DAWOOD PUBLIC SCHOOL

Course out line 2011-2012
Subject Maths
Class – VIII

Book:

Seng, T.et al, 2006, *New Syllabus Mathematics 1*(6th Edition), Singapore; Oxford University Press
Seng, T.et al, 2008, *New Syllabus Mathematics 2*(6th Edition), Singapore; Oxford University Press
Seng, T.et al, 2008, *New Syllabus Mathematics3* (6th Edition), Singapore; Oxford University Press

Syllabus Aims and Assessment:

The syllabus demands understanding of basic mathematical concepts and their applications, together with an ability to show this by clear expression and careful reasoning.
In the examination, importance will be attached to skills in algebraic manipulation and to numerical accuracy in calculations.

Aims

The course should enable students to:

- Develop their mathematical knowledge and oral, written and practical skills in a manner which encourages confidence;
- Read mathematics, and write and talk about the subject in a variety of ways;
- Develop a feel for number, carry out calculations and understand the significance of the results obtained;
- Apply mathematics in everyday situations and develop an understanding of the part which mathematics plays in the world around them;
- Solve problems, present the solutions clearly, check and interpret the results;
- Develop an understanding of mathematical principles;
- Recognize when and how a situation may be represented mathematically, identify and interpret relevant factors and, where necessary, select an appropriate mathematical method to solve problems;
- Use mathematics as a means of communication with emphasis on the use of clear expression;
- Develop the abilities to reason logically, to classify, to generalize and to prove;

Assessment objectives:

The examination tests the ability of candidates to:

- •Recall, apply and interpret mathematical knowledge in the context of everyday situations;
- Set out mathematical work, including the solution of problems, in a logical and clear form using appropriate symbols and terminology;
- Organize, interpret and present information accurately in written, tabular, graphical and diagrammatic forms;
- Perform calculations by suitable methods;
- Use an electronic calculator;
- Understand systems of measurement in everyday use and make use of them in the solution of problems;
- Estimate, approximate and work to degrees of accuracy appropriate to the context;
- Use mathematical and other instruments to measure and to draw to an acceptable degree of accuracy;
- Recognize patterns and structures in a variety of situations and form generalizations;
- Interpret, transform and make appropriate use of mathematical statements expressed in words or symbols;

Units

SI units will be used in questions involving mass and measures: the use of the centimeter will continue. Both the 12-hour clock and the 24-hour clock may be used for quoting times of the day. In the 24-hour clock, for example, 3.15 a.m. will be denoted by 03 15; 3.15 p.m. by 15 15, noon by 12 00 and midnight by 24 00.
Candidates will be expected to be familiar with the solidus notation for the expression of compound units, e.g. 5 cm/s for 5 centimeters per second, 13.6 g/cm3 for 13.6 grams per cubic centimeter.

Monthly Syllabus

AUGUST	● Algebraic Manipulation & Formulae
SEPTEMBER	● linear inequalities ● Congruence and Similarity
OCTOBER	● Volume and Surface Area ● Statistics
NOVEMBER	● REVISION FOR MID TERM
DECEMBER	● **MID TERM EXAMS**

JANUARY	● Application of Mathematics in Practical Situation ● Direct and Inverse Proportions
FEBRUARY	● Direct and Inverse Proportions ● Graphs of Linear Equations in two unknown ● Congruence and similar triangles
MARCH	● Congruence and similar triangles ● Indices
APRIL	● REVISION FOR FINAL EXAMS
MAY	● **FINAL TERM EXAMS**

Syllabus Content

Theme or Topic	**Subject Content**
● Algebraic Manipulation and Formulae Book 2, Chap No.4 Pg No.(117-149) ● Linear Inequalities Book 3, Chap No.3 Pg No.(53-70)	*Students should be able to:* • manipulate directed numbers; • use brackets and extract common factors; • expand products of algebraic expressions • manipulate simple algebraic fractions. • solve simple linear equations in one unknown; • solve simple linear inequalities.
• Congruence and Similarity Book 2, Chap No.1 Pg No.(1-30)	• differentiate b/w congruent and similar figure; • solve problems and give simple explanations involving similarity and congruence;
• Volume and surface area Book 2, Chap No 7 Pg No.(199-223) • Statistics Book 1, Chap No.15 Pg No.(324-350)	• State the formula for the volume of a pyramid and use it to solve related problems. • Sketch a pyramid and draw its net and use it to find the surface area of a pyramid. • State the formulae for the volume, curved surface area and the total surface area of a cone and use these formulae to solve related problems. • State the formulae for the volume and surface area of a sphere and use them to solve related problems. • Solve problems involving cones, prisms, pyramids, cylinders and/or spheres. • collect, classify and tabulate statistical data; read, interpret and draw simple inferences from tables and statistical diagrams; • construct and use bar charts, pie charts, pictograms,
• Application of Mathematics in Practical Situation Book 3, Chap No.6 Pg No.(135 - 151) • Direct and Inverse proportion Book 2, Chap No.2 Pg No.(48-66)	• Solve problems involving profit and loss. • Solve problems involving further examples of percentages. • Solve problems involving simple interest. • Solve problems involving compound interest. • Solve problems involving hire purchase. • Convert one currency to another. • Calculate simple taxation problems. • Solve problems involving personal and household finances. • Interpret and use tables and charts in solving problems. • Use different problem solving strategies to solve everyday life problems. • express direct and inverse variation in algebraic terms and use this form of expression to find unknown quantities.
• Graphs of Linear Equations in two unknown Book 2, Chap No.8 Pg No.(235-257)	• calculate the gradient of a straight line from the coordinates of two points on it; • interpret and obtain the equation of a straight line graph in the form $y = mx + c$; • solve simultaneous equations graphically

● Congruent and Similar Triangles Book 3, Chap No.8 Pg No.(201-236)	• differentiate b/w congruent and similar figure; • solve problems and give simple explanations involving similarity and congruence; • use and interpret vocabulary of simple solid figures: cube, cuboids, prism, cylinder, pyramid, cone, sphere;
● Indices and Standard Form Book 3, Chap No.2 Pg No.(18-41)	• use and interpret positive, negative, zero and fractional indices. • use the standard form $A \times 10^n$ where n is a positive or negative integer, and $1 \leq A < 10$.

Breadth of study

During the key stage, students should be taught the knowledge, skills and understanding through:
(a) Activities that ensure they become familiar with, and confident using, standard procedures for the range of calculations appropriate to this level of study;

(b) Solving familiar and unfamiliar problems in a range of numerical, algebraic and graphical contexts and in open-ended and closed form;
(c) Using standard notations for decimals, fractions, percentages, ratio and indices;
(d) Activities that show how algebra, as an extension of number using symbols, gives precise form to mathematical relationships and calculations;
(e) Activities in which they progress from using definitions and short chains of reasoning to understanding and formulating proofs in algebra and geometry;
(f) A sequence of practical activities that address increasingly demanding statistical problems in which they draw inferences from data and consider the uses of statistics in society;

Activities:

AUGUST	●Mental Maths ● Maths activity calendar
SEPTEMBER	● Puzzle ● Maths activity calendar
OCTOBER	● Maths Fun Activity ● Maths activity calendar
NOVEMBER	●Maths Quiz/ MCQs ● Maths activity calendar
DECEMBER	●MID TERM EXAMS
JANUARY	● Mental Maths ● Maths activity calendar
FEBRUARY	● Puzzle ● Maths activity calendar
MARCH	● Maths Fun Activity ● Maths activity calendar
APRIL	●Maths Quiz/ MCQS ● Maths activity calendar
MAY	●FINAL TERM EXAMS

Assessment and Home Work

Students will be assessed by taking test of each and every chapter. Home Work shall be given on a daily basis.

Mathematical Notations:

The list which follows summaries the notation used

Mathematical Symbols

=	is equal to
≠	is not equal to
≡	is identical to or is congruent to
≈	is approximately equal to

Operations

$a + b$	a plus b
$a - b$	a minus b
$a \times b$, ab, $a.b$	a multiplied by b
$a \div b$, $\frac{a}{b}$, a/b	a divided by b

Resource List

New Mathematics Syllabus D work book 1,2;
Bostock, L, S Chandler, A Shepherd, E Smith ST(P) Mathematics Books 1A to 5A
(Stanley Thornes)

Book 1A	Book 2A	Book 3A
Book 1B	Book 2B	Book 3B

Buckwell, Geoff Mastering Mathematics (Macmillan Education Ltd) 0 333 62049 6
Collins, J, Warren, T and C J Cox Steps in Understanding Mathematics (John Murray)
Book 1, 2

National Mathematics Project (NMP) Mathematics for Secondary Schools Red Track Books 1 to 5 (Longman Singapore Publishers Pte Ltd)
Book 1, 2

Cox, C J and D Bell Understanding Mathematics Books 1–5 (John Murray)
Book 1, 2

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