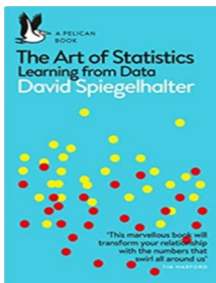## FICTION:

The Art of Statistics (David Spiegelhalter)
In *The Art of Statistics*, David Spiegelhalter guides the reader through the essential principles we need in order to derive knowledge from data. Drawing on real world problems to introduce conceptual issues, he shows us how statistics can help us determine the luckiest passenger on the Titanic, whether serial killer Harold Shipman could have been caught earlier, and if screening for ovarian cancer is beneficial.

The Curious Incident of the Dog in The Night Time (Mark Haddon)
This is a murder mystery novel like no other. The detective, and narrator, is fifteen and has Asperger's Syndrome. He knows a very great deal about maths and very little about human beings. He loves lists, patterns and the truth. He hates the colours yellow and brown and being touched. He has never gone further than the end of the road on his own, but when he finds a neighbour's dog murdered he sets out on a terrifying journey ….

Bringing Down The House (Ben Mezrich)
Cheating in casinos is illegal; card-counting - making a record of what cards have so far been dealt to enable the player to make some prediction of what cards remain in the deck - is not. But casinos understandably dislike the practice and make every effort to keep card-counters out of their premises. This tells the true story of the most successful financial scam ever, in which teams of brilliant young mathematicians won millions in Las Vegas, in the process getting drawn into the high life ….
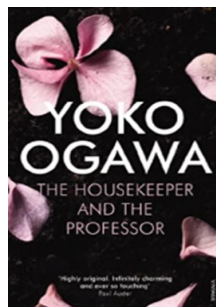
The Housekeeper and the Professor (Yoko Ogawa)
Each morning, as the Professor and the Housekeeper are reintroduced to one another, a strange, beautiful relationship blossoms between them. The Professor may not remember what he had for breakfast, but his mind is still alive with elegant equations from the past. He devises clever maths riddles - based on her shoe size or her birthday - and the numbers reveal a sheltering and poetic world to both the Housekeeper and her ten-year-old son.

WEBSITES:

- Nrich

- Mathematical Association

- AMSP

- Youtube Channel: Stand-up Maths

PODCASTS:

A Brief History of Mathematics
Professor of Mathematics Marcus du Sautoy reveals the personalities behind the calculations and argues that mathematics is the driving force behind modern science.

More or Less
Tim Harford explains - and sometimes debunks - the numbers and statistics used in political debate, the news and everyday life

INSPIRATION:

"Solving a problem for which you know there's an answer is like climbing a mountain with a guide, along a trail someone else has laid. In mathematics, the truth is somewhere out there in a place no one knows, beyond all the beaten paths. And it's not always at the top of the mountain. It might be in a crack on the smoothest cliff or somewhere deep in the valley."
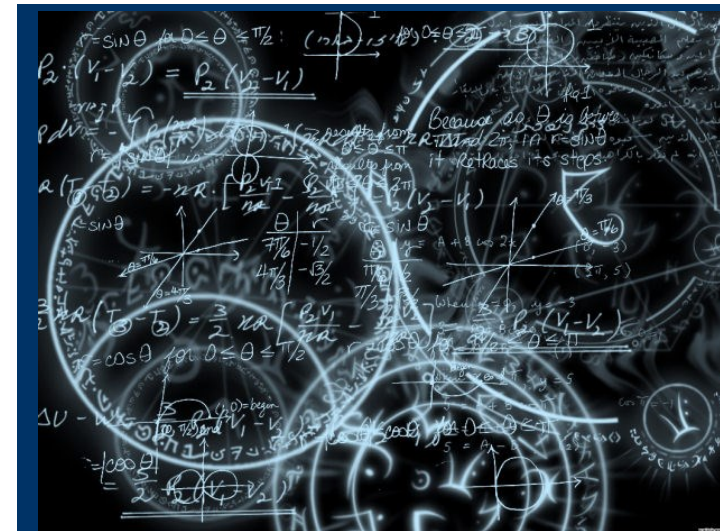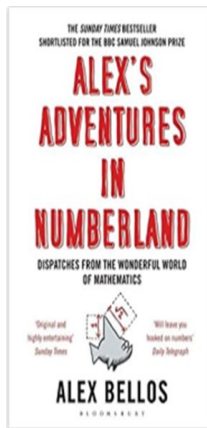
Yoko Ogawa

**Ilkley Grammar School
A Moorlands Learning Trust Academy**

Mathematics & Further Mathematics

POST-16 SUBJECT ENHANCEMENT

NON-FICTION

Alex's Adventures in Numberland
The world of maths can seem mind-boggling, irrelevant and, let's face it, boring. This groundbreaking book reclaims maths from the geeks. Mathematical ideas underpin just about everything in our lives: from the surprising geometry of the 50p piece to how probability can help you win in any casino. In search of weird and wonderful mathematical phenomena, Alex Bellos travels across the globe and meets the world's fastest mental calculators in Germany and a startlingly numerate chimpanzee in Japan. Packed with fascinating, eye-opening anecdotes, *Alex's Adventures in Numberland* is an exhilarating cocktail of history, reportage and mathematical proofs that will leave you awestruck.
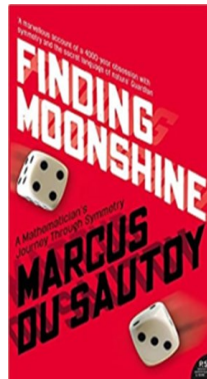
Finding Moonshine (Marcus Du Sautoy)
Our eyes and minds are drawn to symmetrical objects, from the sphere to the swastika, the pyramid to the pentagon. Symmetry indicates a dynamic relationship or connection between objects, and it is all-pervasive: in chemistry and physics the concept of symmetry explains the structure of crystals or the theory of fundamental particles; in evolutionary biology, the natural world exploits symmetry in the fight for survival; symmetry and the breaking of symmetry are central to ideas in art, architecture and music; the mathematics of symmetry is even exploited in industry

### Why do Buses Come in Threes? (Rob Eastaway & Jeremy Wyndham)
Why is it better to buy a lottery ticket on a Friday? Why are showers always too hot or too cold? And what's the connection between a rugby player taking a conversion and a tourist trying to get the best photograph of Nelson's Column? These and many other fascinating questions are answered in this entertaining and highly informative book, which is ideal for anyone wanting to remind themselves - or discover for the first time - that maths is relevant to almost everything we do. Dating, cooking, travelling by car, gambling and even life-saving techniques have links with intriguing mathematical problems, as you will find explained here.

NON-FICTION

Mathematical Puzzles: A Connoisseur's Collection (Peter Winkler)
Collected over several years by Peter Winkler, of Bell Labs, dozens of elegant, intriguing challenges are presented in Mathematical Puzzles. The answers are easy to explain, but without this book, devilishly hard to find. Creative reasoning is the key to these puzzles. No involved computation or higher mathematics is necessary, but your ability to construct a mathematical proof will be severely tested--even if you are a professional mathematician. For the truly adventurous, there is even a chapter on unsolved puzzles
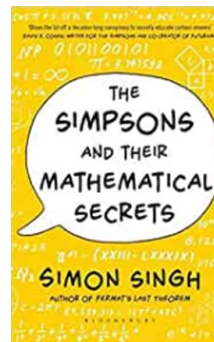
The Simpsons and their Mathematical Secrets (Simon Singh)
You may have watched hundreds of episodes of *The Simpsons* (and its sister show *Futurama*) without ever realising that they contain enough maths to form an entire university course. In *The Simpsons and Their Mathematical Secrets*, Simon Singh 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.
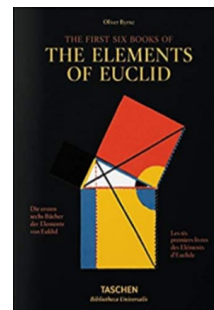
The Elements of Euclid (Oliver Byrne & Werner Oechslin)
Nearly a century before Mondrian made geometrical red, yellow, and blue lines famous, 19th-century mathematician Oliver Byrne employed the colour scheme for his 1847 edition of Euclid s mathematical and geometric treatise Elements. Byrne s idea was to use colour to make learning easier and diffuse permanent knowledge. The result has been described as one of the oddest and most beautiful books of the 19th century.
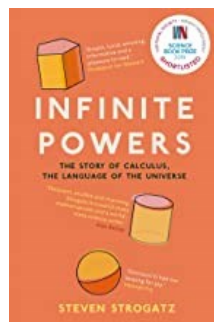
Infinite Powers, The story of calculus (Steven Strogatz)
This book takes the reader on a journey of the history of calculus, from Archimedes to its present day explanin complex mathematics to the general reader. It reveals the legacy of calculus on the modern day from technology, medicine, science, politics and much more.
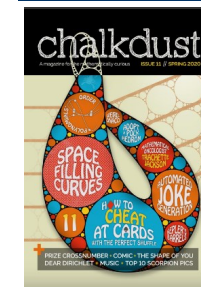
SCHOOL INFORMATION

MAGAZINES & PERIODICALS:

You may wish to consider subscribing to:

Chalkdust
A magazine for the mathematically curious

+Plus
Plus is an online magazine which aims to introduce readers to the beauty and the practical applications of mathematics.

[Mathematical Gazette
One of the leading journals in its field, publishing important and influential articles about the teaching and learning of mathematics.