MAGHULL HIGH SCHOOL – CURRICULUM MAP Year 12 Half Term 4

Unit:	Week 1 -2	Week 3-4	Week 5-6
LESSON TOPIC QUESTION(S)	**Objective:** Differentiation Rates of change The gradient of the tangent at a point The gradient of the tangent as a limit Factor Theorem Dividing polynomials The Remainder Theorem The Factor Theorem REVISION	**Objective:** Differentiation Differentiation of polynomials Second order derivatives Tangents and normals TEST Unit 5 - 6 amd TEST Unit 7 - 8 Therapy Unit 5 and Unit 6 Circles The equation of a circle Using circle properties Tangents and normals	**Objective:** Differentiation Rates of change The gradient of the tangent at a point The gradient of the tangent as a limit Therapy Unit 7 and Unit 8 Therapy Unit 8 Sequences And Series Geometric sequences Geometric series The sum to infinity of a geometric series Binomial expansions
Knowledge & Skills development	Teaching **differentiation** develops learners' analytical skills by helping them understand how functions change and apply this to real-world rate problems. Working with **circles** strengthens geometric reasoning as students interpret properties such as tangents, radii, and circle theorems to solve spatial problems. Exploring the **factor theorem** builds learners' algebraic manipulation and problem-solving skills by connecting polynomial functions to their roots. Altogether, these topics enhance logical thinking, mathematical fluency, and the ability to link abstract concepts to practical applications.		
Assessment / Feedback Opportunities	TEST and therapy Unit 5 - - 8		
Key Vocabulary	Function, Gradient, Derivative, Differentiate, Rate of change, Tangent, Power rule, Stationary point, Maximum, Minimum, Point of inflection, Radius, Diameter, Chord, Tangent (circle), Arc, Sector, Segment, Centre, Circumference, Theorem, Angle in a semicircle, Cyclic quadrilateral, Polynomial, Factor, Root, Solution, Remainder, Substitution, Divisible, Division, Quadratic, Cubic		
Cross Curricular Themes	Links to Speed distance and Time calculations in Physics and Engineering		

Personal Development (Including British Values, RSE, Citizenship)	• Promote resilience when dealing with unfamiliar multi-step calculus and algebra tasks • Encourage critical thinking and independence in applying abstract methods to real-world problems • Reinforce precision and accuracy as valuable traits in analytical reasoning • Support confident communication of reasoning through structured discussions and peer explanation • Develop a growth mindset by embracing challenge and mathematical ambiguity
Career Opportunities	• Provides foundation for STEM careers in engineering, data science, physics, computing, and economics • Trigonometric modelling, calculus, and algebra relevant for architecture, actuarial science, and medicine • Encourages problem-solving and logical reasoning essential in law, finance, and technology sectors