEGERS AND ALGEBRAIC EXPRESSIONS** Inequalities Operations with integers	• Review comparing real numbers by using the inequality sign. • Perform the four basic operations (+, -, ×, ÷) on positive and negative integers.	Class work Homework Quiz
2	**SIMPLIFICATION OF ALGEBRAIC EXPRESSIONS**	• Simplify algebraic expressions containing like and unlike terms with positive and negative numbers.	Class work Homework Quiz, Test
3	**EQUATIONS AND INEQUATIONS** Linear equations	• Recall the difference between an equation and an algebraic expression • Solve linear equations in one unknown involving positive and negative integers	Class work Homework Quiz
4	Linear inequalities	• Read correctly any expression involving the use of inequality signs. • Represent graphically, on the number line, the solution of inequalities.	Class work Homework Quiz
5	Inequality Set builder notation	• Use set builder notation to show the solution of an inequalities. • Solve linear inequalities in one unknown involving positive and negative integers	Class work Homework Quiz Test
6	**SETS** Word problems	• Solve word problems using Venn diagrams containing no more than 2 subsets: (i) First, without algebra; (ii) Second, including algebra	Class work Homework Quiz
7	Set-builder notation Three subsets	• Describe sets (including union and intersection) using set-builder notation. • Determine the cardinal number for named subsets of two intersecting sets, given the number of elements in some of the other subsets (including complement). • List union and intersection of three sets.	Class work Homework Quiz

FORM TWO *TERM ONE*

WK	TOPIC	OBJECTIVES	ASSESSMENT
8	**SETS** Problems with 3 subsets	• Venn diagrams with 3 intersecting subsets: Intersections, unions, complements, cardinal numbers of various subsets. • Solve problems with the use of Venn diagrams involving 3 subsets. • Use Venn diagrams to represent propositions from which valid conclusions can be made.	Class work Homework Quiz Test
9	**STATISTICS AND PROBABILITY** Bar graph, mean, mode, median	• Construct a simple frequency table for a given set of data, including tally. • Represent data using a bar graph. • Analyse data depicted on bar charts. • Calculate mean, mode and median of a set of data (also from a frequency table)	Class work Homework Quiz
10	Pie chart, Line graph	• Depict statistical information using pie chart and line graph.	Class work Homework Quiz
11	Pie chart, Line graph Simple probability	• Interpret correctly information presented in pie charts and line graphs • Simple probability	Class work Homework Test
12	**TRIANGLES** Sum of angles Area of triangle	• Calculate the missing angle in a given triangle • State the formula for the area of a triangle • Find the areas of various types of triangles using the formula.	Class work Homework Quiz
13	Area of composite shapes	• State the relationship between area, height and base of a triangle; find the height or base, given one of these and the area. • Find the area of a composite shape including rectangle and triangle.	Class work Homework Quiz Test

NOTE: Objectives for week 9 are a "carry-over" from incomplete work in form 1 (pg. 10, wks.3 & 4)

FORM TWO *TERM TWO*

WK	TOPIC	OBJECTIVES	ASSESSMENT
1	**PARALLEL LINES & ANGLES**	• Identify parallel lines from a given set of lines. • Identify alternate, corresponding and interior angles where the straight lines are cut by a third. • Deduce that alternate angles and correspondence angles are equal when parallel lines are cut by another straight line. • Deduce that interior angles are supplementary when parallel lines are cut by another straight line. • Use the above properties to determine when given lines are parallel.	Class work Homework Quiz
2		• Identify equal alternate and equal corresponding angles in given figures. • Calculate the size of angles, in given figures, using the above and previous knowledge of angles relationships • Construct parallel lines using set squares and ruler.	Class work Homework Quiz Test
3	**RELATIONS & MAPPINGS**	• Define a relation • Write examples of relations • Draw an arrow diagram to represent a relation • Write the relation given an arrow diagram • Write the ordered pair for a relation • Write the relation given the set of ordered pairs • Describe relations using symbols • Draw a graph to show a relation • Recall that a relation has direction (sense) • Explain, in their own words, the meaning of domain, range, image and co-domain • Identify the domain and range for a given relation	Class work Homework Quiz

FORM TWO *TERM TWO*

WK	TOPIC	OBJECTIVES	ASSESSMENT
4	**RELATIONS & MAPPINGS**	• Explain, in their own words, the meaning of mapping • Differentiate between a mapping and a relation. • Recognise that mapping can be represented in the same manner as relations • List the different types of mappings • Draw diagrams illustrating the different types of mappings	Class work Homework Quiz
5	**RELATIONS & MAPPINGS**	• Write the domain and range for a relation • Differentiate between the types of mappings • Draw and number correctly the x and y axes. • Plot points (x, y) in any part of the x - y plane. • Write the coordinates of a given point. • Draw shapes given a set of points. • Draw graphs to represent the following: (i) $x = a$ (ii) $y = b$, (iii) $y = bx$ (iv) $y = ax + b$ where $a, b \in Z$ (including $y = x$ and $y = -x$)	Class work Homework Quiz Test
6	**SYMMETRY & REFLECTION**	• Explain, in their own words, the meaning of symmetry • Define a line of symmetry • Identify a line of symmetry in plane figures • Draw a line of symmetry in a plane figure • Explain, in their own words, the meaning of reflection, axis or reflection (mirror line), image and object	Class work Homework Quiz
7	**SYMMETRY & REFLECTION**	• Reflect points, lines and plane figures in a given line • Identify the line of reflection given the object and the image • Write the equation of the line of reflection given the object and the image	Class work Homework Quiz

FORM TWO *TERM TWO*

WK	TOPIC	OBJECTIVES	ASSESSMENT
8	**SYMMETRY & REFLECTION**	• State the properties of reflection pertaining to size, shape, distance from mirror line and orientation of object and image. • Reflect points, lines and plane figures in the following lines: (a) $x = 0$ (b) $y = 0$ (c) $x = a$ (d) $y = b$, where $a, b \in Z$, (e) $y = x$, (f) $y = -x$	Class work Homework Quiz Test
9	**TRANSLATION**	• Define translation. • Translate points, lines and plane figures along (a) the x-axis (b) the y-axis (c) both x- and y-axis simultaneously. • Define a column vector. • Describe the meaning of each component of a column vector, as applied to translation. • Associate a column vector with translation. • Translate points, lines and plane figures given a column vector. • Write the column vector, given an object and its image under translation. • State the properties of translation.	Class work Homework Quiz Test
10	**ALGEBRAIC EXPRESSIONS**	• Apply the distributive law to simplify algebraic expressions. • Remove brackets and simplify, where necessary.	Class work Homework Quiz
11	**ALGEBRAIC EXPRESSIONS**	• Factorise an algebraic expression using HCF • Add and subtract algebraic fractions $\frac{!!}{!} \pm \frac{!!}{!} \rightarrow \frac{!!!!}{!} \pm \frac{!!}{!}, \frac{!}{!} \pm \frac{!}{!!}, \frac{!!!!}{!!} \pm \frac{!!!!}{!}$	Class work Homework Quiz Test

FORM TWO *TERM THREE*

WK	TOPIC	OBJECTIVES	ASSESSMENT
1	**ALGEBRA** Solution of linear Equations	• Solve linear equations in one unknown (including variables on both sides and including brackets). • Solve word problems giving rise to algebraic equations	Class work Homework Test
2	**APPROXIMATION AND SIGNIFICANT FIGURES**	• Recall decimal places • Explain, in their own words, the meaning of significant figures • Count the number of significant figures in a given number • Write the number of significant figures in a given number • Write a given number to a required number of significant figures	Class work Homework Quiz Test
3	**SQUARES, SQUARE ROOTS**	• Identify square numbers given a set of numbers • Compute the square of a given number. • Calculate the square root of a given square number	
4	**SQUARES, SQUARE ROOTS**	• Calculate the square of a given number **n**, where **nϵ R** • Calculate the square root of a given number **n**, where **nϵ R** • Recognise that the square root of certain numbers cannot be computed exactly	
5	**INDICES and STANDARD FORM**	• Recall the meaning of a negative integral index (e.g. a^{-3}) • Recall ($a^m \times a^n = a^{m+n}$, $a^m \div a^n = a^{m-n}$) to simplify algebraic expressions. • Use $a^\circ = 1$ for any non-zero value of a. • Evaluate numerical operations involving integral indices. E.g. $5^{-2} = \frac{1}{25}$,	Class work Homework Quiz

		$2^3 \times 3^{-4} = \frac{8}{81}$.	
6	**INDICES and STANDARD FORM**	• Solve equations involving integral indices; eg. $5^{x+3} = 1$, $\frac{1}{36} = 6^x$, $3^{2n-1} = 81$, etc. • Write numbers in standard form (scientific notation), including numbers between 0 and 1.	Class work Homework Quiz Test

LIST OF TEXT BOOKS

Mathematics for Caribbean Schools,Third Edition, Bk. 1; A. Foster, T. Tomlinson

Mathematics for Caribbean Schools,Third Edition, Bk. 2; A. Foster, T. Tomlinson

Mathematics for Caribbean Schools,Third Edition, Bk. 3; A. Foster, T. Tomlinson

Mathematics for Caribbean Schools,Third Edition, Bk. 4; A. Foster, T. Tomlinson

Nelson Caribbean Mathematics, Bk. 1 ; M. Folkes, M. Maxwell

Nelson Caribbean Mathematics, Bk. 2 ; M. Folkes, M. Maxwell

Nelson Caribbean Mathematics, Bk. 3 ; M. Folkes, M. Maxwell

Oxford Mathematics for the Caribbean, Fourth Edition; N. Goldberg, C. King, C. Lutchman.

MATHEMATICS , A COMPLETE COURSE, WITH CXC QUESTIONS, Volumes 1 & 2; Raymond Toolsie

CXC Basic Mathematics, A Revision Course, Second Edition; A. Greer, C.E. Layne

CXC Mathematics For Today, Volumes 1&2; G. Buckwell, R. Solomon, T. Chung Harris