



# Mathematics & Further Maths

## 1. Expectations for success are:

- Be confident with the following Higher GCSE Number and Algebra topics at the start of Year 12; fractions, surds, indices, straight line graphs, factorising, simplifying expressions, expanding brackets, rearranging formulae, solving quadratic equations. Use the pre-AS summer induction booklet to consolidate and prepare for the start of the course.
- At least 5 hours per week outside of lessons developing and consolidating understanding. This amount of time should be increased in the build up to important assessments and examinations.
- Complete assigned homework on time. It is essential to independently assess your own work and understanding. Each of your teachers will set work every week. You will normally be given a week to complete the task. Do not leave the work until the night before it is due in.
- Set up well organised folders for current work, notes, completed programs of study and assessed work etc. Keep formula book in current work folder. Record strengths and weaknesses and act upon this.
- If you are using an exercise book ensure it is well organised and well structured.
- Have 95+% attendance. If you are absent you must speak to your teacher and ensure that you catch up on your work immediately.
- If you are struggling you must:-
  - speak to your teacher or any other member of the department.
  - talk to your peers.
  - use the solution bank disc from your textbook for guidance.
  - attend the help club offered at WGSB every Thursday afternoon in MA5 from 3:30 -5pm.

## 2. The characteristics of an outstanding student in this subject are:

- Consistently revisiting areas of weakness and having the determination to keep doing this even when the student is finding a concept difficult to grasp.
- Paying close attention to the layout and presentation of solutions.
- Ensuring that assessments are prepared for.
- You should use the resources listed below when you find particular topics difficult. These topics will be identified by careful use of the Personalised Learning Checklist.
- Shows resilience by identifying questions that proved difficult at first attempt and then completed successfully. The use of a different colour pen could be useful.

## 3. Wider reading list

- Bryant, V. Yet another introduction to analysis
- Courant, R. and Robbins, H. What is Mathematics?
- Du Sautoy, Marcus. The Music of the Primes
- Feynman, R.P. Surely you're Joking, Mr Feynman
- Gardiner, A. The Mathematical Olympiad Handbook; An introduction to problem solving
- Singh, Simon. Fermat's Last Theorem, The Code Book, Fermat's Enigma
- Devlin. The Millennium Problems (2004)

- Devlin Mathematics: The new Golden Age (1998)
- Du Sautoy. The Music of the Primes (2003)
- Hoffman. The man who loved only numbers (1999)

#### 4. Independent Study ideas

Complete the review exercises from the textbook.

Use the textbook solution bank

Read ahead in the textbook

- Complete past examination papers.
- Use websites for further practice and support:-
- [www.mathsnet.net](http://www.mathsnet.net)
- [www.mymaths.co.uk](http://www.mymaths.co.uk)
- [www.mathcentre.ac.uk](http://www.mathcentre.ac.uk)
- UK MT Maths Challenges – the Senior challenge is taken by all students in November and the questions asked both broaden and enrich understanding and problem solving.
- Papers are available from <http://www.ukmt.org.uk/>
- Khan Academy
- Waldomaths
- Maths past paper website
- Wolfram Alpha
- Livescribe notes on Moodle
- Soloman papers (extension past papers)
- Examsolutions.net