PUTTING THE FUN BACK INTO LEARNING!

Maths' Curriculum Guide

January 2018

Dear Parents and Guardians,

Welcome to the Mathematics Department's January Curriculum Guide.

The Maths Department are very happy with the progress that the students have made this year and we are all looking forward to continuing the good work in 2018.

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Curriculum Content for January

Each grades' curriculum is aligned so that the progression from Grade 6 to Grade 10 is transparent, relevant and evident in all of the pupils' tasks.

Grade 6:

- Calculate exactly with fractions.
- Work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 or 3/8).
- Identify and work with fractions in ratio problems.
- Interpret fractions and percentages as operators.

Grade 7:

- Order positive and negative integers, decimals and fractions; use the symbols =, ≠, <, > , ≤, ≥.
- Apply the four operations, including formal written methods, to integers, decimals and simple fractions (proper and improper), and mixed numbers – all both positive and negative; understand and use place value (e.g. when working with very large or very small numbers, and when calculating with decimals).
- Round numbers and measures to an appropriate degree of accuracy (e.g. to a specified number of decimal places or significant figures).
- Plot graphs of equations that correspond to straight-line graphs in the coordinate plane; use the form y = mx + c to identify parallel and perpendicular lines; find the equation of the line through two given points or through one point with a given gradient.

Grade 8:

- Use scale factors, scale diagrams and maps.
- Use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle).
- To use these to construct given figures and solve loci problems.
- To know that the perpendicular distance from a point to a line is the shortest distance to the line.

Grade 9:

Topics taught for IGCSE have been set specifically for the students taking this course, students will complete a selection of the following depending upon their set.

The Higher and Foundation tier candidates are studying towards the following objectives:

- Calculate exactly with fractions, surds and multiples of π; simplify surd expressions involving squares (e.g. $\sqrt{12} = \sqrt{(4 \times 3)} = \sqrt{4} \times \sqrt{3} = 2\sqrt{3}$) and rationalise denominators.
- Use standard units of mass, length, time, money and other measures (including standard compound measures) using decimal quantities where appropriate.
- Estimate answers; check calculations using approximation and estimation, including answers obtained using technology.
- Change freely between related standard units (e.g. time, length, area, volume/capacity, mass) and compound units (e.g. speed, rates of pay, prices, density, pressure) in numerical and algebraic contexts
- Use conventional terms and notation: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries; use the standard conventions for labelling and referring to the sides and angles of triangles; draw diagrams from written description.
- Identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment.
- Identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres.

Grade 10:

As this Grade will be sitting IGCSE examinations at the end of this year topics will be taught in tandem to revision of last year's topics.

From January, the Maths' sets will be trying to conclude their curriculum and we will be allocating the students' class time to curriculum, revision and exam practice. Most of the students' homework will be based on past papers.

- Compare lengths, areas and volumes using ratio notation; make links to similarity (including trigonometric ratios) and scale factors
- Identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering rotation, reflection, translation and enlargement (including fractional and negative scale factors)
- Describe the changes and invariance achieved by combinations of rotations, reflections and translations
- Enumerate sets and combinations of sets systematically, using tables, grids, Venn diagrams and tree diagrams

- Construct theoretical possibility spaces for single and combined experiments with equally likely outcomes and use these to calculate theoretical probabilities
- Calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions
- Vectors.

How can you help?

- Make sure your child comes to school prepared.
- Teach them to check and pack their own school bags so that they know exactly what is inside them.
- Make sure their books and stationery are marked with their name.
- Ensure their pencil case is always stocked with stationery which MUST include:
  HB pencils, a rubber, a sharpener, a blue or black pen, a red pen, a 30cm-ruler, a Geometry Set, a scientific calculator, a glue stick, a whiteboard pen and eraser and scissors
- Regularly check Bric and guide the children towards the completion of the task given as homework.
- Do not complete homework for your children or we cannot assess their needs and progress accurately.
- Encourage your child to speak to their teacher with regard to interactive websites for further study as well as electronic guides that can help their studies as appropriate to their grade.

Thank you for your ongoing support

The Maths Department