

**Key Stage: 5**

**Subject: Further Mathematics A Level (2017-18)**



**Aims of the subject:**

- To develop mathematical knowledge and skills which encourages confidence and provides satisfaction and enthusiasm
- To develop an understanding of mathematical principles and an appreciation of the subject of mathematics as logical and coherent
- To apply the work developed in core lessons to problems involving Newtonian Mechanics and Statistical Methods.
- To develop the skill to interpret a practical problem in a mathematical context
- To secure the mathematical background necessary for further study in this or related subjects

**A-Level Examination Board: AQA**

**Assessment Overview:**

Course	What will I study?	Assessment
Year 12	<p><b>Term 1</b></p> <ul style="list-style-type: none"><li>• <b>Further Pure</b><ul style="list-style-type: none"><li>➤ Complex numbers</li><li>➤ Matrices</li><li>➤ Further algebra and functions</li></ul></li><li>• <b>Mechanics</b><ul style="list-style-type: none"><li>➤ Dimensional Analysis</li><li>➤ Work, Energy and Power</li></ul></li><li>• <b>Statistics</b><ul style="list-style-type: none"><li>➤ Discrete Random Variables (DRV) and Expectation</li><li>➤ Poisson Distribution</li></ul></li></ul> <p><b>Term 2</b></p> <ul style="list-style-type: none"><li>• <b>Further Pure</b><ul style="list-style-type: none"><li>➤ Further Calculus</li><li>➤ Further Vectors</li><li>➤ Polar Coordinates</li></ul></li></ul>	<p>Formal Tests:</p> <ul style="list-style-type: none"><li>➤ Complex Numbers</li><li>➤ Matrices</li><li>➤ Further Algebra and Functions</li></ul> <p>Formal Tests:</p> <ul style="list-style-type: none"><li>➤ Dimensional Analysis</li><li>➤ Work, Energy and Power</li></ul> <p>Formal Tests:</p> <ul style="list-style-type: none"><li>➤ Discrete Random Variables</li><li>➤ Expectation</li><li>➤ Poisson Distribution</li></ul> <p>Formal Tests:</p> <ul style="list-style-type: none"><li>➤ Further Calculus</li><li>➤ Further Vectors</li><li>➤ Polar Coordinates</li></ul>

	<ul style="list-style-type: none"> <li>• <b>Mechanics</b> <ul style="list-style-type: none"> <li>➤ Momentum and Collisions</li> </ul> </li> <li>• <b>Statistics</b> <ul style="list-style-type: none"> <li>➤ Type I and Type II Errors</li> <li>➤ Continuous Random Variables (CRV)</li> </ul> </li> </ul> <p><b>Term 3</b></p> <ul style="list-style-type: none"> <li>• <b>Further Pure</b> <ul style="list-style-type: none"> <li>➤ Hyperbolic Functions</li> <li>➤ Complex numbers</li> <li>➤ Matrices</li> <li>➤ Further algebra and functions</li> </ul> </li> <li>• <b>Mechanics</b> <ul style="list-style-type: none"> <li>➤ Circular Motion</li> </ul> </li> <li>• <b>Statistics</b> <ul style="list-style-type: none"> <li>➤ Chi Tests for Association</li> </ul> </li> </ul>	<p>Formal Tests:</p> <ul style="list-style-type: none"> <li>➤ Momentum and Collisions</li> </ul> <p>Formal Tests:</p> <ul style="list-style-type: none"> <li>➤ Type I and Type II Errors</li> <li>➤ Continuous Random Variables</li> </ul> <p>Formal Tests:</p> <ul style="list-style-type: none"> <li>➤ Hyperbolic Functions</li> <li>➤ Complex Numbers Test 2</li> <li>➤ Matrices Test 2</li> <li>➤ Further Algebra and Functions Test 2</li> </ul> <p>Formal Tests:</p> <ul style="list-style-type: none"> <li>➤ Circular Motion</li> </ul> <p>Formal Tests:</p> <ul style="list-style-type: none"> <li>➤ Chi Tests for Association</li> </ul>
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### Enrichment opportunities

Throughout the course, links to real world examples are used. Students are to be encouraged to look for applications of Newtonian Mechanics and Statistics in the media.

### Suggestions for wider reading

'Further Pure Maths 1' (Heinemann)

'Further Pure Mathematics' by Bostock, Chandler, Rourke

'Advancing Maths for AQA' Mechanics (Heinemann)

'Advancing Maths for AQA' Statistics (Heinemann)