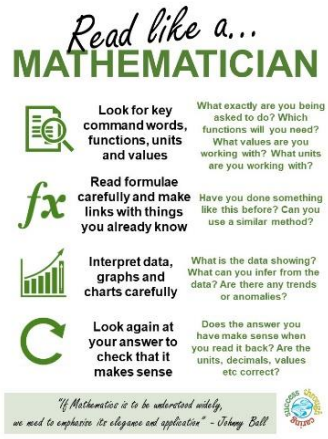
MATHS DEPARTMENT NEWSLETTER

Spring/Summer 2023 (ISSUE 4)

Mathematicians are active readers yet students will enter the Maths classroom with the misconception that reading is not something that they do in this subject. In school Maths learners spend a lot of time interpreting word problems. They need to read and understand the information before they can relate it to the mathematical operation that is required. Empowering students to be skilful, active readers – to read as Mathematicians – is therefore a crucial part of this process.



The students with the most positive points on ClassCharts in the Spring term for their readiness and contribution to their Maths lessons were:
LM y11
J D-G y11
D-L C y11
FC y11
Well done to all these students.

Welcome to Mr Maris – Hello Everyone, My name is Mr Maris and I am a trainee Mathematics teacher at Altrincham College.

I wanted to go into teaching because my mum was a primary school teacher and in college I went into her school for work experience. I really enjoyed my time in the school teaching the pupil's so I decided to pursue it at university. I have really enjoyed learning higher level maths and how to teach it. Some of my favourite things I have learnt at university would be the origins of Maths in the ancient world and the different counting systems that different civilisations worked with. Another topic I particularly enjoyed was geometric tessellations, why they work and the geometry behind them.

I grew up in rural Lancashire, which is why I sound very northern. At college, I studied Maths, Further Maths, Physics and Computer Science. I am currently in my third year at university at Manchester Metropolitan University (MMU), and I have lived in Manchester for the last 2 years. One of my hobbies is badminton which I only started playing at college. However, since starting I have competed in 3 different local leagues as well as representing my college and now university in competitions. I also enjoy mountain biking, but I am not very good at it! Before Christmas I was hospitalized for 2 weeks due to a bad crash, damaging and infecting my knee! I enjoy getting involved in any sport; I have been helping out refereeing the Year 7 girls football team at Altrincham College.

MATHS TEAM

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Read like a... MATHEMATICIAN

Read the Problem 3 Times
1st Read: What is the problem about?
2nd Read: What is the question?
3rd Read: What information is important?

A school bought some Maths books and 4 times as many Science books. The cost of a Math's book was £12 while a Science book cost £8. Altogether the school spent £528. How many Science books did the school buy?

1st Read	2nd Read	3rd Read
What is the problem about?	**What is the question?**	**What information is important? Quantity or Relationship**
The cost of Maths and Science books. The relationship between how many books were bought. The overall cost.	How many SCIENCE books?	**Quantity:** Maths book = £12 Science book = £8 Total cost = £528 **Relationship:** 1 Maths book = 4 Science books For every 1 Maths book (£12) = 4 Science books (4 x £8 = £32). = £44

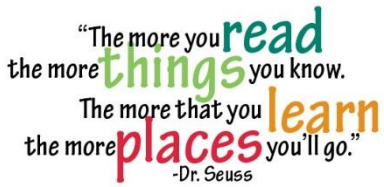
£528/£44 = 12
12 Maths (£144)
x4 **48 Science books** (£384)

When doing your 1st read you just **look out for key command words and vocabulary.**
The Tier 3 (Maths specific) vocab for the Summer term is:

Year 7	Year 8	Year 9	Year 10
Numerator	Gradient	Circumference	Mutually exclusive
Denominator	Intercept	Pi	Relative expected
Integer	Linear	Sector	frequencies
Multiplier	Quadratic	Vector	Independent and dependent
Equivalent	Parallel – Perpendicular	Invarient	Hypotenuse
Express (command word)	Interpet (command word)	Scalar	Adjacent
Compound interest	Inequality		Perpendicular
Prefixes – Mili, Centi, Kilo			Bisect (command word)
Mass			Gradient
Volume			Acceleration
Capcity			Capacity
			Mass

Can you find the definitions for your year group?

Reading for pleasure doesn't just boost reading skills. According to research from the British Educational Research Journal, it can also improve children's maths and general knowledge.

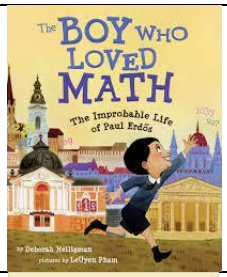
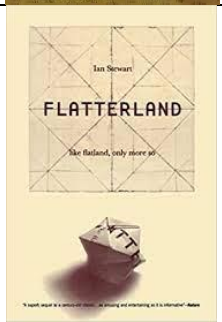
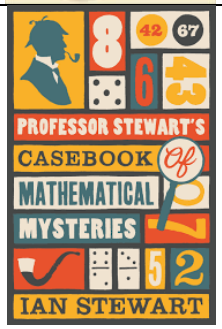


They found that while reading for pleasure had a greater impact on vocabulary, there was 'a substantial link to progress in maths.' The impact reading for pleasure had on maths was significantly greater than that of other 'cultural capital indicators.'

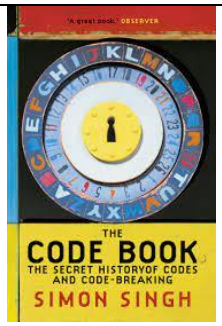
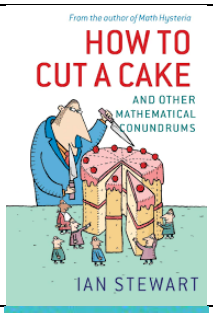
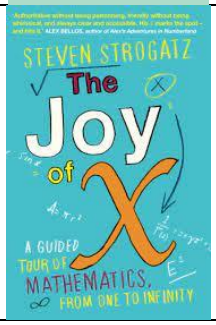
Their research suggested that there was a 'positive link between leisure reading and cognitive outcomes,' and that reading for pleasure actively increased this progress.

Here is a list of suggested reading for your try - maybe over the summer holidays.

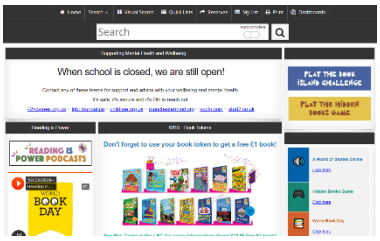
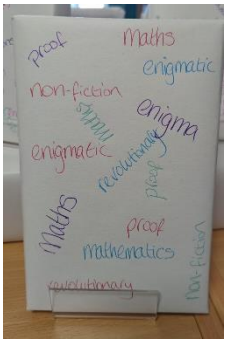
Key stage 3 For the full list**:**
https://www.dropbox.com/scl/fo/jzqsn7kbxnqxzr68hkn8c/h?dl=0&rlkey=yg8i5xghxrme6z09qbf6pdk5p&scrlybrkr=89541ab9

	**The Boy Who Loved Math: The Improbable Life of Paul Erdös** Most people think of mathematicians as solitary, working away in isolation. And, it's true, many of them do. But Paul Erdös never followed the usual path. At the age of four, he could ask you when you were born and then calculate the number of seconds you had been alive in his head. But he didn't learn to butter his own bread until he turned twenty. Instead, he travelled around the world, from one mathematician to the next, collaborating on an astonishing number of publications. With a simple, lyrical text and richly layered illustrations, this is a beautiful introduction to the world of math and a fascinating look at the unique character traits that made "Uncle Paul" a great man.
	**Flatterland by Ian Stewart** In 1884, Edwin A. Abbott published "Flatland"; a brilliant novel about mathematics and philosophy that charmed and fascinated all of England. Now, Ian Stewart has written a fascinating, modern sequel to Abbott's book. Through larger-than-life characters and an inspired story line, "Flatterland" explores our present understanding of the shape and origins of the universe, the nature of space, time, and matter, as well as modern geometries and their applications.
	**Professor Stewart's Casebook of Mathematical Mysteries by Ian Stewart** Like its wildly popular predecessors Cabinet of Mathematical Curiosities and Hoard of Mathematical Treasures, Professor Stewart's brand-new book is a miscellany of over 150 mathematical curios and conundrums, packed with trademark humour and numerous illustrations.In addition to the fascinating formulae and thrilling theorems familiar to Professor Stewart's fans, the Casebook follows the adventures of the not-so-great detective Hemlock Soames and his sidekick Dr John Watsup (immortalised in the phrase 'Watsup, Doc?'). By a remarkable coincidence they live at 222B Baker Street, just across the road from their more illustrious neighbour who, for reasons known only to Dr Watsup, is never mentioned by name. A typical item is 'The Case of the Face-Down Aces', a mathematical magic trick of quite devilish cunning... Ranging from one-liners to four-page investigations from the frontiers of mathematical research, the Casebook reveals Professor Stewart at his challenging and entertaining best.

Key stage 4 For the full list:
https://www.dropbox.com/scl/fo/jzqsn7kbxnqxzr68hkn8c/h?dl=0&rlkey=yg8i5xghxrme6z09qbf6pdk5p&scrlybrkr=89541ab9

	**The Code Book by Simon Singh** The Code Book is a history of man's urge to uncover the secrets of codes, from Egyptian puzzles to modern day computer encryptions. As in Fermat's Last Theorem, Simon Singh brings life to an astonishing story of puzzles, codes, languages and riddles that reveals man's continual pursuit to disguise and uncover, and to work out the secret languages of others. Codes have influenced events throughout history, both in the stories of those who make them and those who break them. The betrayal of Mary Queen of Scots and the cracking of the enigma code that helped the Allies in World War II are major episodes in a continuing history of cryptography. In addition to stories of intrigue and warfare, Simon Singh also investigates other codes, the unravelling of genes and the rediscovery of ancient languages and most tantalisingly, the Beale ciphers, an unbroken code that could hold the key to a 20 million dollar treasure
	**How to Cut a Cake: and Other Mathematical Conundrums by Ian Stewart** In this book are twenty more curious puzzles and fantastical mathematical stories from one of the world's most popular and accessible writers on mathematics. This is a strange world of never-ending chess games, empires on the moon, furious fireflies, and, of course, disputes over how best to cut a cake. Each chapter with titles such as, "How to Play Poker By Post" and "Repealing the Law of Averages" - presents a fascinating mathematical puzzle that is challenging, fun, and introduces the reader to a significant mathematical problem in an engaging and witty way. Illustrated with clever and quirky cartoons, each tale will delight those who love puzzles and mathematical conundrums
	**The Joy of X: A Guided Tour of Mathematics from One to Infinity by Steven Strogatz** **Maths** Is everywhere, often where we don't even realise. Award - winning professor Steven Strogatz acts as our guide as he takes us on a tour of numbers that - unbeknownst to the initiated. Connect pop culture, literature, art, philosophy, current affairs, business and even everyday life. In “The Joy of X,” Strogatz explains the great ideas of maths from negative numbers to calculus, fat tails to infinity with clarity, wit and insight. He is the maths teacher you never had and this book is perfect for the smart and curious, the expert and the beginner.

What’s in our school LRC to help you read Maths for pleasure?

AccessIt – The LRC portal	Where are the books?	Blind date with a book
 SEARCH – MATHS All the available Maths related books will be sort listed on the screen. Drag the book you wish to read into “MY LIST” Then in the OPTIONS select SEND TO LIBRARIAN and Mrs Deesi will look it out for you.	As soon as you enter the LRC the Maths section is on the bottom shelf, there are also Maths magazines on the top of this stand.  	Why not choose the mystery book with Maths key words. Speak to Mrs Deesi or check out one of the posters around school about how the Blind date with a book scheme works with a chance to win chocolate. 

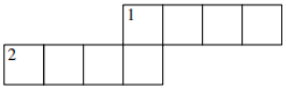
Going beyond the classroom

The **UKMT Maths Challenge** competitions are the UK's biggest and most popular maths competitions. www.ukmt.org.uk/

Altrincham College participated in the Intermediate competition in February. The Intermediate Challenge is aimed at Year 9-11 students and we are incredibly proud of our excellent results. 55 of our students received an award, with 7 of these being the gold award.

The challenges are full of mind-bending maths puzzles. **Why not have a go yourself with this question taken from this year's challenge**:

Across	Down
1. A power of 5	1. A power of 6
2. A power of 4	



Eight of the digits from 0 to 9 inclusive are used to fill the cells of the crossnumber.
What is the sum of the two digits which are not used?

A 12 B 13 C 14 D 15 E 16

If you are looking for resources to use at home, try the link below for a calendar of activities that can be used to support Maths development outside of school:

https://www.stem.org.uk/home-learning/secondary-maths

Maths Department Extra-Curricular Timetable

When	Where	Who	What
ONLINE	Email	Year 7-11	Parallel Maths Project – see below
ONLINE	Dr Frost website	Year 7-11	UKMT Math challenge practice
MONDAY LUNCH	C0-12	Year 7-9	Homework support and maths challenges with the KS5 Maths Ambassadors
TUESDAY PERIOD 6	C0-09	Year 7-9	Mathwatch workspace and homework support
WEDNESDAY PERIOD 6	C0-09	Year 11	GCSE UPGRADE

Career in focus

What will your future career be?

At age 16 or less, you won't yet know exactly what you will do in the future. This means that you cannot predict what maths you will need. Many people will change careers multiple times, meaning that you need to have a wide understanding of maths to give you the best possible job options.

This terms careers focus is on **the business industry**. The business industry is mainly about making profits. In comparison to revival companies you will be the successor if you can ensure more profits for your company.

Why not have a go at some of the supporting activities to this video.
https://amsp.org.uk/resource/dd99d643-3cd2-4e37-fe43-08daa2bed58a/
Activity A: Upper KS2
Activity B: KS3 and Foundation GCSE
Activity C: Higher GCSE
Activity D: KS5

Mathematics and statistics are used in business every day. The analysis of how business works, how data can be effectively used and how we can optimise business practices are all examples of where the use of mathematics and statistics can help business to be more successful and they are all important aspects of the science of management.

This area, management science, is also known as operational research (OR) and is concerned with applying quantitative techniques and the modelling of business problems to management decision-making and planning.

There is a University course where you can combine both business and statistics. Creating a powerful combination.
https://digital.ucas.com/coursedisplay/courses/5281538c-c64a-f2fa-622c-bdf389210350?academicYearId=2023

Maths in the News

The Prime Minister, Rishi Sunak, has pledged to tackle what he has described as the “Anti-Maths mindset”. He said “it is holding the economy back,” and has announced a review of the subject in England.

What is an “Anti-Maths mindset”? and what is he proposing to do to tackle this issue?

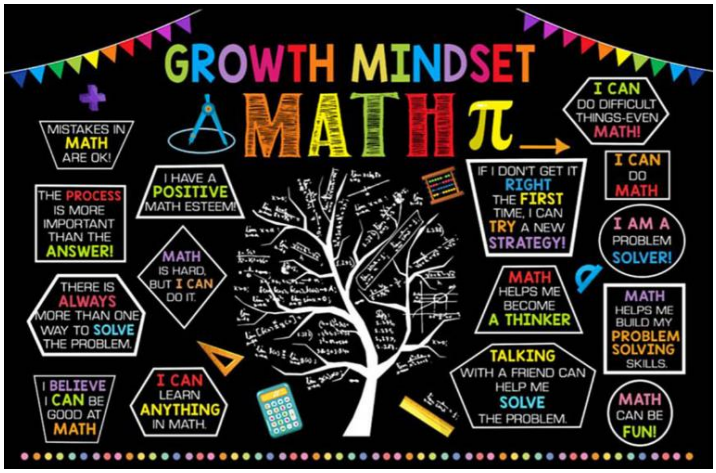
What is an “Anti-Maths mindset”?

Speaking in London to an audience of students, teachers and business leaders, Mr Sunak said children risked being **"left behind"** in the jobs market without a solid foundation in maths.

A **"cultural sense that it's OK to be bad at maths,"** he added, had left the UK one of the least numerate countries in the developed world. In 2019, the UK **was ranked 18th in the world for attainment in maths**, based on tests taken by 15-year-olds.

Poor numeracy had proved a problem for employers, he said, and was **costing the economy "tens of billions a year".**

Almost a third of 16-year-olds in England fail GCSE maths each year and face compulsory resits in college. The resit pass rate is about one in five.



What is he proposing to do to tackle this issue?

A group of advisers, including **mathematicians and business representatives,** will examine the "core maths content" taught in schools.

It will also consider whether a **new maths qualification** is necessary.

He wants **all school pupils in England to study some maths until 18** - although it will **not be compulsory** to study the subject **at A-level**.

Outlining the review in a speech, the prime minister admitted **more maths teachers were needed**, and this was "not going to happen overnight".

Shadow education secretary Bridget Phillipson said "The prime minister needs to show his working: **he cannot deliver** this reheated, empty pledge **without more maths teachers**,"

Targets to recruit new trainee teachers **haven't been met for more than a decade,** despite being lowered since 2019.

The prime minister said the group would report back with recommendations for improving the maths curriculum around July, with a delivery plan then announced later in the year.

The suggestions may include **scrapping compulsory GCSE resits** in favour of promoting existing core maths qualifications, which **focus more on applying maths to real-life situations.**

Preparing for GCSE's and y7-10 end of year exams

GCSE Dates
Paper 1: Friday 19th May
Non – calculator

Paper 2: Wednesday 7th June
calculator

Paper 3 Wednesday 12th June
calculator

Year 7 – 10 Exams (In classrooms during lesson time)

Year 7	Year 8	Year 9	Year 10
Paper 1 Mon 19th June non-calculator	Paper 1 Wed 21st June non-calculator (8cd3 Thur 22nd)	1 Non-Calculator Thurs 22th June (9c1 Fri 23rd)	2 Calculator Mon 12th June
Paper 2 Tues 20th June calculator	Paper 2 Tues 27th June calculator	2 Calculator Tues 27th June	3 Calculator Tues 20th June
		3 Calculator Thurs 29th June	1 Non-Calculator Thur 22nd June (exam in hall)

Where can I access revision help?

Mathswatch.co.uk

Revision videos
Interactive online questions
Downloadable worksheets

Corbett Maths.com

Revision videos
Downloadable exam questions by topic
Downloadable worksheets

Mathsgenie.co.uk

Revision videos
Downloadable exam questions by topic and grade

Revision list GCSE foundation
https://corbettmaths.com/wp-content/uploads/2021/12/AQA-Foundation-Checklist-1.pdf

Revision list GCSE higher
https://corbettmaths.com/wp-content/uploads/2021/12/AQA-Higher-Checklist-1.pdf

OnMaths.com

Online practice papers
Immediate feedback and grades

Support work documents on the school website. Including end of year revision lists within the document
https://www.altrinchamcollege.com/curriculum/mathematics/ways-to-help-your-child