KS4 Year 10 Group A

Subject: Mathematics

The mathematics department aim to develop the full potential of every student in the subject. It is our aim to ensure that every pupil experiences success and enjoyment in the subject, whether it be equipping them with sufficient mathematical skills for everyday life or developing problem solving and reasoning skills to take them beyond GCSE.

The scheme of learning is divided into units of study consisting of interlinking skills and topics that build on prior learning. Throughout the year students will complete multi-choice quizzes, homework, 'common homework tasks' and assessments. The common homework tasks will be completed by all students following this scheme of learning. The assessments provide opportunities for students to demonstrate their ability to recall information, methods of calculation and skills studied in previous units of work, and apply their problem solving skills to a variety of contextual problems.

		I will learn to	How I will be assessed
Autumn Term	Unit 1	- Introduction to calculator skills (Y7); include negative number, square, square root and bracket buttons. - Divide an amount into a given ratio and solve problems involving ratio including real life context. Include missing values. - Write a ratio in the form 1:n - Solve combination ratio questions; a:b and b:c - Recognise examples of direct and inverse proportion - Solve problems involving direct and inverse proportion (recipes, currency exchange...) - Solve best buy/better value problems, including non-integer solutions - Use and interpret scales on maps - Use and interpret scales on scale diagrams and draw a scale diagram	Multi-choice Quiz Common Homework Topic Assessment
	Unit 2	- Calculate and recognise powers and associated roots beyond cubes; work with powers/roots in problems - Write a number as a product of its prime factors. - Find the highest common factor of 2 or more numbers from a list AND Venn diagram - Find the lowest common multiple of 2 or more numbers from a list AND Venn diagram - Apply BIDMAS to evaluate a calculation, including roots and powers beyond cubes - Apply the four operations to decimals, including problem solving questions and non-integer solutions - Round numbers correct to a given number of decimal places, include rounding '9' in any place value. - Round numbers correct to a given number of significant figures - Estimate calculations by rounding numbers to 1 significant figure - Truncate numbers to a given number of decimal places/significant figures - Use inequality notation to specify simple error intervals	Multi-choice Quiz Common Homework Autumn Assessment (Units 1 & 2)

Spring Term	**Unit 3**	• Substitute positive and negative values into formulae and expressions, including 'real-life' questions. • Simplify expressions by collecting like terms, including algebraic terms with a power>1 • Expand a single bracket, including two or more brackets separated by a + or - • Factorise linear expressions • Form and solve equations with an unknown on one side and including brackets • Interpret and write more complex algebraic expressions and formulae. Explicitly introduce circle formulae and naming parts thereof; radius, circumference, diameter ($A=\pi r^2$ / $C = \pi d$). • Plot coordinates in 4 quadrants • Plot a linear graph by generating a table of values, making explicit links to (x,y) co-ordinates and the y-intercept • Draw and interpret (single) line graphs from real life situations, with explicit links to interpretation of the y-intercept • Generate and describe a sequence using the nth term • Find the nth term of an arithmetic sequence	Multi-choice Quiz Common Homework Topic Assessment
	Unit 4	• Recognise and name regular polygons • Calculate and use the sum of interior and exterior angles of polygons • Solve angle problems relating to regular polygons • Derive and use the formula for area of a trapezium • Find the area of composite shapes made up of triangles and rectangles, including missing values and mixed units • Recognise and draw nets of cubes/cuboids/triangular prisms • Work out the volume and surface area of cubes/cuboids and triangular prisms, including missing values	Multi-choice Quiz Common Homework Spring Assessment (Units 1 - 4)
Summer Term	**Unit 5**	• Apply the four operations to proper fractions, improper fractions and mixed numbers; include multiply and divide with integer values, i.e. 3 x 7/5 • Work interchangeably with terminating decimals, corresponding fractions and their percentages. • Calculate fractions of an amount, including 'real-life' questions and work with different types of units. • Calculate percentages of an amount without a calculator, including non-multiples of 5% and 'real life' problems. • Calculate percentages of an amount with a calculator using decimal multipliers, including 'real-life' problems. • Calculate percentage increase/decrease. • Calculate the percentage change between two quantities. • Apply the property that the probabilities of all outcomes sum to 1; include context questions to find the probability of something not happening • Generate lists and sample space diagrams for single and combined events and use to calculate probabilities. • Calculate expected frequency.	Multi-choice Quiz Common Homework Topic Assessment

Unit 6	• Interpret and construct frequency polygons • Calculate the mean, median, mode and range; include working backwards to find missing values given the mean. • Make comparisons between two distributions in relation to the mean, median, mode and range from lists and ungrouped frequency tables; developing explicit written language skills when describing comparable data. • Draw and interpret simple box pots • Draw a scatter graph • Recognise and name positive, negative, no, strong, weak correlation • Understand that if correlation exists, it does not necessarily mean that causality is present • Draw a line of best for scatter graphs where appropriate, and use to estimate values in 'real life' context • Interpret and draw pie charts; include questions with algebraic terms	Multi-choice Quiz Common Homework End of Year Assessment -all units

How you can support your child's progress in mathematics:

- Encourage independence in repeated practice of unfamiliar topics using vle.mathswatch.co.uk/vle
- Practise mental maths skills such as addition, subtraction, multiplication and division regularly.
- Provide real life opportunities to challenge your child's mathematical knowledge and skills. Examples could include; calculating change from a bill, estimating the cost of a restaurant bill, working out the best buy when shopping, working out the cost of a home improvement or the amount of supplies for a home improvement.