Thursday, 18 June 2026

Dear Student,

You are receiving this letter as you have expressed an interest in studying Mathematics A Level here at Ravens Wood School.

As part of our Induction process, you are required to complete pre-course tasks over the summer ready for your start in September 2026.

The Mathematics pre-course task is online and gives you a comprehensive introduction to A Level Mathematics. It is designed to prepare and support you as you begin your journey into A level Mathematics and, for some of you, A level Further Maths. The Integral website that you will complete this through is one that we use for some of your homework tasks throughout your A Level course, so this will also give you a little insight into how it works.

The pre-course task covers the topics of Integers, Geometry, Surds and Indices, Coordinate Geometry, Algebraic Manipulation, Trigonometry and Completing the Square. For each of these 7 areas, there are chapters that introduce you to various topics that you will have covered at GCSE and then goes into greater depth to get you ready for A Level.

Before you start the tasks, you need to watch the Introduction Video first, and then the 7 topic areas will appear. There are interactive slideshows to work through, videos to watch and for each of the 7 topics, an Assessment to complete. This is a lengthy task which will require quite a few hours of your time over the summer – so please do not leave it until the last minute to complete it!

Once you have completed the Assessments in all 7 areas you can download a certificate which you will need to bring in to your first mathematics class in September.

In each area there is a “Going Deeper” section which is not compulsory but please feel free to look at if you would like.

The website to use is **https://my.integralmaths.org/login/**

Your username and password will be emailed to you separately

We hope you find this task a useful introduction into A Level mathematics and we look forward to welcoming you in September. We’ve also included some “mathematics related days out” suggestions and a few reading ideas for you over the summer.

Kind regards,

Mrs C Leonard

KS5 Mathematics Coordinator

Ideas for days out during the summer

🔢 Maths discovery / hands-on experiences

- **MathsWorld Discovery Centre (London)**
    - Interactive maths museum with puzzles, code-breaking, geometry and problem-solving exhibits [mathsworld.com]
- **Science Museum – Mathematics Gallery (Winton Gallery)**
    - Shows how maths underpins engineering, science, and society
    - Good stepping stone to A Level thinking (modelling, applications)
- **Bank of England Museum**
    - Links maths → economics → real-world decisions

Great for students unsure about why A Level maths matters and introducing careers (finance, data, economics)

- **Bletchley Park (Codes & Ciphers workshop)**
    - Cryptography, logic and algorithms in action

🧠 "Maths in the city" walking-style trips

These are hugely underrated and cost-effective – have a walk around London and see what you can see!

📐 Maths walking tour of London

- Measure & estimate heights (Nelson's Column, buildings)
- Explore **geometry in architecture** (bridges, domes)
- Investigate engineering problems (London Eye, stadium structures)

🚀 STEM crossover days (strong for A Level transition)

Maths becomes more meaningful when embedded in STEM.

- **Royal Observatory Greenwich**
    - Mathematical astronomy + modelling
- **Science centres (e.g. Winchester Science Centre)**
    - Hands-on modelling, experiments, and data interpretation

Reading Suggestions

Here are some books for any Summer reading you might fancy…

- ***Alex's Adventures in Numberland* – Alex Bellos**
  - Very readable, almost like a travel book exploring maths ideas - shows maths as creative, cultural, and surprising
- ***Fermat's Last Theorem* – Simon Singh**
  - Reads like a narrative/history book rather than a textbook and tells the story of a 300+ year mathematical challenge and its solution
- ***The Code Book* – Simon Singh**
  - Cryptography (codes, WWII, modern encryption) - explores maths behind coding and secrecy
  - Links really well to logic, number theory and computing
- ***The Number Devil* – Enzensberger**
  - Story-based introduction to mathematical ideas and builds curiosity with minimal technical difficulty
- ***50 Mathematical Ideas You Really Need to Know* – Tony Crilly**
  - Short sections you can dip in and out of
  - Covers big ideas without heavy maths
- ***Why Do Buses Come in Threes?* – Eastaway & Wyndham**
  - Maths behind everyday scenarios

For brave students or those likely to take Further Maths.

- ***How to Solve It* – George Pólya**
  - Classic problem-solving book
- ***The Music of the Primes* – Marcus du Sautoy**
  - Explains prime numbers + big unsolved problems and famous conjectures
- ***The Calculus Story* – David Acheson**
  - Gentle introduction to ideas behind calculus which will prepare you for one of the biggest A Level jumps

Something a bit different (great for easy reading)

- ***Flatland* – Edwin Abbott**
  - Short novel about dimensions and geometry - uses storytelling to explain higher dimensions
- ***Humble Pi* – Matt Parker**
  - Mistakes and disasters caused by maths errors - shows real-world impact of maths (often funny and memorable)
- ***Hello World* – Hannah Fry**
  - Maths behind algorithms, AI, and decisions - connects maths with modern issues