

**Archbishop Beck Catholic College Long Term Plan for Maths**

**Year 12 Pure**

<b>Autumn Half Term 1</b>	<b>Half Term 2</b>	<b>Key Vocabulary/Reading Opportunities</b>
<p>Topic Areas to be covered:</p> <p><b>Unit 1</b> Algebra and functions</p> <p><b>Unit 2</b> Co-ordinate geometry</p> <p><b>Assessment Period 1</b></p>	<p>Topic Areas to be covered:</p> <p><b>Unit 3</b> Further algebra</p> <p><b>Unit 4</b> Trigonometry</p> <p><b>Assessment Period 2</b></p>	<p><b>Unit 1</b> Indices, expand, factorising, rationalising, surds, simplify, discriminant, simultaneous, inequality, quadratic, cubic, quartic, modelling, completing the square, functions.</p> <p><b>Unit 2</b> Parallel, perpendicular, intersection, tangent, normal, chord, perpendicular bisector</p> <p><b>Unit 3</b> Polynomials, binomial, factor theorem</p> <p><b>Unit 4</b> Sine, cosine, tangent, trigonometric identities</p>
<b>Spring Half Term 3</b>	<b>Half Term 4</b>	<b>Key Vocabulary/Reading Opportunities</b>
<p>Topic Areas to be covered:</p> <p><b>Unit 5</b> Vectors</p> <p><b>Unit 6</b> Differentiation</p>	<p>Topic Areas to be covered:</p> <p><b>Unit 6 (cont)</b> Differentiation</p> <p><b>Unit 7</b> Integration</p>	<p><b>Unit 5</b> Magnitude, direction, vectors</p> <p><b>Unit 6</b> Differentiation, derivatives, stationary point, increasing and decreasing functions, gradient functions, first and second order derivatives, maxima, minima</p> <p><b>Unit 7</b> Integration, definite integrals</p>

Summer Half Term 5	Half Term 6	Key Vocabulary/Reading Opportunities
<p>Topic Areas to be covered:</p> <p><b>Unit 8</b> Exponentials and Logarithms</p> <p>Revision AS examination</p>	<p>Revision</p> <p><b>Unit 1</b> Proof</p> <p><b>Unit 2</b> Algebraic fraction and partial fractions</p>	<p><b>Unit 8</b> Exponentials, logarithm, natural logarithm, <math>e^x</math></p> <p><b>Unit 1</b> Proof, proof by exhaustion, proof by induction, disproof by counter example</p> <p><b>Unit 2</b> Algebraic fraction, partial fraction, simplifying</p>

## Year 12

Wider learning experiences to support this A Level	Learning Characteristics instilled in the curriculum	Career Opportunities
<p>Jack Brown you tube tutorials AMSP</p>	<p><b>Confidence</b> Use of consolidations to revisit prior learning and allow to students to feel open to making mistakes. Encourage discussion of mistakes and praise those who offer up incorrect solutions/alternate methods for discussion.</p> <p><b>Positive</b> High expectations in presentation of exercise books and weekly homework. Consistent use of praise. Texts home and postcards for Stars of the Week.</p> <p><b>Respectful</b> Learners greeted at the door on arrival and consolidation exercise ready to start upon arrival. Consistent expectations and standards with regards to behaviour. Lead students by example and expect that everybody treats one another as they would like to be treated.</p>	<p>Work experience University visits</p>

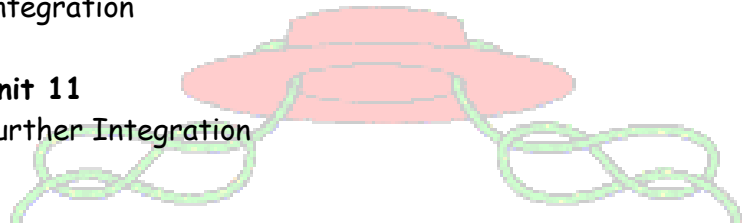
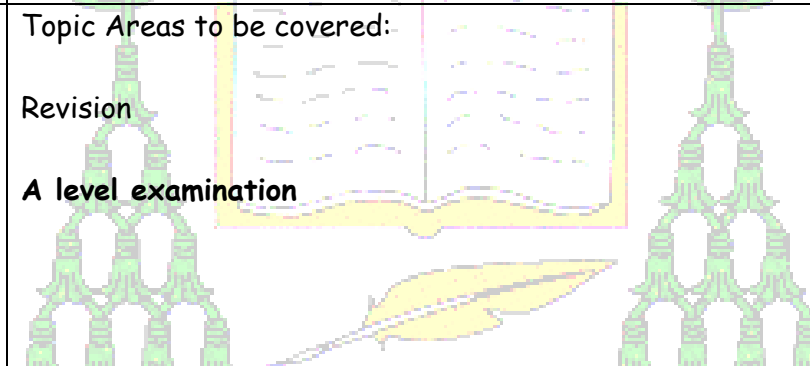
### Metacognition Methods applied in Teaching

- Consolidation exercise at the beginning of every lesson to revisit prior learning.
- Give sufficient thinking time during discussions.
- Split topics into appropriate chunks depending on student ability to reduce cognitive overload.
- Use of variation exercises when appropriate to deepen conceptual understanding.
- Discussion of solutions and the various approaches to problems to find the most efficient method.

### Archbishop Beck Catholic College Long Term Plan for Maths

Year 13 Pure

Autumn Half Term 1	Half Term 2	Key Vocabulary/Reading Opportunities
<p>Topic Areas to be covered:</p> <p><b>Unit 3</b> Functions and modelling</p> <p><b>Unit 4</b> Series and sequences</p> <p><b>Unit 5</b> The Binomial Theorem</p> <p><b>Assessment Period 1</b></p>	<p>Topic Areas to be covered:</p> <p><b>Unit 6</b> Trigonometry</p> <p><b>Unit 7</b> Parametric equations</p> <p><b>Assessment Period 2</b></p>	<p><b>Unit 3</b> Modulus function, functions, composite, inverse, mapping, transformations</p> <p><b>Unit 4</b> Arithmetic sequence and series, geometric sequence and series, recurrence relation, sum and sigma</p> <p><b>Unit 5</b> Binomial and validity</p> <p><b>Unit 6</b> Radians, arc length, sectors, secant, cosecant, cotangent, double angle, compound angles, small angle approximation</p> <p><b>Unit 7</b> Parameters, parametric, Cartesian</p>
Spring Half Term 3	Half Term 4	Key Vocabulary/Reading Opportunities

<p>Topic Areas to be covered:</p> <p><b>Unit 8</b> Differentiation</p> <p><b>Unit 9</b> Numerical methods</p>	<p>Topic Areas to be covered:</p> <p><b>Unit 10</b> Integration</p> <p><b>Unit 11</b> Further Integration</p> 	<p><b>Unit 8</b> Chain rule, product rule, quotient rule, explicit, implicit, rates of change,</p> <p><b>Unit 9</b> Iteration, Newton-Raphson</p> <p><b>Unit 10</b> Substitution, integration by parts, trapezium rule</p>
<p><b>Summer Half Term 5</b></p>	<p><b>Half Term 6</b></p>	<p><b>Key Vocabulary/Reading Opportunities</b></p>
<p>Topic Areas to be covered:</p> <p><b>Unit 12</b> Vectors</p> <p>Revision</p>	<p>Topic Areas to be covered:</p> <p>Revision</p> <p><b>A level examination</b></p> 	<p><b>Unit 12</b> Vectors, unit vectors, column vectors, 3D vectors.</p>



Wider learning experiences to support this A level	Learning Characteristics instilled in the curriculum	Career Opportunities
<p>Jack Brown you tube tutorials AMSP</p>	<p><b>Confidence</b> Use of consolidations and mini-whiteboards to revisit prior learning and allow to students to feel open to making mistakes. Encourage discussion of mistakes and praise those who offer up incorrect solutions/alternate methods for discussion.</p> <p><b>Positive</b> High expectations in presentation of exercise books and weekly homework. Consistent use of praise. Texts home and postcards for Stars of the Week.</p> <p><b>Respectful</b> Learners greeted at the door on arrival and consolidation exercise ready to start upon arrival. Consistent expectations and standards with regards to behaviour. Lead students by example and expect that everybody treats one another as they would like to be treated.</p>	<p>Work experience University visits</p>

Metacognition Methods applied in Teaching
<ul style="list-style-type: none"> <li>• Consolidation exercise at the beginning of every lesson to revisit prior learning.</li> <li>• Use of a research based Mastery SOW.</li> <li>• Give sufficient thinking time during discussions.</li> <li>• Split topics into appropriate chunks depending on student ability to reduce cognitive overload.</li> <li>• Use of variation exercises when appropriate to deepen conceptual understanding.</li> <li>• Discussion of solutions and the various approaches to problems to find the most efficient method.</li> </ul>