Overall Curriculum Aim:
To develop all students as creative mathematicians who can apply, reason, question, challenge and be successful

Scheme for Learning
Curriculum Area – Maths
Overview – Year 8 Maths 2021-22

Personnel Responsibility – Mr D Albon (Curriculum Director)
Quality Assured by – Mr C Mills (VP)
Exam Board/Qualification at KS4 – Edexcel 1MA1

Assessment Cycle	Topic/ Unit Title *Big Question*	Rationale/Skill Development	Link to Assessment Objectives/Progression Scales Skills. Taken from KS3 National Curriculum. The following areas will be assessed:
1	What is the purpose of Algebra?	Students should by now how a firm grasp of number from their work in primary school, which has been built upon in year 7. They are now ready to apply this knowledge to algebra, in which students will be taught to generalize. Cycle 1 will focus on becoming fluent in the basics of algebra, including notation, simplifying and basic manipulation.	Pupils should be taught to: • Use and interpret algebraic notation, 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; a^2b in place of a × a × b; $\frac{a}{b}$ in place of a ÷ b; coefficients written as fractions rather than as decimals; brackets. • Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors. • Simplify and manipulate algebraic expressions to maintain equivalence by: collecting like terms; multiplying a single term over a bracket; taking out common factors; expanding products of two or more binomials. • Substitute numerical values into formulae and expressions, including scientific formulae. • (Laws of indices – from KS4 Curriculum).
2	How can we find what is unknown?	Having grasped the basic principles of algebraic notation and manipulation, students will apply this knowledge to solving equations and rearranging formulae to change the subject. There will be a strong emphasis on balancing, but other methods such as function machines can be used to introduce the idea of inverse operations.	Pupils should be taught to: • Use algebraic methods to solve linear equations in on variable (including all forms that require rearrangement). • Understand and use standard mathematical formulae; rearrange formulae to change the subject. • Model situations or procedures by translating them into algebraic expressions or formulae [and by using graphs – cycle 4].
3	Can we use patterns to predict the future?	Students will learn how to spot patterns and predict outcomes using sequences, with visual patterns, nth term rules, an introduction to geometric sequences and other important sequences such as Fibonacci.	• Generate terms of a sequence from either a term-to-term or a position-to-term rule. • Recognise arithmetic sequences and find the nth term. • Recognise geometric sequences and appreciate other sequences that arise. • [Solve problems involving direct and inverse proportion – year 7 cycle 4], including [graphical – cycle 4] and **algebraic representations**.
4	How can algebra be represented graphically?	Students will see how linear equations can be drawn on a graph, and how this relates to the nth term of linear sequence. They will also be introduced to a range of other graphs, including simultaneous linear equations, quadratic graphs, reciprocal and exponential graphs, and will see how direct and inverse proportion can be represented on a graph.	• Interpret mathematical relationships both algebraically and graphically. • Reduce a given linear equation in two variables to the standard form y = mx + c; calculate and interpret gradients and intercepts of graphs of such linear equations numerically, graphically and algebraically use linear and quadratic graphs to estimate values of y for given values of x and vice versa and to find approximate solutions of simultaneous linear equations. • Find approximate solutions to contextual problems from given graphs of a variety of functions, including piece-wise linear, exponential and reciprocal graphs.