SING YIN SECONDARY SCHOOL
SYLLABUS FOR MATHEMATICS (16-17)

FORM ONE

Textbook : New Progress in Junior Mathematics (2nd Edition) 1A & 1B
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Students are expected to develop the following attitudes:

- to love logical thinking
- to accept careful work as important
- to accept challenging work.

Chapter	Topics	Approx. No. of Period	Objectives
0	Fundamental Mathematics	4	• To review the concepts of numbers, fractions and basic arithmetic operations. • To understand the use of brackets. • To find H.C.F. and L.C.M. by the product of prime factors. • To review the concepts of measuring units. • To understand the use of protractors.
1	Directed Numbers	12	• To understand and accept intuitively the concept and uses of negative numbers. • To recognize the concept of ordering on the number line. • To manipulate directed numbers.
2	Using Algebra to Solve Problems	16	• To appreciate the use of letters to represent numbers. • To understand the language of algebra including translating word phrases into algebraic expressions or writing descriptive statements for algebraic expressions. • To note the differences between the language of arithmetic and the language of algebra. • To recognize some common simple formulas and be able to substitute values. • To formulate simple algebraic equations to solve problems.
			• To know how to formulate simple inequalities to solve problems. • To learn the distributive law $a(b + c) = ab + ac$. • To simplify algebraic expressions by collecting like terms.
3	Percentages	10	• To understand the meaning of percentages and percentage changes. • To apply percentage changes to solve simple selling problems.

4	Estimation in Numbers and Measurement	8	• To recognize the need to use estimation strategies. • To determine whether to use estimate values or exact values. • To select an appropriate estimation strategy and justify the result. • To choose an appropriate means for calculation such as mental computation, calculators or paper and pencil. • To recognize the approximate nature of measurement. • To choose an appropriate measuring tool, technique, unit and degree of accuracy for a particular purpose. • To estimate, measure and calculate various kinds of quantities. • To appreciate the past attempts to approximate the value of π.
5	Introduction to Geometry	9	• To recognize the common terms and notations in geometry such as line segments, angles, regular polygons, cubes and regular polyhedra (Platonic solids). • To identify types of angles and polygons. • To sketch the 2-D representation of simple solids. • To sketch the cross-sections of the solids. • To overview tools of geometry and explore ways of using them to construct polygons, circles, parallel and perpendicular lines.
6	Introduction to Statistics	16	• To recognize the various stages involved in statistics. • To use simple methods to collect data for analysis. • To recognize discrete and continuous data. • To understand the criteria for organizing data, and to discuss different ways of organizing the same set of data. • To construct and interpret simple diagrams including broken line graphs, pie charts, stem-and-leaf diagrams, scatter diagrams. • To compare the presentations of the same set of data by using various graphs or the same type of graph with different scales. • To choose appropriate diagrams/graphs to present data.
7	Introduction to Coordinate Geometry	9	• To understand and use the rectangular and polar coordinate systems to describe positions of points in a plane. • To use an ordered pair in the rectangular coordinate system to locate a point in a plane. • To calculate areas of polygons in coordinate planes.
8	Symmetry and Transformation	10	• To recognize reflectional and rotational symmetries in plane figures. • To recognize the effect on plane figures after reflection, rotation, translation, enlargement/reduction. • To appreciate the symmetrical shapes around and transformations on shapes used in daily life. • To describe intuitively the effects of transformation such as translation, reflection with respect to lines parallel to x-axis, y-axis and rotation about the origin through multiples of 90° on points in coordinate planes.

9	Congruence and Similarity	14	• To recognize the properties for congruent and similar triangles. • To extend the ideas of transformation and symmetry to explore the conditions for congruent and similar triangles. • To recognize the minimal conditions in fixing a triangle. • To identify whether 2 triangles are congruent/similar with simple reasons. • To explore and justify the methods to construct angle bisectors, perpendicular bisectors and special angles by compasses and straightedges. • To develop a deductive approach to study geometric properties. • To develop an intuitive idea of deductive reasoning.
10	Area and Voume (I)	8	• To find areas of simple polygons. • To understand and use the formulas for surface areas and volumes of cubes, cuboids, and prisms.
11	Angles Related to Lines	6	• To recognize different types of angles. • To explore and use the angle properties associated with intersecting lines and parallel lines.
12	Rate and Ratio	8	• To understand the meaning of rate and ratio. • To recognize the notation of $a : b$, $a : b : c$. • To use rate and ratio to solve real-life problems including mensuration problems. • To use the '*k*-method' to solve problems related to ratio.

Note: Contents in the shaded boxes are not included in the textbook.

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Signature of Teacher In Charge : _____

Checked by : _____