

November
2024

Archbishop Temple C of E High School

Mathematics Department



Autumn term curriculum:

- Year 7 mathematicians have worked on solidifying key number skills with **primes**, **decimals**, and **fractions**.
- Year 8 mathematicians have worked on developing essential algebra skills through work on **formulae**, **equations**, and **sequences**.
- Year 9 mathematicians have worked on more complex number skills with **standard form** and **surds** and have been introduced to two key topics relating to right-angled triangles: **Pythagoras** and **Trigonometry**.
- GCSE mathematicians have built upon their work at KS3 and have focused on a broad range of topics, from **circle theorems** to **proportion**, and from **bounds** to **algebraic manipulation**.



Mathematician
spotlight

**Maryam
Mirzakhani**

1977-2017

Tehran, Iran

Maryam's work earned her a reputation as one of the **greatest mathematicians** of her time.

She was the first woman to be given the highest award in mathematics, the **Fields Medal**.

She focused on the complex dynamics of geometric structures.

The Goldbach conjecture states that every even number greater than 2 can be written as the sum of two prime numbers.

e.g. $28 = 11 + 17$

$126 = 67 + 59$

Despite being proposed in 1742, mathematicians have still not been able to prove that it is true!

Can you think of an example which shows that the conjecture is **NOT** true?

Student C - Year 8

"I feel like I'm improving at least every week when I'm doing Maths and the homework is helping me improve"

Student E - Year 9

"I feel involved and enjoy my lessons because I like my teacher and he helps if you ask questions"

Student D - Year 8

"I feel that Maths is a crucial subject since it is the universal language"

Student B - Year 7

"I try my best because I know Maths will be useful later in life"

Student H - Year 11

"I learn a lot in my Maths lessons which is very helpful. My teacher is very good at explaining things"

Student A - Year 7

"Maths is a wonderful and complex subject"

Student F - Year 9

"Maths helps strengthen and develop the brain"

Student G - Year 10

"I like Maths because it gives me a time where I only need to think logically"

Can you identify these formulae?

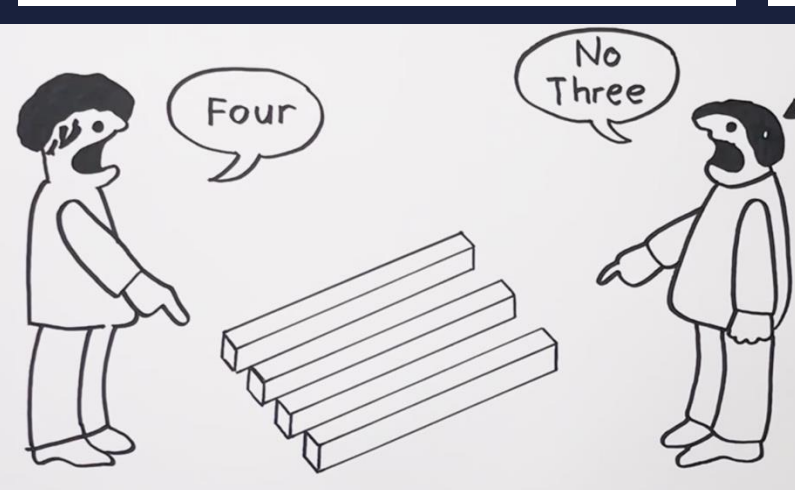
$A = \pi r^2$ $V = lwh$ $a^2 + b^2 = c^2$

Challenge yourself to a 20-minute puzzle!



Go to parallel.org.uk/signup to create an account, using teacher code **0SST-WC81** when prompted.

Every week on Thursday at 3pm you will receive an email link to a fresh set of fun mathematical challenges – give it a go!



He has made everything beautiful in its time. He has also set eternity in the human heart. Yet no one can fathom what God has done from beginning to end – **Ecclesiastes 3:11**



ClassCharts leaders:



Mya B-H (9H)
Halima F (8H)
Sam A (10H)
Visha B (10T)

Elijah A (9H)
Lottie T (7I)
Hashim S (9T)

Congratulations for the impressive number of light points you have earned in **Maths lessons!**

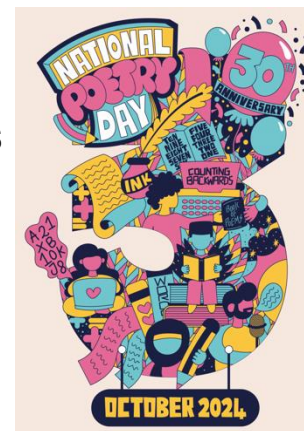
Top tips for helping our children with their Maths:

1. **Be positive** about Maths
2. **Point out** the Maths in every-day life
3. **Praise** the effort, not the success

Why can't your **nose** grow to be 12 inches long?
Because then it would be a **foot!**

Maths in the news

- October 3: National Poetry Day is celebrated. This year, the theme for the day was 'counting'!
- October 12: Computer discovers a new largest known prime number ($2^{136,279,841} - 1$). This number has over 41 million digits!
- October 28: US teens publish peer-reviewed paper detailing their discovery of a new way to prove **Pythagoras' Theorem**.



These students are at the top of the **Sparx leaderboard** for the year so far!

Shreyas A (7H)
Adrija D (11T)
Maureen O (8H)

The way you **count** may reveal more about you than you realise!

People from the **UK** tend to start counting with the thumb and end at the little finger. Those from **Iran** likely work in the opposite direction.



In the **US**, people often start with the index finger and end with the thumb, while people from **Japan** tend to start with the fingers extended and draw them in to make a fist.

"With Maths, I could be a great..." **Lawyer**

Lawyers spend a lot of time with **data**, **analysing statistics**, **financial records**, and much more.

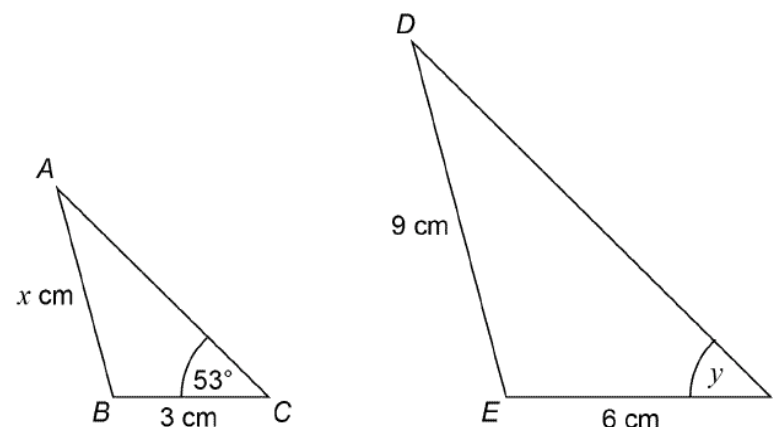
Lawyers also use the **critical thinking** and **logic** learned through Maths lessons in a whole new context. They need to be **analytical**, **responsive**, and **evidence-focused** – these are all mathematical skills!

$M + M = 20$
 $N + N = 10$
 $O + O = 8$
 $M + N \times O = ?$

Can you **solve** this **GCSE** question?

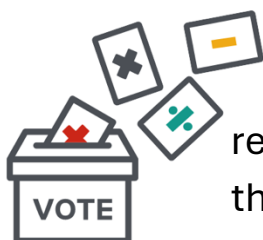
16 Triangles *ABC* and *DEF* are similar.

Not drawn accurately



16 (a) Work out the value of *x*.

[2 marks]



Is **Democracy** mathematically possible?

With several big elections taking place recently, you may like to watch this video about the **interplay between mathematics and voting!**

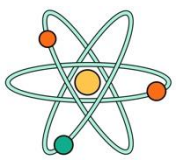
www.youtube.com/watch?v=qf7ws2DF-zk



2022 ATS Leaver
Shane Calvey
Civil Engineer



“In my work in construction we use Maths way more than I ever thought we would: from calculating how much weight foundations are able to hold, to measuring angles and depths for specific building projects, and to using laser levels to make sure our work is perfectly level. Without all these things nothing could be done!”

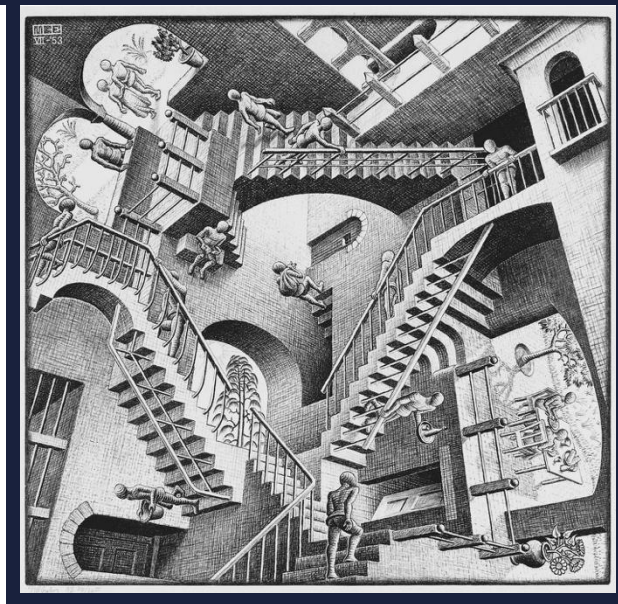


2017 ATS Leaver
Patrick Hurley
Theoretical Physicist

“I am now a PhD student at the University of Sussex. My work looks at understanding and then predicting the processes which happen inside the Large Hadron Collider (LHC) at CERN in Geneva, Switzerland. In the collider over 100,000 billion protons per beam are fired at close to the speed of light, with 1 billion of them colliding every second. This is at a scale our brains can't even picture, but mathematics, built up over hundreds of years, and some of which you learn in high school, allows us to predict precisely what's going on. I know what you're thinking: “that's a lot of Physics and not much Maths”, but Maths is the language with which we can understand the fundamental building blocks of our universe. Beyond Physics, everything from problem solving, engineering, computing and the latest revolutions of machine learning and artificial intelligence are all derived from Maths. Studying and learning Maths can start you on an exciting journey to careers in any one of these areas!”

Department news

- Keep an eye on the school's socials for regular updates on the Sparx leaderboards!
- Mr O'Leary's Further Maths after school sessions with Year 11 students continue to stretch and challenge!
- Some Year 7 students have begun their work on Eedi, an online diagnostic questions tool co-founded by Craig Barton. Students are using this for their home learning in Maths.
- Thursday lunchtime Chess Club proves more popular than ever!
- Year 10 and 11 students have taken to TikTok for their revision, making use of Hannah Kettle's Thursday evening Maths tutorials.
- Following a talk in school in October, some Year 11 students enjoyed attending the LUSoM Taster Day in November. They were able to experience example lessons and got a glimpse of the mathematical opportunities waiting for them after their GCSE exams.
- The school celebrated UK Maths week in November with lots of fun activities, including a STEM workshop, lunchtime puzzles and challenges in the Maths department, and a 'Maths in real-life' photo competition with over 70 entries. You can see the winning photos on the next page!



A vampire number is a number, with an even amount of digits, that can be factored into two numbers each with half of the original amount of digits, where the factors contain the same digits as the original number.

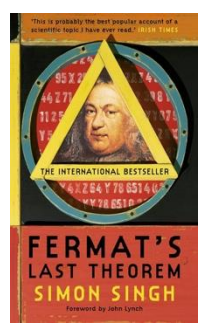
e.g. $1260 = 21 \times 60$

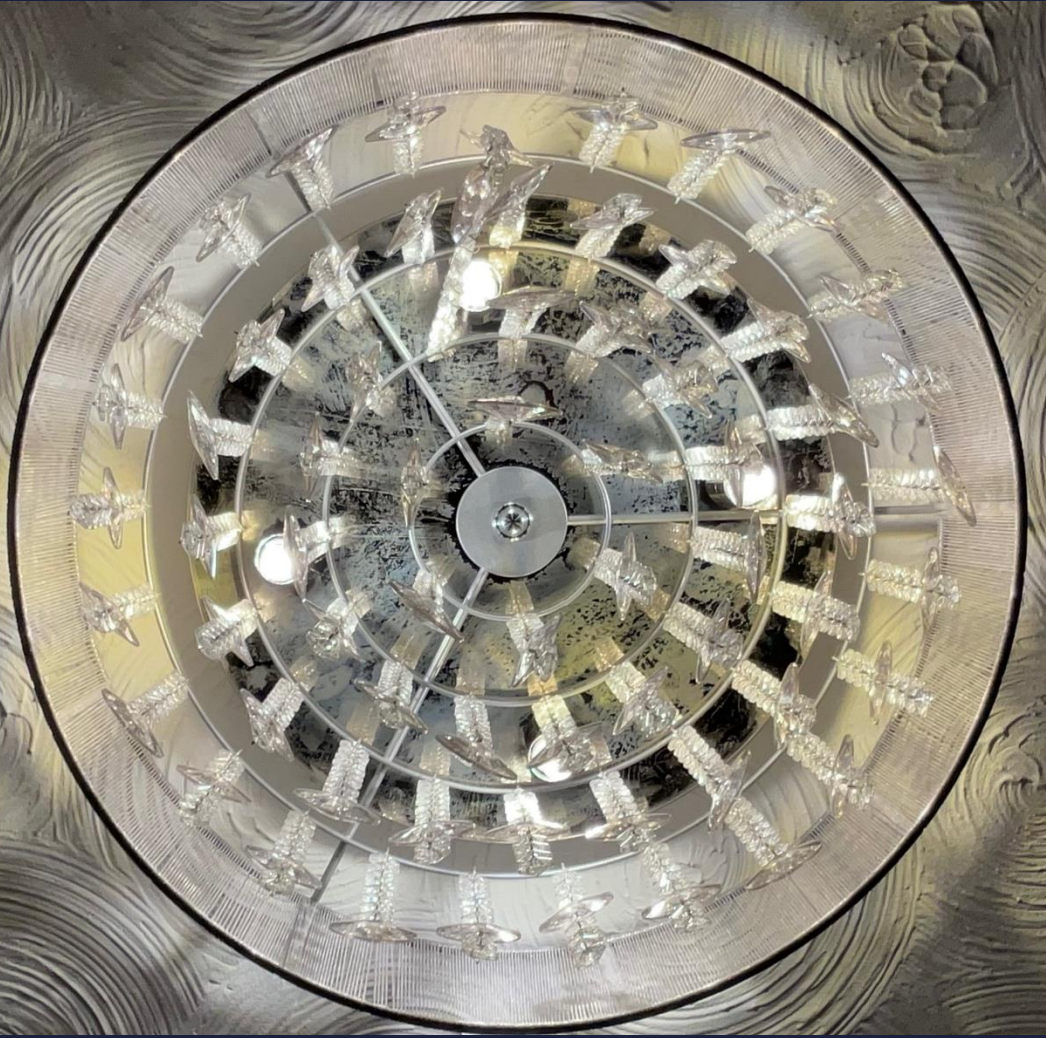
Can you find another?

What number comes next in the sequence?

1 11 21 1211 111221 312211

Recommended read: Mr Ranson
Fermat's Last Theorem by Simon Singh
This book tells the story of the long search for a proof of a theorem first conjectured in 1637. After many tried and failed before him, British mathematician Andrew Wiles finally completed a proof in 1995.





Can you spot all of the Maths in this photo?
By Jayden P (Year 7)

Do you recognize this mathematical location?
By Lydia H (Year 7)

Archbishop Temple students have finished in an amazing 1st place in the 10ticks Mental Maths national competition!

Calling all Year 11 students!
You have plenty of tools available to aid you in your revision:
Sparx Independent Learning
Maths Copilot free online tuition
OnMaths practice papers
Hannah Kettle Tiktoks Thursday evening
Paper Society (girls) Monday lunchtime
GCSE Further Maths course Monday after school

