



Post-16 Summer Work - Mathematics

Mathematics is a diverse subject with many strands available for further study. As you study Mathematics after GCSE it is worth investigating the many sides of Mathematics to see which areas interest you. For example, did you know that internet security relies on prime numbers, some of the greatest mathematics helped win WWII or zero did not exist for many centuries? Have you ever wondered what infinity looks like? Below is a list of books which will help you discover some of the amazing influences of Mathematics.

Reading List

Chaos

- Does God Play Dice by Ian Stewart
- Chaos by James Gleick

Cryptography

- The Codebook by Simon Singh
- The Mathematics of Ciphers by S.C. Coutinho
- In Code by Sara Flannery

History of Mathematics

- A History of Mathematics by Carl B. Boyer
- Infinity: The Quest to Think the Unthinkable by Brian Clegg
- E, the Story of a Number by Eli Maor

Biographies

- The Man Who Loved Only Numbers by Paul Hoffman
- My Brain is Open: The Mathematical Journeys of Paul Erdos by Bruce Schechter
- The Man who knew Infinity by Robert Kanigel
- Abel's Proof: An Essay on the Sources and Meaning of Mathematical Unsolvability by Peter Pesic

Mathematical Philosophy

- Introduction to Mathematical Philosophy by Bertrand Russell
- A Mathematician's Apology by G. H. Hardy
- Thinking About Mathematics by Stewart Shapiro

Mathematical Problems

- Fermat's Last Theorem by Simon Singh
- The Millenium Problems by Keith Devlin
- Journey Through Genius: The Great Theorems of Mathematics by William Dunham
- The Equation That Couldn't Be Solved by Mario Livio
- Kepler's Conjecture by George Szpiro
- Poincaré's Prize by George Szpiro
- The Music of the Primes by Marcus du Sautoy
- Four Colors Suffice by Robin Wilson

Logic

- Godel, Escher, Bach by Douglas Hofstadter

Other

- The Emperor's New Mind by Roger Penrose
- The Mathematical Universe by William Dunham
- The Wonders of Numbers by Clifford Pickover
- From Here to Infinity by Ian Stewart
- The Art of the Infinite: Our Lost Language of Numbers by Robert Kaplan
- What is Mathematics? by Richard Courant, Herbert Robbins and Ian Stewart
- Flatterland by Ian Stewart
- The Number Devil: A Mathematical Adventure by Hans Magnus Enzensberger
- Art of the Infinite by Kaplan
- Imagining Numbers: Particularly the Square Root of Minus Fifteen by Barry Mazur
- A Very Short Introduction to Mathematics by Timothy Gowers

Other Sources Of Recommended Books

- MEI – General interest Mathematical books
<http://www.mei.org.uk/index.php?section=resources&page=books2>
- University of Cambridge – Recommended reading for Sixth Formers planning to study Maths
<http://www.maths.cam.ac.uk/undergrad/admissions/readinglist.pdf>
- University of Oxford – Texts aimed at bridging the gap between A-Level and Degree Page 10-11
<https://www.maths.ox.ac.uk/system/files/attachments/introbook12.pdf>

You Tube Subscriptions – worth having on your device

- [Numberphile \(youtube.com\)](https://www.youtube.com/numberphile) excellent site full of interesting and thought provoking recreational maths problems.
- [3Blue1Brown](https://www.youtube.com/3blue1brown) - YouTube not just maths videos but also physics and computer science – so something for everyone.