

Year 10

Subject: Mathematics

Intent for the Year

Year 10 pupils will demonstrate a deeper understanding of mathematical concepts learnt in key stage 3. Pupils will be more confident, secure and fluent in interpreting diagrams and solutions, selecting the appropriate method to break down and solve problems and reason geometrically. They will be able to independently apply, interpret and evaluate their solution to complex problems. They will leave All Saints Church of England Academy confident in their ability to relate their knowledge to real-life contexts, from personal finances to managing their own business, solving every-day problems and prepared for further mathematical studies and/or the modern workplace.

Topics Covered:

Similarity - Congruence, similarity and enlargement, Trigonometry.

Developing Algebra - Representing solutions of equations and inequalities, Simultaneous equations.

Geometry - Angles & bearings, Working with circles, Vectors.

Proportions and Proportional Change - Ratios & fractions, Percentages and Interest, Probability.

Delving into data - Collecting, representing and interpreting data.

Using number – Non-calculator methods, Types of number and sequences, Indices and Roots.

Parents/Carers can help by...

- Ensuring that your child has the correct equipment for every lesson including the Casio FX991 scientific calculator.
- Supporting your child with their weekly Hegarty Maths and exam paper work as well as their and knowledge organiser activities.
- Attending parent's evenings to discuss your child's progress in their maths learning.
- Talk about and embrace the maths that surrounds us in everyday life.
- Encourage your child to attend after school maths enrichment opportunities.

Useful Websites

<https://www.sparxmaths.uk/>

<https://hegartymaths.com/>

<https://www.mymaths.co.uk/>

<https://corbettmaths.com/contents/>

<https://www.onmaths.com/>

<https://parallel.org.uk/>

<https://nrich.maths.org/>

<https://www.themathsfactor.com/>

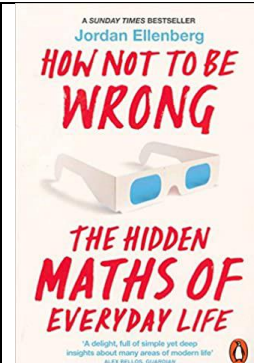
<http://chalkdustmagazine.com>

<https://www.worldometers.info>

<https://www.gapminder.org>

Recommended Reading

| Book Title | Author | Brief Reasoning |
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|  | <p>The Simpsons and Their Mathematical Secrets by Simon Singh</p> | <p>You may have watched hundreds of episodes of The Simpsons (and its sister show Futurama) without ever realising that they contain enough maths to form an entire university course. In The Simpsons and Their Mathematical Secrets, Simon Singh explains how the brilliant writers, some of the mathematicians, have smuggled in mathematical jokes throughout the cartoon's twenty-five year history, exploring everything from to Mersenne primes, from Euler's equation to the unsolved riddle of P vs. NP, from perfect numbers to narcissistic numbers, and much more.</p> |
|  | <p>Invisible Women: Exposing Data Bias in a World Designed for Men By Caroline Criado-Perez</p> | <p>Invisible Women, campaigner and writer Caroline Criado Perez brings gender data like this to the fore. Although it sells itself as a book about data bias, it's more of a book about data on bias, a catalogue of the facts and figures that document persistent gender inequalities in society</p> |
|  | <p>Factfulness: Ten Reasons We're Wrong About the World - And Why Things Are Better Than You Think by Hans Rosling</p> | <p>Factfulness: Ten Reasons We're Wrong About the World – and Why Things Are Better Than You Think is a 2018 book by Swedish statistician Hans Rosling with his son Ola Rosling and daughter-in-law Anna Rosling Rönnlund. In the book, Rosling suggests the vast majority of human beings are wrong about the state of the world.</p> |
|  | <p>Zero: The Biography of a Dangerous Idea by Charles Seife</p> | <p>Zero : The biography of a dangerous idea. The Babylonians invented it, the Greeks banned it, the Hindus worshipped it, and the Church used it to fend off heretics. For centuries, the power of zero savored of the demonic; once harnessed, it became the most important tool in mathematics.</p> |

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|  | <p>How Not to Be Wrong: The Hidden Maths of Everyday Life by Jordan Ellenberg</p> | <p>How not to be wrong the hidden maths of everyday life. The maths we learn in school can seem like a dull set of rules, laid down by the ancients and not to be questioned. In. Math allows us to see the hidden structures underneath the messy and chaotic surface of our world. It's a science of not being wrong, hammered out by centuries of hard work and argument.</p> |
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| Maths Exam board – Edexcel Specification - Pearson Edexcel Level 1/Level 2 GCSE (9-1) in Mathematics (1MA1) | |
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| Exam units | Revision areas |
| <p>Paper 1 Non-calculator 80 Marks 1 hr 30 mins</p> | <p>Any of the course content could be examined on any of the three papers</p> <p>Fractions Decimals Percentages Standard form Index form Surds</p> |
| <p>Paper 2 Calculator 80 Marks 1 hr 30 mins</p> | <p>Ratio Proportion Collecting, processing and presenting data Probability Sequences Graphs Equations Inequalities Formulae and functions</p> |
| <p>Paper 3 Calculator 80 Marks 1 hr 30 mins</p> | <p>Quadratics Angles, area and volume Transformations, constructions and loci Pythagoras Trigonometry Measures Conversions Vectors</p> <p>Paper One is the only paper where a calculator is not permitted. All three papers feature significant problem-solving elements</p> |