# MAGHULL HIGH SCHOOL – CURRICULUM MAP Year 10 Half Term 1

<table>
<tr><th>Unit:</th><th>Week 1 -2</th><th>Week 3-4</th><th>Week 5-6</th></tr>
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<td>LESSON TOPIC QUESTION(S)</td>
<td>Objective:
<table>
<tr><td>Foundation</td><td>Higher</td></tr>
<tr><td>Substitution</td><td>Simplify expressions</td></tr>
<tr><td>Collect like terms</td><td>Laws of indices</td></tr>
<tr><td>Simplify expressions</td><td>Expand a single bracket</td></tr>
<tr><td>Addition and subtraction laws for indices</td><td>Factorise into a single bracket</td></tr>
<tr><td>Powers of powers</td><td>Solve equations</td></tr>
<tr><td>Expand a single bracket</td><td>Solve fractional equations</td></tr>
<tr><td>Factorise into a single bracket</td><td>Solve equations with unknowns on both sides</td></tr>
<tr><td>Formative Assessment</td><td>Formative Assessment</td></tr>
<tr><td>Therapy Lesson</td><td>Therapy Lesson</td></tr>
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<td>Objective:
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<tr><td>Foundation</td><td>Higher</td></tr>
<tr><td>Solve equations</td><td>Expand double brackets</td></tr>
<tr><td>Solve fractional equations</td><td>Expand triple brackets</td></tr>
<tr><td>Solve equations with unknowns on both sides</td><td>Factorise quadratic expressions</td></tr>
<tr><td>Understand inequalities</td><td>Understand inequalities</td></tr>
<tr><td>Solve inequalities</td><td>Solve inequalities</td></tr>
<tr><td>Change the subject of a simple formula</td><td>Change the subject of a simple formula</td></tr>
<tr><td>Change the subject of a known formula</td><td>Change the subject of a known formula</td></tr>
<tr><td>Change the subject of a complex formula (E)</td><td>Change the subject of a complex formula (E)</td></tr>
<tr><td>Formative Assessment</td><td>Formative Assessment</td></tr>
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<td>Objective:
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<tr><td>Foundation</td><td>Higher</td></tr>
<tr><td>Expand double brackets</td><td>Factorise more complex quadratic expressions (E)</td></tr>
<tr><td>Factorise quadratic expressions (positive only)</td><td>Difference of two squares</td></tr>
<tr><td>Factorise quadratic expressions</td><td>Solve quadratic equations by factorisation</td></tr>
<tr><td>Difference of two squares (E)</td><td>Solve more complex quadratic equations by factorisation (E)</td></tr>
<tr><td>Solve quadratic equations equal to 0</td><td>Complete the square</td></tr>
<tr><td>Solve quadratic equations by factorisation</td><td>Solve quadratic equations by completing the square (E)</td></tr>
<tr><td>Quadratic graphs of the form $y=x^2+a$</td><td>Solve quadratic equations using the quadratic formula</td></tr>
<tr><td>Formative Assessment</td><td>Formative Assessment</td></tr>
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| **Knowledge & Skills development** | • Develop algebraic fluency through manipulation of expressions and equations<br>• Strengthen reasoning and problem-solving skills with real-world applications<br>• Build confidence with graph interpretation and algebraic representations<br>• Enhance conceptual understanding of inequalities and formulae rearrangement<br>• Deepen analytical thinking through solving and factorising quadratics<br><br>**<u>Prior Learning</u>**<br><br><u>Y7</u><br>• Know the meaning of key terms: *term, expression, variable, coefficient, constant, exponent, expand, factorise, simplify, equivalent, identity, substitute*<br>• Know what is mean by algebraic expressions and how to interpret them<br>• Know that substitution is the process of replacing a variable with a value<br>• Know that expressions can be simplified by collecting like terms (and know what is meant by like terms)<br>• Know that expressions can be manipulated by expanding and factorising, but that this is just a different representation of the same expression<br>• Know that situations can be represented using expressions and equations<br>• Know what a sequence is and what the nth term rule is<br><u>Y8</u><br>Know the meaning of key terms: *equation, solve, inequality*<br>• Know that formulae can be rearranged to change the subject<br>• Know that a linear equation is an equation that forms a straight line and only has one solution<br>• Know that to solve an equation is to find the value of the variable<br>• Know that equity must always be preserved in equations and formulae<br>• Know that an inequality has a range (sometimes infinite) of solutions<br>• Know what midpoints, endpoints, horizontal and vertical lines are<br>• Know how to use a table of values and how to find the equation of a straight line<br>• Know what a gradient and y-intercept mean<br><u>Y9</u><br>• Know the meaning of key terms: *Expansion, simultaneous, turning point, roots, intersection*<br>• Know that a quadratic equation contains the highest exponent of x as 2<br>• Know that quadratic equations can be solved by first factorising the quadratic expression<br>• Know that quadratic equations have 2 solutions<br>• Know that equations can be represented graphically and that the graphs can be used to solve the equations<br>• Know how to find the nth term rule of sequences<br>• Know what the Fibonacci, triangle numbers, cube and square number sequences are<br>• Know what geometric and quadratic sequences are |

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| **Assessment / Feedback Opportunities** | End Points of Algebra Topics (revisited in other all units):<br><br>1. Algebraic expressions, simplification, and factorisation<br>2. Expanding brackets and algebraic manipulation<br>3. Solving linear and quadratic equations<br>4. Inequalities and number line representation<br>5. Sequences (arithmetic, geometric, and nth term rules)<br>6. Graphing linear and quadratic functions<br>7. Simultaneous equations (graphical and algebraic methods)<br>8. Rearranging formulae and algebraic fractions<br>9. Functions and composite functions<br>10. Solving equations using iterative methods<br><br>Assessment Techniques:<br>• Regular low-stakes quizzes to check understanding of key concepts<br>• Use of mini-whiteboards and hinge questions for instant feedback<br>• Formative assessments at the end of each topic block to identify gaps<br>• Whole-class feedback sessions with targets and therapy follow-up<br>• Peer/self-assessment to encourage metacognitive reflection and ownership |
| **Literacy/Reading opportunities** | Use of word banks and sentence starters for structured mathematical reasoning • Comprehension activities based on GCSE exam-style worded problems • Guided reading of method explanations and exemplar solutions • Vocabulary reinforcement via dual coding and Frayer models |
| **Cross Curricular Themes** | Science – Use of formulae and rearrangement techniques • Computing – Logical structures and problem-solving algorithms • Geography – Interpretation of graphs and population models • Design & Technology – Application of measurement and scaling using algebra • PSHE – Decision-making strategies and real-life problem-solving |
| **Personal Development (Including British Values, RSE, Citizenship)** | • Promoting resilience and a growth mindset through mathematical challenges • Encouraging respectful communication during peer discussions and collaboration • Rule of law and fairness explored through consistent methods and logic in problem solving • Building confidence and independence in applying strategies and justifying answers |
| **Career Opportunities** | Foundation for careers in engineering, architecture, data science, economics, teaching • Understanding algebra helps with roles in coding, finance, accountancy, and construction • Highlighting the role of problem-solving and logical thinking in every profession |