

MATHS DEPARTMENT NEWSLETTER

Summer 2022 (ISSUE 2)

"I'M RUBBISH AT MATHS"

"What separates the more successful people from the less successful people is not the number of their successes but the number of mistakes they make, with the more successful people making more mistakes." – Jo Boaler (British education author and Nomellini-Olivier Professor of Mathematics Education)

Student voice: What some of the students think about Maths at Altrincham College

"I feel supported in lessons to ask for help. This is from a really positive relationship and learning environment" ES y11

"We've really enjoyed Maths so far in school and we are looking forward to continuing after year 11. (AG) I will be doing A level maths because I find Maths interesting and it gives me a good challenge. (NB-K) I will be taking Core Maths in sixth form because it really sets you up for real life Maths with the finance section and applying my statistics knowledge." AG and N B-K y11

Sixth form course booklet: <https://online.fliphtml5.com/jtnbh/hlbf/#p=1>

The students with the most positive points on ClassCharts in the spring term for their readiness and contribution to their Maths lessons were:

- Y-Y He y11
- I Yu y11
- A Butt y10
- N V Dongen y11
- A Khan y10

Well done to all these students.



Welcome to Mr Mohammed - our new Second in Mathematics and Year 9 form tutor who joined us after the Easter break.

Following his graduation from the University of Bolton with a Mathematics degree, Mr Mohammed spent 14 years working in business at Tesco where he successfully completed their Retail Finance Graduate Scheme, before embarking on a career within education. Mr Mohammed holds a PGCE and Master's degree in Educational Leadership from Edge Hill University.

Mr Mohammed has experience of working in schools within North Manchester and has spent significant time working at White Rose Maths - developing curriculum, writing schemes of learning, supporting schools as a Subject Lead Expert and working with educational colleagues across Maths Hubs. He is really looking forward to his time at Altrincham College.

In his spare time, Mr Mohammed is a keen gym goer and has interests in politics and business, he also enjoys spending regular time with friends and family.



MATHS TEAM

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Welcome to the team
Mr Mohammed
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Tackling Anxiety in Maths:

Maths Anxiety is defined as a negative emotional reaction to mathematics, leading to varying degrees of helplessness, panic and mental disorganisation that arises among some people when faced with a mathematical problem. It affects concentration, decision making and the working memory, which are all needed to help tackle a maths question. Some examples of the triggers of Maths Anxiety are: lack of success; negative views passed on by adults; time pressures; negative thinking patterns; and 'confusing' methods which are different to parents or primary school.

How can adults help their child with Maths Anxiety?

- Be positive and encouraging about maths at home and provide support and motivation for students to build Mathematical resilience.
- Try to have conversations about every day real life maths whenever possible at home to show the importance of maths and that maths is everywhere.
- Make use of the short online course; "[Helping with Homework: For Maths-Anxious Parents](#)". It guides adults through a few of the ways they can help at home without having to know too much about the maths.
- A free maths anxiety course for students is available [here](#). It provides some helpful tips for students to use to help with Maths Anxiety.

8 Practical Ways to Conquer Your Child's Math Anxiety

1 Be involved
Student success in school has been shown to increase if their parents are positively involved in their education.

2 Encourage a growth mindset
Studies have shown that effort trumps ability when it comes to learning math, so set high expectations when encouraging your child.

3 Be positive about math
A parent's perception of mathematics influences not only their child's feelings about math but also their child's achievement in mathematics.

4 Overcome gender stereotypes
Foster math confidence regardless of the gender of your child by highlighting achievements made by both male and female scientists.

5 Learn the basics
Rote learning is essential to mathematics performance as many higher level concepts build on the memorization and repetition of the basic math facts.

6 Allow mistakes
Focus on the concepts rather than the right answer, since making (and correcting) mistakes is an essential part of math learning.

7 Take baby steps
Support new topics by slowly building from the topics your child already understands. Use gradual, repeated success to build math confidence in your child.

8 Make math relevant to real life
Highlight ways in which you and your family use math in everyday life and discuss how good math skills will open the doors to a larger choice of career options.

www.mathsinsider.com
Maths Insider
Source: https://en.wikipedia.org/wiki/Mathematical_anxiety

<http://www.mathsinsider.com/conquer-math-anxiety/>



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 the Spring term. The Intermediate Challenge is aimed at Year 9 to Year 11 students and we are incredibly proud of our excellent results:

1 Gold certificate



10 Silver certificates

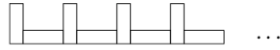


34 Bronze certificates



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

One hundred rectangles are arranged edge-to-edge in a continuation of the pattern shown.



Each rectangle measures 3 cm by 1 cm. What is the perimeter, in cm, of the completed shape?

- A 800
- B 700
- C 602
- D 600
- E 502

(answer at the end of the newsletter)



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:

	MON	TUES	WED	THURS	FRI
Week 1	Activity: Find the sequence	Activity: Crack the code	Activity: Think of a number	Activity: Sum masses	Activity: Calculate time
Week 2	Activity: Square hypothesis	Activity: Prime or not?	Activity: Solve the squares	Activity: Area Pit	Activity: Unmarked angles
Week 3	Activity: Logical reasoning	Activity: Coordinate messages	Activity: Changing grids	Activity: Round Order	Activity: Mirrors and Transformations
Week 4	Activity: Calculator obstacles	Activity: Introducing ratios	Activity: Percentage puzzles	Activity: Power Match	Activity: Squares, Cubes and Boats
Week 5	Activity: Justice Cards	Activity: Millions	Activity: Number words	Activity: SATS Comas	Activity: The 'smoothing out' problem
Week 6	Activity: Maps	Activity: How heavy?	Activity: Word Match	Activity: Find the shape	Activity: Yes No

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



or enjoy Maths videos & activities at

Numberphile

www.numberphile.com

Welcome to the Parallel Maths Project!

Be challenged, get curious, do maths.
Stretch your brain every week.

Every week, a 15-minute task is set on parallel.org.uk. This is aimed at students who are seeking to try interesting, fun and challenging material that goes beyond school maths: mystery and history, activities and oddities, puzzles and problems.

Students can sign up using the Teacher Code **1r1wq0**.

Each Thursday at 3pm, you will receive an email, giving access to a new set of online mathematical challenges. For more information, please visit <http://parallel.org.uk/>



MathsWatch

One Minute Maths

Interactive Questions

We encourage all students to work independently on a regular basis to boost the maths that they have learned at school that week.

MathsWatch Clip Reference Numbers help students to revise effectively for tests and assessments. We encourage students to revisit topics after the assessments to fill any gaps in knowledge or understanding.

All students have their own MathsWatch login, giving them access to videos, interactive questions that are marked online, and worksheets to complete.

www.mathswatch.co.uk

Please let your Maths teacher know if you have forgotten your password.



www.altrinchamcollege.com



150 Year 7 and 8 students took part in the Junior UKMT Maths Challenge at the end of April and we will soon have the results in school.

We will be holding a **reward and recognition 'party'** in the last few weeks of the Summer term. Where will celebrate the successes within the department across the whole year including ClassCharts positives, Outstanding Work nominations from teachers as well as competition winners.



Career in focus





What will your future career be?

At age 16 you can't know exactly what you will do in the future, meaning you can't 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.

Engineering:

Engineering is the **application of science and mathematics to solve problems**. Engineers figure out how things work and find practical uses for scientific discoveries. Scientists and inventors often get the credit for innovations that advance the human condition, but it is engineers who are instrumental in making those innovations available to the world.

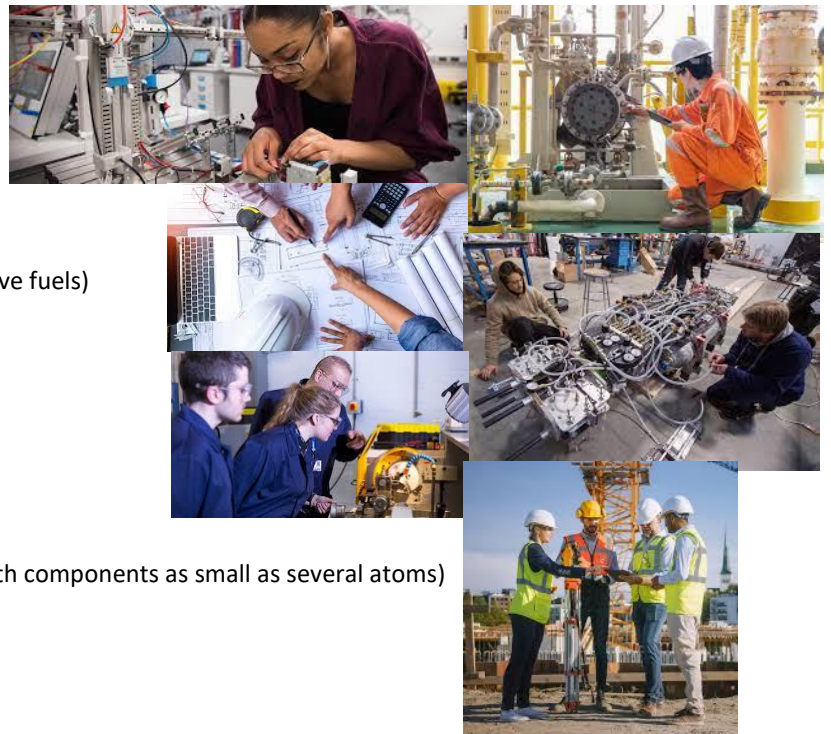
There are four main types of Engineering:

Chemical Engineering	Civil Engineering	Electrical Engineering	Mechanical Engineering
£29,000 – £60,000 a year (UK average)	£24,000 – £80,000 a year (UK average)	£20,000 – £60,000 a year (UK average)	£22,000 – £55,000 a year (UK average)
Chemical engineers are sometimes known as 'universal engineers' because they know a broad range of stuff and have their fingers in all kinds of career pies. For example, the Nike sportswear development department is full of chemical engineers helping to create space-age fabrics. Chemical engineers research and design the machines, chemicals and activities which help create stuff from raw materials. Chemical engineers even help design ice-cream.	Civil engineers are like SimCity but in real life. They plan and manage mega building projects – anything from airports to statement skyscrapers and entire new towns. If you want to be able to walk past a city attraction and tell your friend "I made that happen", you could think about becoming a civil engineer.	Would you like to change the world, improve lives and save the planet? Would you also like to make your tired old phone scratch-free again? As an electrical engineer, dreaming up and making all kinds of electrical equipment is what you do. You don't need a degree to get into electrical engineering, either. You can start out as an electrical engineering technician then train to become a fully qualified engineer when you're ready.	Mechanical engineers have the very special skill of designing machinery and mini-machinery-bits (components, in other words). You'll find machinery everywhere these days, so mechanical engineers are needed in almost any industry you can think of, from energy to healthcare.
			

Engineering affects everything we do, from using phones to travelling and wearing clothes. That's why there are so many types of engineering apart from the big 4 to choose from...

- Aerospace engineering
- Agricultural engineering
- Audio engineering
- Automotive engineering
- Biomedical engineering
- Broadcast engineering
- Computer engineering
- Design engineering
- Energy engineering (from petroleum to alternative fuels)
- Environmental engineering
- Food science engineering
- Geological and geophysical engineering
- Maintenance engineering
- Manufacturing engineering
- Marine engineering
- Materials engineering
- Mining engineering
- Nanoengineering (engineering on a tiny scale with components as small as several atoms)
- Nuclear engineering
- Rail engineering
- Structural engineering
- Telecoms engineering

... And that's just for starters.



Engineering can shape the world we live in, do you think you would like to be part of creating our future?



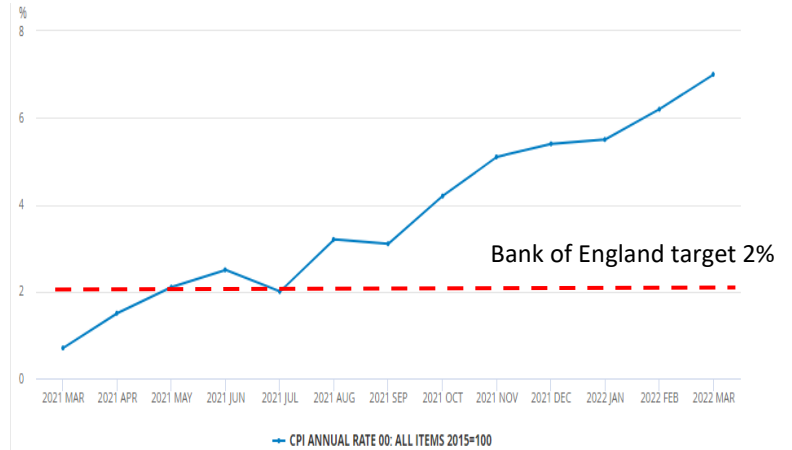
Here is some careers advice on how to become an engineer <https://www.prospects.ac.uk/jobs-and-work-experience/job-sectors/engineering-and-manufacturing/how-to-become-an-engineer>

Maths in the News

An update on inflation which was discussed in the [Spring Newsletter](#)

I last reported that the cost of living rose by 5.4% in the 12 months to December 2021. It is the **highest rise in living costs in 30 years**.

The latest rate of inflation reported was for **March 2022 at 7%**. The last time that the rate of inflation was 7% was in January 1992. Here is the trend over the last 12 months.



In the news recently, Shell (fuel company) have reported the record-breaking high profits for the first quarter of this year when compared with the same time last year.

They reported a profit of \$9.1 billion from January to March 2022. In 2021 they reported \$3.2 billion.

To calculate the percentage increase = $\frac{\text{change in profit}}{\text{original profit (in 2021)}} \times 100 = \frac{9.1 \times 10^9}{3.2 \times 10^9} \times 100 = 284\%$ **increase in profits.**

Some have suggested that the company is profiting from the war in the Ukraine by rising fuel prices however, Shell chief executive Ben van Beurden has disagreed with this claim saying,

“It is very much also the performance of the company, which has significantly strengthened in the run-up and also during the pandemic.”

So, what have the government said?



Labour's Keir Starmer has been urging the government to **introduce a one-off levy** on oil and gas giants. They have proposed levying an **extra 10% on the corporation tax** paid by oil companies that are active in the North Sea. This would be **on top of the 40% rate they pay on their profits.**



However, Boris Johnson has once again **rejected calls for a windfall tax** on energy firms.

What is a windfall tax?
Usually a one-off levy imposed on a company or group of businesses that have unexpectedly benefited from something outside their control, in this case a surge in oil and gas prices.

Secretary of State for International Trade Anne-Marie Trevelyan defended the vast profits.

She said: “The reality is if we strip away their profits, we will not be able to do what is the most important thing, which is **to invest in those clean energies of the future** which will also enable us to come away from our reliance on foreign energy.”

STRATEGY UPDATE
PROVIDING ENERGY SECURITY, ACCELERATING ENERGY TRANSITION

<p>Improving EV charging experience across China and Europe to help accelerate energy transition through a strategic partnership with BYD, a major Chinese automobile manufacturing conglomerate</p>	<p>MoU signed with Crowley, aiming to support alternative energy solutions for shoreside and terminal operations and help advance decarbonisation efforts in the maritime sector</p>	<p>Start-up of hydrogen electrolyser in China with 20 MW production capacity</p>	<p>Invest up to £25 billion over the next 10 years in the energy system in UK, >75% in low- and zero-carbon projects*</p>
<p>Announced acquisition of Spring Energy group, one of India's leading renewable power platforms</p>	<p>MoU signed with German LNG Terminal GmbH to provide LNG to the Brunsbüttel terminal planned in Germany</p>	<p>Agreement with Uniper to work together on blue hydrogen production facility in UK to decarbonise heavy industry, transport, heating and power across Humber and beyond</p>	<p>First supplier of sustainable aviation fuel (SAF) to customers in Singapore</p>
<p>Building a material power business - almost 2.1 million retail energy customers worldwide by the end of March 2022</p>			