PUTTING THE FUN BACK
INTO LEARNING!

Dear Parents and Guardians,

Welcome to the Mathematics Department's November Curriculum Guide.

The Maths Department are pleased with the efforts from each of the students so far. The students have been making good progress academically and we hope that they are thoroughly enjoying their lessons.

The Maths department would like to highlight the importance of homework being completed by the students and we request for parents to repeat this message at home.

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Curriculum Content for November

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:
- use and interpret algebraic manipulation, including:

  ab in place of a × b

  3y in place of y + y + y and 3 × y

  a^2 in place of a × a, a^3 in place of a × a × a, $2a^2b$ in place of a × a × b, a/b in place of a ÷ b

- substitute numerical values into formulae and expressions, including scientific formulae
- understand and use the concepts and vocabulary of expressions, equations, formulae, identities, inequalities, terms and factors
- simplify and manipulate algebraic expressions by:
  collecting like terms
  multiplying a single term over a bracket
  taking out common factors

- understand and use standard mathematical formulae; rearrange formulae to change the subject
- know the difference between an equation and an identity; argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments and proofs

Grade 7:

- Measure line segments and angles in geometric figures.
- Know and apply formulae to calculate: area of triangles, parallelograms, trapezia; volume of cuboids and other right prisms.
- Understand and use place value (e.g. when working with very large or very small numbers, and when calculating with decimals)
- Interpret and construct tables, charts and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data.
- Understand how to interpret graphs of data in particular to find the averages and range.
- Interpret and draw vertical line charts for ungrouped discrete numerical data.

Grade 8:

- Factorising quadratic expressions of the form $x^2 + bx + c$, including the difference of two squares; factorising quadratic expressions of the form $ax^2 + bx + c$.
- Understand and use standard mathematical formulae; rearrange formulae to change the subject.
- Know the difference between an equation and an identity; argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments and proofs.

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:

- Understand and use standard mathematical formulae; rearrange formulae to change the subject
- Understand the difference between an equation and an identity; argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments and proofs
- infer properties of populations or distributions from a sample, while knowing the limitations of sampling
- interpret and construct tables, charts and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical data, tables and line graphs for time series data and know their appropriate use
- construct and interpret diagrams for grouped discrete data and continuous data, i.e. histograms with equal and unequal class intervals and cumulative frequency graphs, and know their appropriate use.

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.

- Students to select appropriate method to solve for the roots of Quadratics equations (complete the square, factorisation, use of formula)
- Students to interpret graphs of equations in the context of roots and simultaneous equations.
- where appropriate, interpret simple expressions as functions with inputs and outputs; interpret the reverse process as the 'inverse function'; interpret the succession of two functions as a 'composite function' (the use of formal function notation is expected)
- work with coordinates in all four quadrants
- 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
- identify and interpret gradients and intercepts of linear functions graphically and algebraically
- identify and interpret roots, intercepts, turning points of quadratic functions graphically; deduce roots algebraically and turning points by completing the square
- recognise, sketch and interpret graphs of linear functions, quadratic functions, simple cubic functions, the reciprocal function $y = 1/x$ with $x \neq 0$, exponential functions $y = k^x$ for positive values of k, and the trigonometric functions (with arguments in degrees) $y = \sin x$, $y = \cos x$ and $y = \tan x$ for angles of any size

Students' homework is mainly based on previous past IGCSE examination questions. Students should be returning their homework for marking and they should then reflect on the teacher feedback.

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