Year 11H Term 1 - Algebra; Probability; Ratio and Proportion

Year group: 11H	Subject: Algebra, Probability, Ratio and Proportion
Prior learning- linked to National curriculum	The content in this term directly extends skills developed in Year 10. **Algebra:** Students' ability to factorise quadratic expressions and solve linear equations is now applied to solve quadratic and simultaneous equations. Methods such as completing the square and the quadratic formula are introduced as new, more powerful techniques. **Probability:** Prior knowledge of basic probability is deepened to analyse more complex situations. Students will learn to model events using formal methods like tree diagrams and Venn diagrams, including the introduction of conditional probability. **Ratio and Proportion:** Skills with percentages and ratio from Year 10 are applied to multi-step, contextual problems such as compound interest (growth and decay) and compound measures.
Rationale	This term focuses on high-value, problem-solving topics that are heavily weighted in the Higher Tier examination and essential for further mathematical study. **Algebra (Topics 9.1 - 9.7):** Mastering a variety of equation-solving techniques is fundamental. These skills are not only tested as standalone questions but are also embedded in complex problems across other areas of the specification, such as geometry and graphs. Fluency here is a key differentiator for achieving the highest grades. **Probability (Topics 10.1 - 10.6):** This unit develops logical reasoning and the ability to systematically analyse complex scenarios involving chance. The introduction of conditional probability and set notation elevates students' skills to the level required for post-16 study and for interpreting statistics in the real world.

	Ratio & Proportion (Topics 11.1 - 11.4): These topics equip students with the mathematical tools for financial and scientific literacy, allowing them to solve practical problems related to compound interest, depreciation, speed, density, and pressure
Vocabulary:	**Algebra** Quadratic Equation, Roots; Completing the Square; Quadratic Formula; Simultaneous Equations; Elimination & Substitution; Inequality **Probability** Event, Outcome; Mutually Exclusive; Independent Events; Conditional Probability; Tree Diagram & Venn Diagram; Set Notation (Union ∪, Intersection ∩ and Complement ‘) **Ratio & Proportion** Growth & Decay; Compound Interest; Depreciation; Compound Measure; Density, Pressure and speed; Direct/Inverse Proportion
Cultural Capital:	**Finance and Economics:** Relate **growth and decay** to real-world financial products like savings accounts (compound interest) and car loans (depreciation), providing essential financial literacy for adult life. **Physics and Engineering:** Discuss how **quadratic equations** are used to model the trajectory of a projectile, which is fundamental in fields from sports science to ballistics and engineering. **Data Science and Medicine:** Explain how **conditional probability and Venn diagrams** are used in medical diagnostics to understand test accuracy (e.g., the probability of a true positive) and in data science to analyse user behaviour and market trends.
SEND	Include SENDSational 6 Introducing SENDsational 6
Key assessments- name the assessments	Regular formative assessments will ensure students are keeping pace with the demanding content. Based on the scheme of work, these will occur after the following topics: Algebra ● 9.2 Solving quadratic equations 2 ● 9.4 Solving simple simultaneous equations Probability ● 10.1 Combined events

	● 10.5 Conditional probability Ratio and Proportion ● 11.1 Growth and decay This term's work will be assessed summatively in the YEAR 11 MOCK 1 examination
What do children know/ can do now (EDSM)	By the end of this intensive term, students will have the skills and knowledge to tackle a significant portion of the Higher Tier paper. They will be able to: ● Select and apply the most appropriate method to solve any quadratic equation. ● Solve linear and quadratic simultaneous equations algebraically. ● Analyse and solve complex probability problems involving conditional events, using formal diagrams and notation. ● Apply proportional reasoning to solve challenging, multi-step problems involving compound measures and percentage change.
What **amendments** are you going to make following evaluation of this module?	

Term 1	Assessents
9.1 Solving quadratic equations 1	
9.2 Solving quadratic equations 2	Green
9.3 Completing the square	
9.4 Solving simple simultaneous equations	Green
9.5 More simultaneous equations	
9.6 Solving linear and quadratic simultaneous equations	
9.7 Solving linear inequalities	
10.1 Combined events	Green
10.2 Mutually exclusive events	
10.3 Experimental probability	
10.4 Independent events and tree diagrams	
10.5 Conditional probability	Green
10.6 Venn diagrams and set notation	
11.1 Growth and decay	Green
11.2 Compound measures	
11.3 More compound measures	Green
11.4 Ratio and proportion	