"There is a geometry in the humming of the strings.
There is music in the spacing of the Spheres."
- **Pythagoras**

FIBONACCI IN NATURE

Nature is full of patterns: from sunflowers to seashells that follow the Fibonacci sequence.

ST. ANNE'S CATHOLIC HIGH SCHOOL

APRIL 2026

MATHEMATICAL CURIOSITY

THE MATHEMATICS DEPARTMENT NEWSLETTER

INTRODUCTION

Welcome to the very first edition of the Mathematics Department Newsletter, *Mathematical Curiosity!*

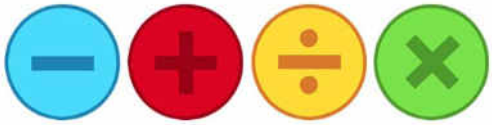
Mathematics at St. Anne's is about far more than numbers and exams — it is about curiosity, creativity and discovering patterns that shape the world around us. In our classrooms, students are encouraged to ask questions, explore different approaches and develop confidence in their thinking.

We believe that everyone can succeed in mathematics. Through problem-solving, discussion and collaboration, students learn to think logically, reason clearly and communicate their ideas with precision. Whether tackling a challenging puzzle, exploring a new concept or making connections to real-world applications, Mathematics becomes a subject that is both engaging and meaningful.

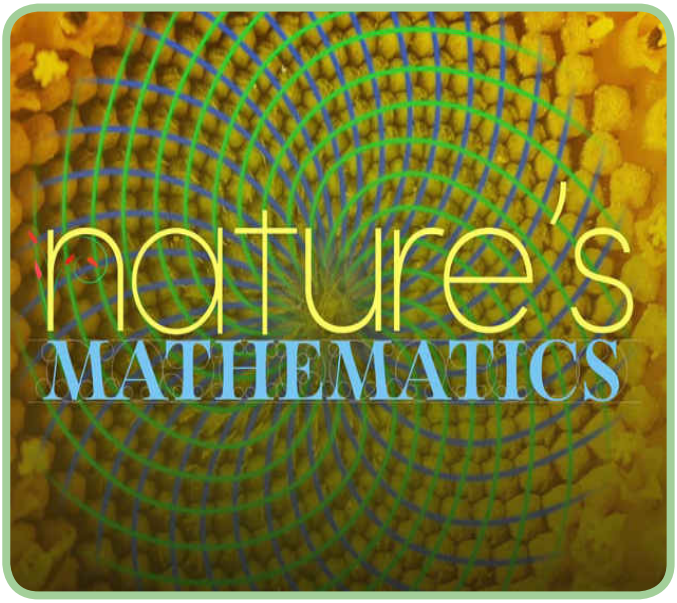
This newsletter celebrates the mathematical life of our school. It captures the ideas, questions and achievements that emerge from our lessons, while also inviting students to go further — beyond the classroom — into the wider world of mathematics.

We hope it inspires you to think deeply, stay curious and see mathematics not just as something you study, but something you experience.

The Mathematics Team



IN THIS EXCITING ISSUE...



MATHEMATICAL INSPIRATION

SAINT CATHERINE OF ALEXANDRIA

Did you know there is a Saint closely associated with learning, reasoning and intellectual challenge?

Saint Catherine of Alexandria is known as the Patron Saint of students, scholars and philosophers. She was celebrated for her intelligence and is said to have engaged in complex debates, using logic and clear reasoning to defend her ideas.

Her story reminds us that learning is not just about finding answers, but about thinking deeply, asking questions and having the confidence to explore challenging ideas — just like mathematics.

In many ways, mathematics reflects these same qualities. When solving a problem, we test ideas, look for patterns and build logical arguments step by step. Like Saint Catherine, we learn to think carefully, explain our reasoning and remain curious.

As part of our department, we celebrate this spirit of inquiry and resilience. Whether you are tackling a difficult problem or discovering a new concept, remember that mathematics is not just about getting it right — it is about the journey of thinking.

CHALLENGE!

Where in your learning this week have you used reasoning, logic or perseverance to solve a problem?

CURRICULUM OVERVIEW
KEY INFORMATION FOR STUDENTS & PARENTS

This academic year, KS3 and KS4 students have explored a range of mathematical topics designed to build confidence, fluency and problem-solving skills.

At KS3, students have developed their understanding of key foundations such as numbers, algebra, geometry and data handling. They have worked on recognising patterns, forming expressions, solving equations and interpreting graphs, while considering mathematical reasoning more deeply.

Year Group	Autumn		Spring		Summer	
7	1. Number skills and decimals 2. Fractions and percentages		1. Ratio and proportion 2. Expression, functions and formulae 3. Sequence and basic plotting graphs 4. Area and Perimeter		1. Lines and angles 2. Analysing and displaying data 3. Probability	
8	1. Numbers 2. Expressions and equations		1. Area and volume 2. Decimals and ratio 3. Calculating with fractions 4. Percentages, decimals and fractions		1. Lines and angles 2. Statistics, graphs and charts 3. Direct proportion graphs-straight-line graph	
9	**Set 1 & 2**	**Set 3 & 4**	**Set 1 & 2**	**Set 3 & 4**	**Set 1 & 2**	**Set 3 & 4**
	1. Numbers 2. Algebra	1. Numbers 2. Algebra	1. Interpreting data 2. Fraction, ratio and percentages 3. Angles and trigonometry	1. Graphs, tables and charts 2. Fractions and percentage	1. Linear graph 2. Area and volume	1. Angles 2. Equations, inequalities and sequence

At KS4, students have built these foundations by studying more advanced topics including higher-level algebra, geometry, probability, and statistics. They have also focused on applying their knowledge to exam-style questions, developing resilience and accuracy in their problem-solving.

YEAR GROUP	FOUNDATION	HIGHER
10	1. Transformation 2. Ratio and proportion 3. Right-angled triangle 4. Probability 5. Multiplicative reasoning 6. Constructions, loci and bearings	1. Area and volume 2. Transformations ad constructions 3. Equations and inequalities 4. Probability 5. Multiplicative reasoning 6. Similarity and congruence 7. More trigonometry
11	1. Quadratic equations and graphs 2. Perimeter, area and volume 2 3. Fractions, indices and standard form 4. Congruence, similarity and vectors 5. More algebra	1. Further statistic 2. Equations and graphs 3. Circle Theorems 4. More Algebra 5. Vectors and geometric proof 6. Proportion and graphs

Together, these topics support students in becoming confident, independent thinkers who can approach mathematics with curiosity and clarity.

FIBONACCI SEQUENCE RESEARCH

Students in 9x2 and 7y1 explored the Fibonacci sequence. During this investigation, we explored how the Fibonacci sequence appears in nature, focusing on pinecones and flowers. The Fibonacci sequence is a pattern of numbers where each term is found by adding the two previous numbers (1, 1, 2, 3, 5, 8, 13, 21...). This sequence is often linked to natural patterns and efficient growth.

We started by examining pinecones. By carefully counting the spirals on the surface, we observed that they run in two different directions — clockwise and anticlockwise. The number of spirals in each direction consistently formed Fibonacci numbers, such as 8 and 13. This arrangement is not random; it allows the pinecone to pack its scales tightly and efficiently, making the best use of space.

Next, we investigated flowers by counting their petals. We found that many flowers have a number of petals that match Fibonacci numbers. For example, some flowers have 3, 5, or 8 petals, while larger flowers, like daisies, can have 34, 55 or more. These patterns help plants grow in a way that maximises sunlight exposure and attracts pollinators.

Overall, this investigation showed that the Fibonacci sequence is more than just a mathematical pattern — it plays an important role in nature. It helps living things grow efficiently and creates the symmetrical and visually appealing patterns we see in plants. This has helped us understand the strong connection between mathematics and the natural world.

PI DAY

Pi Day is an annual celebration of the mathematical constant π (pi), observed on March 14th (3/14), a date reflecting the first three digits of π (3.14). Pi is a fundamental number in mathematics, representing the ratio of a circle of circumference to its diameter – and it continues infinitely without repeating.

The day is widely recognised in schools and by Maths enthusiasts around the world as an opportunity to celebrate the importance and beauty of mathematics. Activities often include competitions to memories digits of π, problem-solving challenges and creative events such as pie-themed games and activities.

Pi Day was popularised in 1988 by physicist Larry Shaw at the Exploratorium in San Francisco. It has since grown into an international event celebrated by students, educators and mathematicians alike. It promotes curiosity, engagement and enjoyment in mathematics while highlighting its relevance in everyday life.

A big thank you to Mrs. Musekiwa and Mrs. Nyakpenu for successfully organising this year's Pi Day event. We are delighted to share that a new record has been set, with a Year 7 student, Tafheema (7.3), memorising an impressive 150 digits of π! This surpasses the previous record of approximately 89 digits, which had stood for around six years. In addition, three other students also exceeded the previous record: Salem (7.1, 100 digits), Aimee (8.5, 101) and Daphne (9.5, 105). Alongside the challenge, students were introduced to a fun face-painting activity, which proved extremely popular and resulted in long queues.

ANSWERING QUESTIONS PLACED AROUND THE SCHOOL

A structured initiative led by Mrs. Reid has introduced a series of carefully designed questions positioned throughout the school, creating additional opportunities for cognitive engagement beyond the classroom. These prompts act as extensions of learning, encouraging students to apply reasoning, analysis and problem-solving skills in everyday settings.

Observations indicate a measurable increase in student participation and intellectual engagement. A significant proportion of students interact with the questions, often leading to peer discussion and collaborative thinking. This has contributed to the development of logical reasoning, as well as greater confidence in articulating responses.

GCSE PROBLEM OF THE WEEK

Unit: Algebra

Topic: Expansion

[Edexcel IGCSE Jan 2017 3H Q9]

Simplify $(2x + 3)^2 - (2x + 3)(x - 5)$ Give your answer in the form $ax^2 + bx + c$

The outcomes suggest a positive correlation between exposure to these questions and improved critical thinking skills. Students are demonstrating increased curiosity, more structured thought processes and a higher level of engagement with abstract ideas.

Mrs. Reid's initiative exemplifies an effective model for embedding continuous learning within the school environment. By integrating questioning into shared spaces, it reinforces the idea that learning is an ongoing process, not limited to timetabled lessons.

GCSE PROBLEM OF THE WEEK

Unit: Algebra

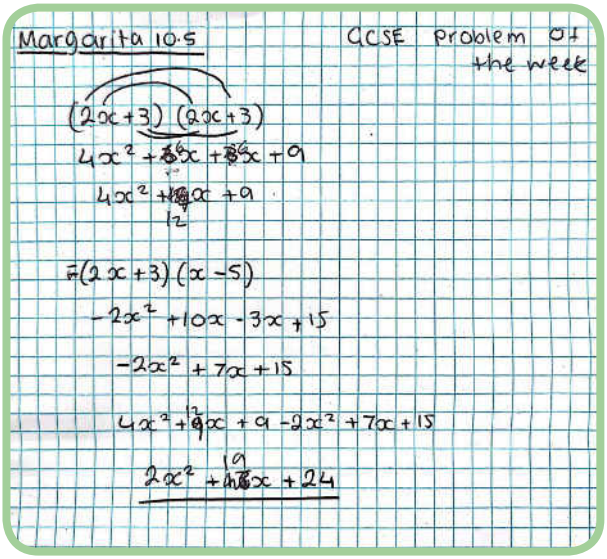
Topic: Expansion

Foundation

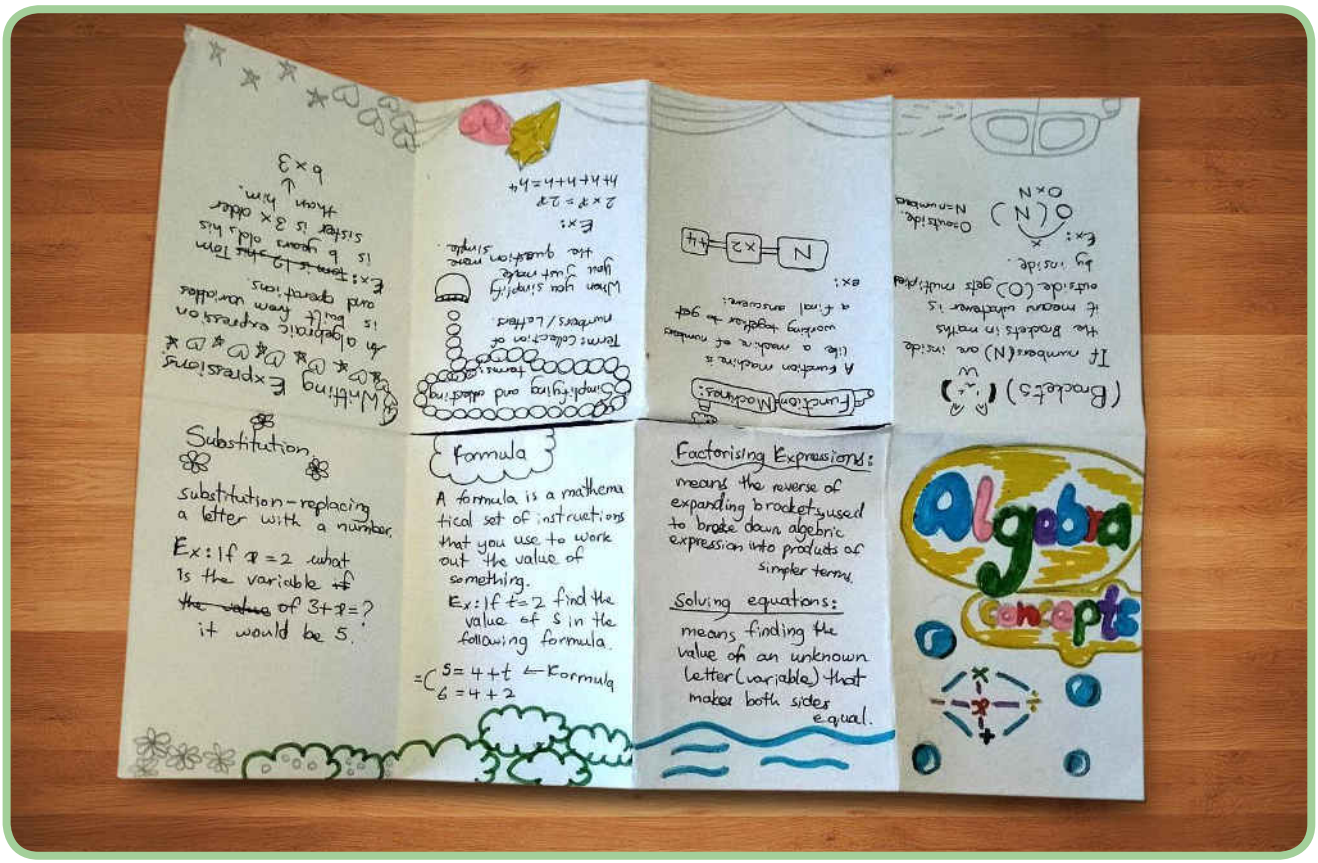
Expand and simplify

$$(2x - 3y)(5x + 2y)$$

(3 marks)

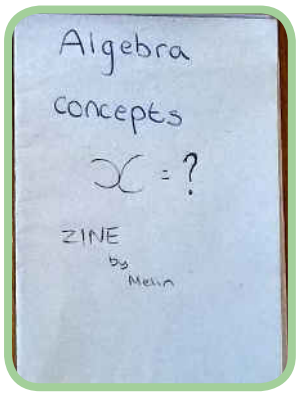


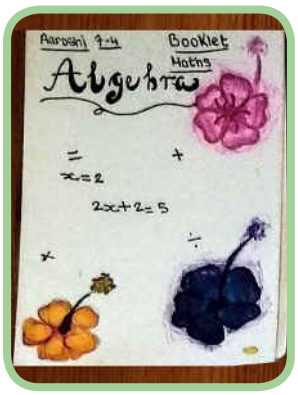
YEAR 7 ZINE PROJECT
RATIO AND PROPORTION

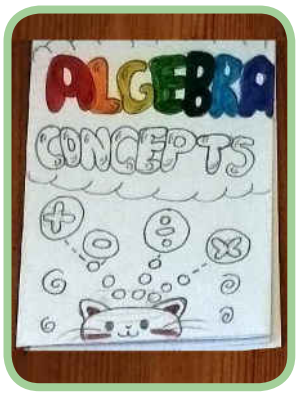


Mr. Stephens set up an engaging task for Year 7 students, challenging them to create a ZINE on the topic of ratio and proportion. This activity requires students to present key concepts, examples and applications in a clear and structured format.

The project has supported the development of students' understanding, encouraging accurate use of mathematical language and logical reasoning. It has also strengthened their ability to communicate mathematical ideas effectively. This initiative reflects a balanced approach, combining creativity with strong mathematical foundations.

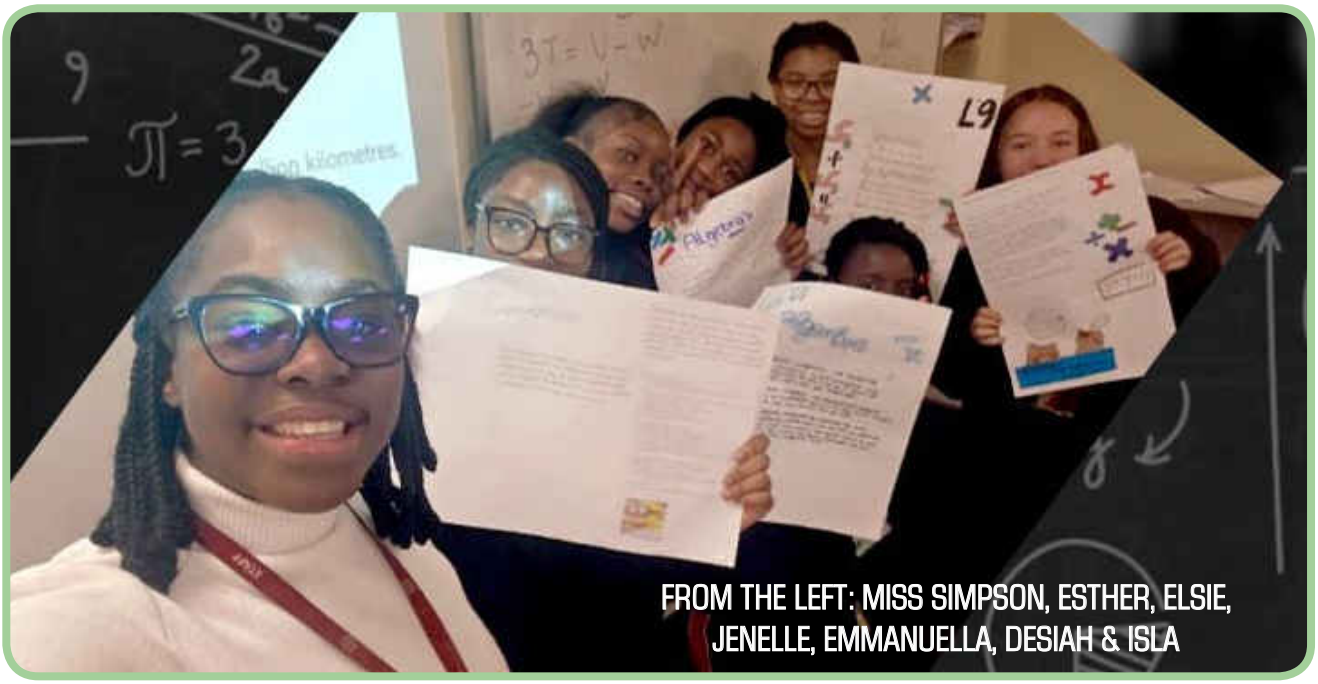




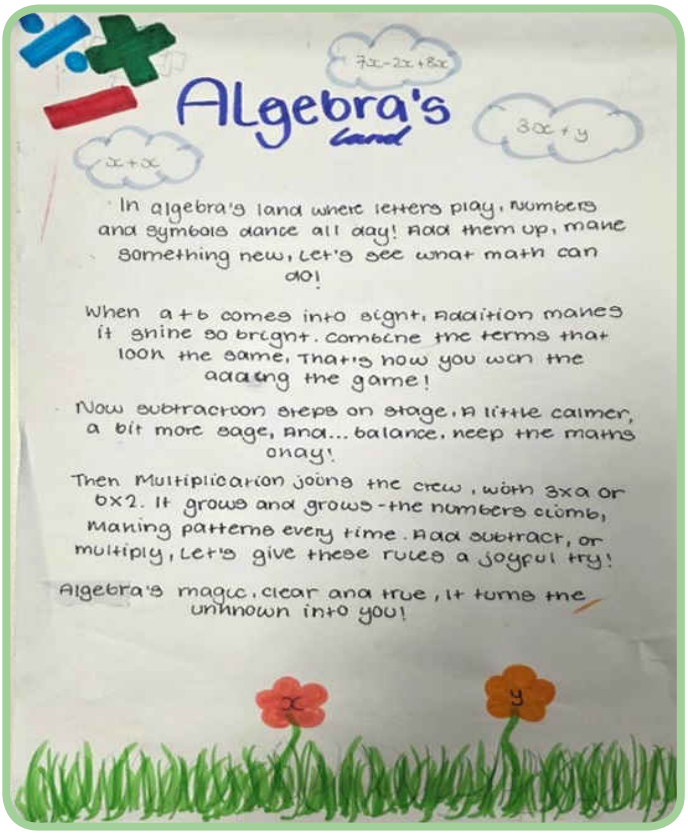


ALGEBRA THROUGH ART

Year 9 students were tasked with a project to explore algebra in a creative way, expressing mathematical ideas through poems and songs. This challenge showcased how mathematics can be imaginative, expressive and fun.



FROM THE LEFT: MISS SIMPSON, ESTHER, ELSIE, JENELLE, EMMANUELLA, DESIAH & ISLA



Algebra's Land

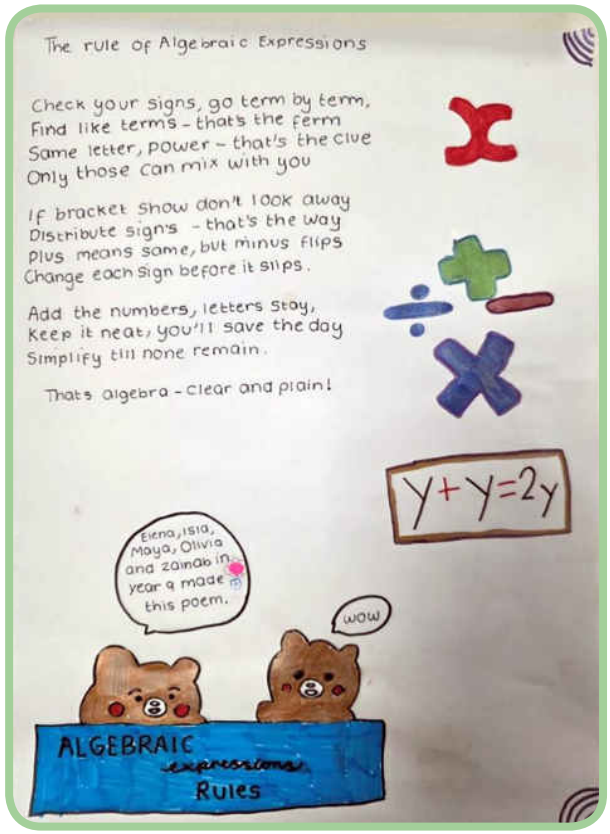
In algebra's land where letters play, numbers and symbols dance all day! Add them up, make something new, let's see what math can do!

When a + b comes into sight, addition makes it shine so bright. Combine the terms that look the same, that's how you won the aaaing the game!

Now subtraction steps on stage, a little calmer, a bit more sage, and... balance, keep the maths onay!

Then multiplication joins the crew, with 3xa or 6x2. It grows and grows - the numbers climb, making patterns every time. Add subtract, or multiply, let's give these rules a joyful try!

Algebra's magic, clear and true, it turns the unknown into you!



The rule of Algebraic Expressions

Check your signs, go term by term,
Find like terms - that's the ferm
Same letter, power - that's the clue
Only those can mix with you

If bracket show don't look away
Distribute sign's - that's the way
Plus means same, but minus flips
Change each sign before it slips.

Add the numbers, letters stay,
Keep it neat, you'll save the day
Simplify till none remain.

That's algebra - clear and plain!

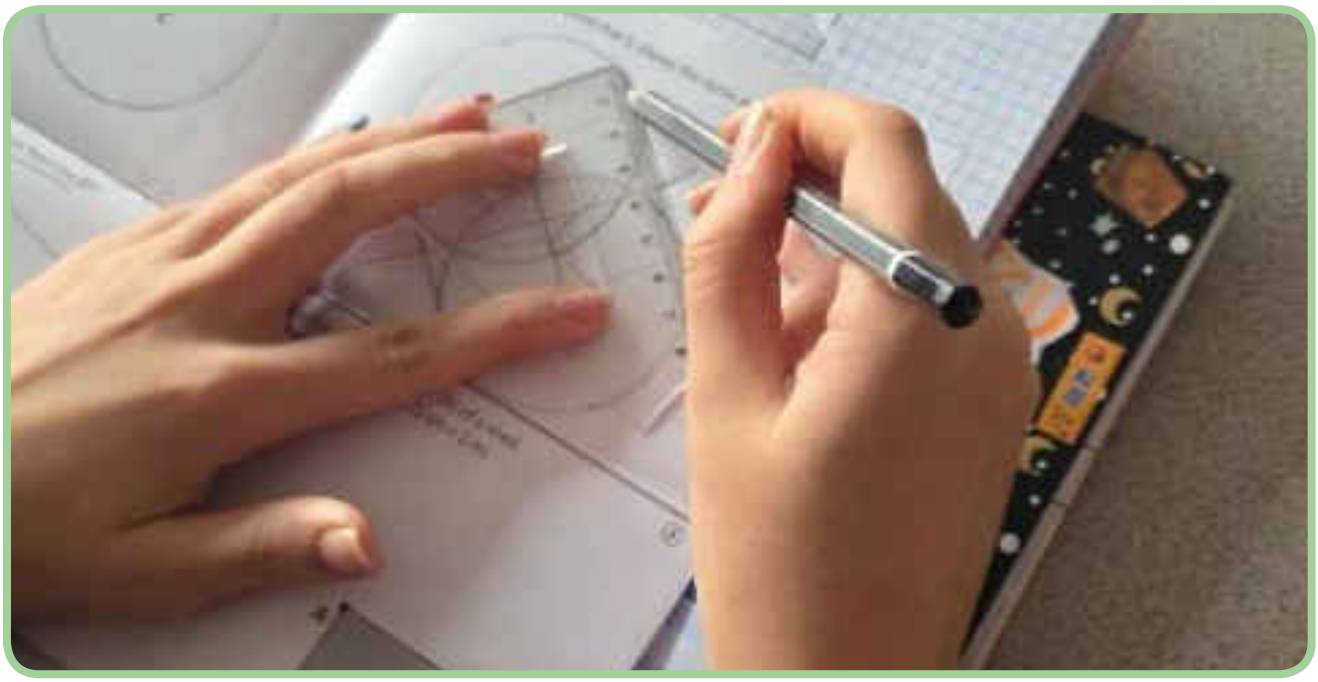
y+y=2y

Elena, Isla, Maya, Olivia and Zainab in year 9 made this poem.

wow

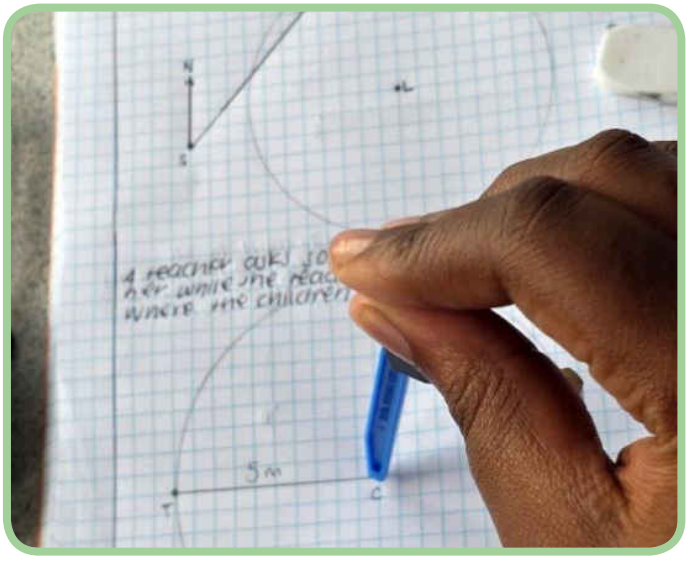
ALGEBRAIC expressions Rules

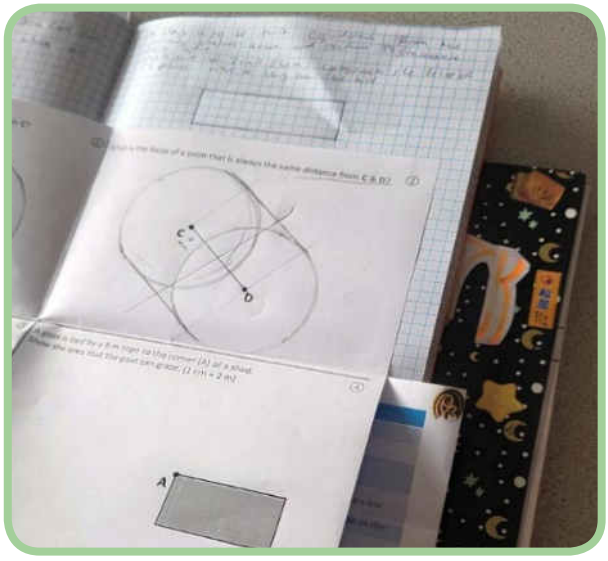
APPLYING MATHS
BEYOND THE CLASSROOM



Year 11 students demonstrated how mathematical skills translate into practical, hands-on applications, reinforcing the importance of maths in real careers and industries.

They were tasked with constructing loci — an important mathematical concept used in real life for navigation, engineering design and architecture, where determining all possible positions that meet specific conditions is essential.





MATHS RELAY
A NUMERACY WEEK ACTIVITY

During Numeracy Week, students from Years 7 to 9 took part in an engaging Maths Relay Challenge. Each form was represented by their most able mathematicians, who had to be quick thinkers who could work well as a team and would enjoy a challenge. The event was full of energy and excitement, with teams racing against the clock, supporting one another and celebrating their shared achievements.

The project has supported the development of students' understanding, encouraging accurate use of mathematical language and logical reasoning. It has also strengthened their ability to communicate mathematical ideas effectively. This initiative reflects a balanced approach, combining creativity with strong mathematical foundations. Well done to all students that took part!

THE WINNERS . . .

The Year 8 Maths Relay race was won by class 8-1, whose speed and accuracy set them apart from the other Year 8 groups.

They finished in a very impressive time of 5 minutes and 5 seconds, a time that no Year 7 or 9 class bettered — so 8-1 were the overall winners of the event!

Among all the Year 9 groups that participated in the Maths Relay, it was class 9-2 who emerged as the winners.

They delivered an creditable and fast performance, finishing with a time of 6 minutes and 51 seconds.

This time was good enough for 1st Place in the Year 9 competition and 2nd place overall.

JUNIOR MATHS COMPETITION
A NUMERACY WEEK ACTIVITY

The United Kingdom Maths Trust UKMT Junior Maths Challenge (JMC) is a 60-minute, 25-question multiple-choice competition designed for students up to Year 8 (ages 11–13) across the UK. This year's Challenge is to be held on Wednesday 29th April 2026, and is designed to emphasise mathematical reasoning and problem-solving skills. It consists of 15 accessible questions, which will be followed by another 10 — these being more demanding, logic-based problems — with no penalties for incorrect answers.

United Kingdom Mathematics Trust

A total of thirty Year 8 students and twenty Year 7 students from St. Anne's are due to participate in this competition.

Students who perform well will be awarded certificates ranging from Bronze to Gold. Those who achieve outstanding results may also be invited to take part in the Junior Kangaroo competition at a later stage. Watch this space for an update!

TEST YOUR MATHS KNOWLEGE
FIBONACCI PUZZLES

Each sequence below is increasing, and each term after the first two is the sum of two different previous terms. Find the missing terms. Answers are printed on the last page of this newsletter.

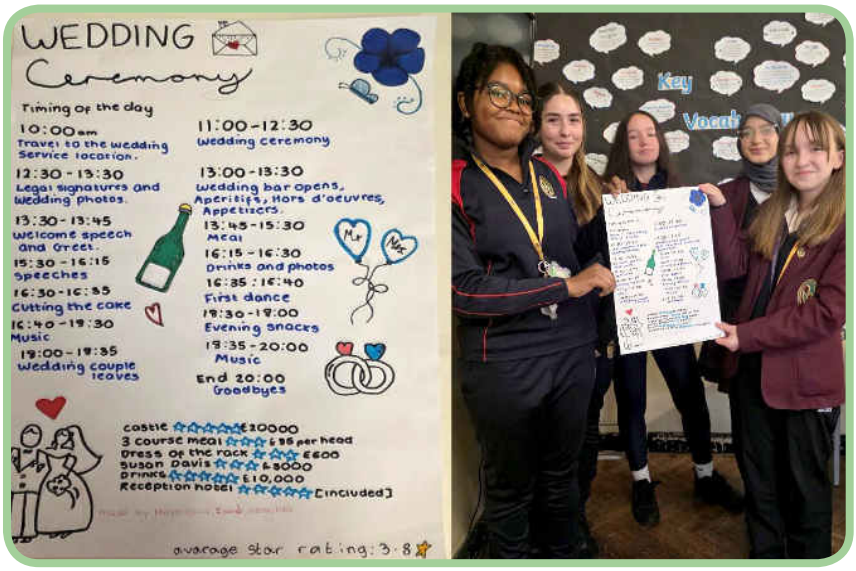
A. 3 4 ___ ___ ___ 23
B. 5 ___ ___ 17 ___ ___ 24
C. 3 ___ ___ ___ 14 ___ 26
D. 1 4 ___ ___ ___ ___ 30
E. 1 ___ 7 ___ ___ ___ 37
F. 3 5 ___ ___ ___ ___ 46
G. 7 ___ ___ 23 ___ ___ 59
H. 4 ___ ___ 14 ___ ___ ___ 23
I. 2 ___ ___ ___ ___ 11 ___ 28
J. 5 ___ ___ 17 ___ ___ ___ 28
K. 4 ___ ___ ___ ___ 18 ___ 33
L. 5 ___ ___ ___ 22 ___ ___ 35
M. 8 ___ ___ 26 ___ ___ ___ 43

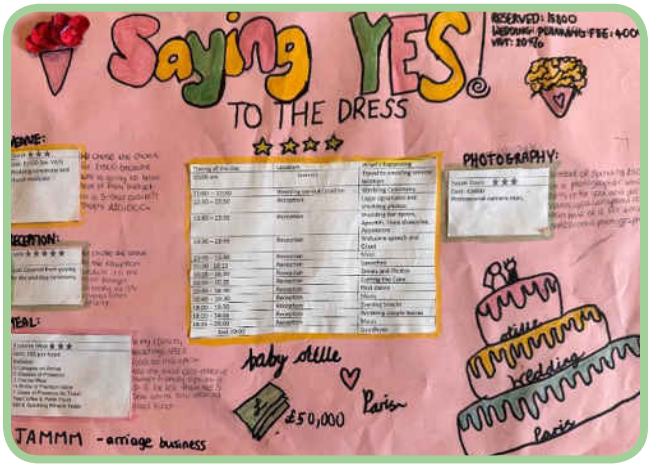
N. 5 ___ ___ ___ 23 ___ ___ 53
O. 1 ___ 6 ___ ___ ___ ___ 65
P. 1 ___ 7 ___ ___ ___ ___ 69
Q. 2 5 ___ ___ ___ ___ ___ 70
R. 4 ___ ___ ___ 18 ___ ___ 76
S. 6 ___ ___ 20 ___ ___ ___ 77
T. 5 ___ ___ ___ ___ 22 ___ ___ 35
U. 1 ___ ___ 5 ___ ___ ___ ___ 53
V. 6 ___ ___ ___ ___ 26 ___ ___ 61
W. 1 3 ___ ___ ___ ___ ___ ___ 63
X. 6 ___ ___ ___ 26 ___ ___ ___ 75
Y. 1 ___ 5 ___ ___ ___ ___ ___ 76
Z. 4 ___ ___ ___ ___ 19 ___ ___ 76

WEDDING PLANNER PROJECT

BUILDING CONFIDENCE THROUGH NUMBERS

During Numeracy Week, students took part in activities designed to strengthen core skills, encourage teamwork and show that mathematics is a part of our daily life. From budgeting to problem-solving, students applied numeracy skills to real-world scenarios, developing independence and critical thinking through collaborative project work.





ADAI, MILA, TAIMARA & ABANISHA, YEAR 7 STUDENTS

AMELIA, ROCHELLE & SALLY, YEAR 9 STUDENTS

MATHEMATICS REVISION GUIDE

Mathematics is not about memorising. It's about understanding, practising and applying. Regular revision helps you build confidence, improve accuracy and recognise patterns in different ways.

1. **Know Your Topics. For example:**
   - Numbers
   - Algebra
   - Geometry
   - Data

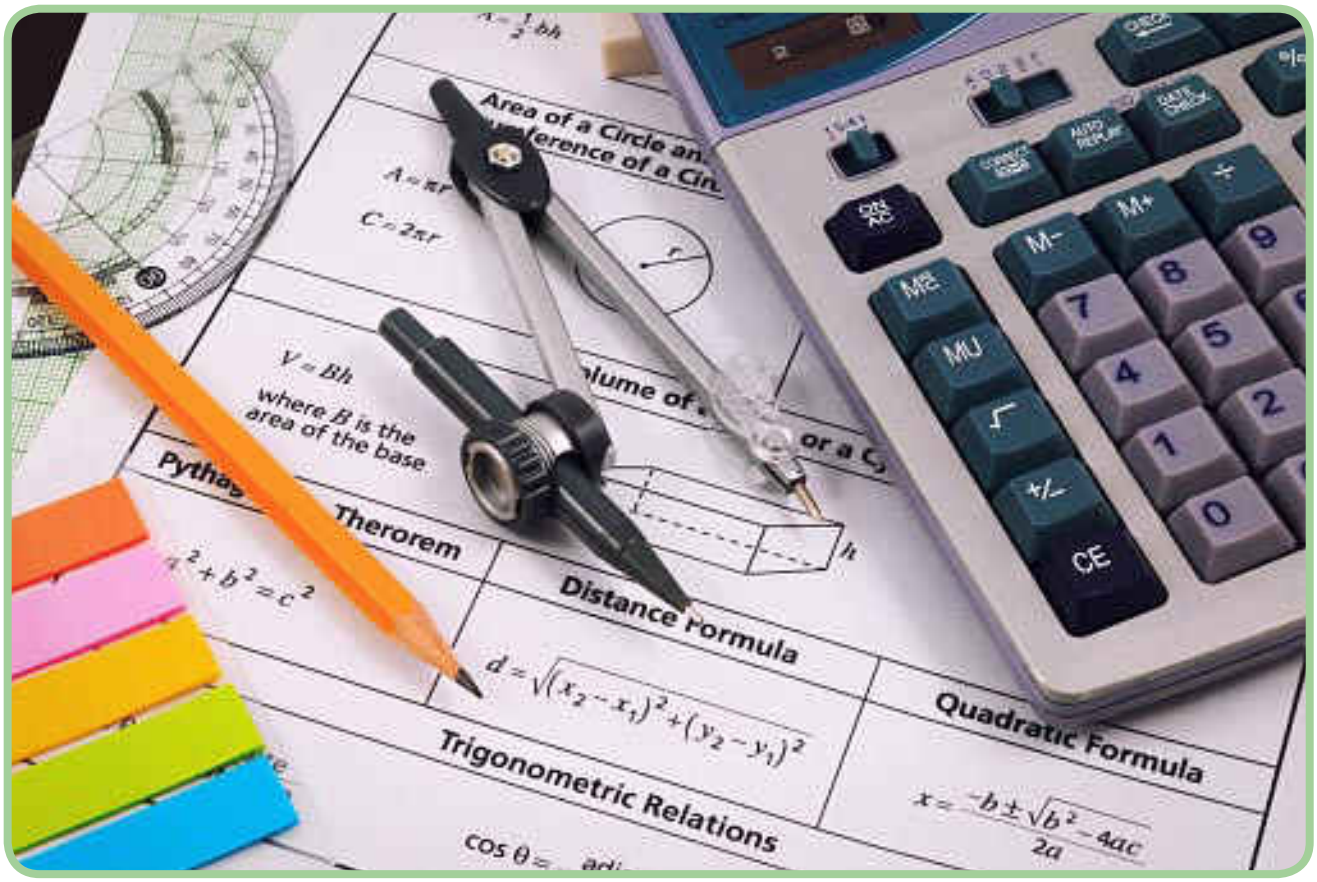
2. **Use Active Revision Techniques**
   - Practice questions daily
   - Blurting (write everything you remember)
   - Use flashcards for key formulae
   - Teaching someone else a topic

With the two examples above, you can use your exercise books and the topic list provided in class.

3. **Master Problem Solving**
   - Read the questions carefully
   - Highlight key information
   - Decide which topic it links to
   - Try a method
   - Check your answer

4. **Learn Key Formulae**
    - Create a formula sheet and revise regularly. Examples:
        - Pythagoras: $a^2 + b^2 = c^2$
        - Probability = favourable outcomes ÷ total outcomes

5. **Practice Under Timed Conditions:** ***This builds confidence for exams***
    - Complete past paper questions
    - Set a timer
    - Mark your work honestly

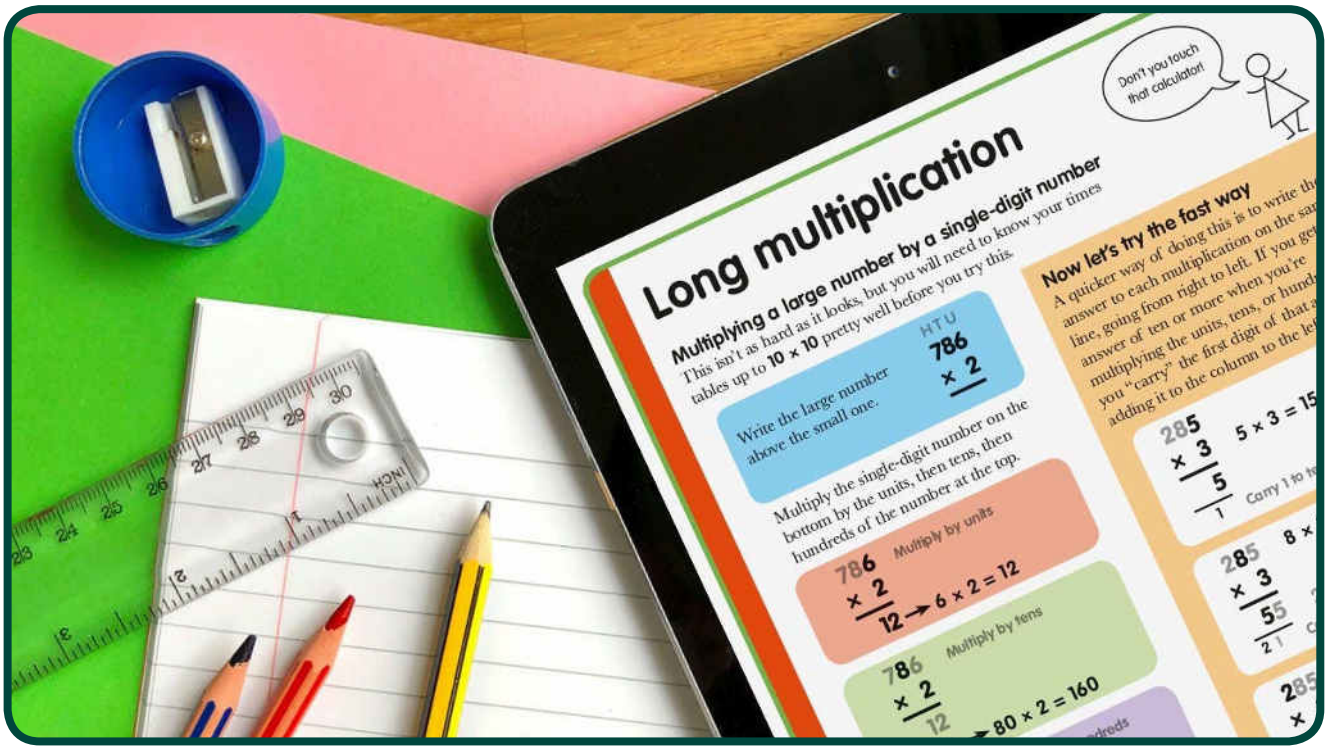


6. **Create a Revision Timetable**
    - Short sessions (20 – 30 minutes)
    - Focus on one topic at time
    - Include breaks
    - Revisit weaker topics often

7. **Go Beyond**
    - Try challenge problems
    - Explore
    - Puzzles
    - Ask yourself "Why does this work?"

Final Advice: Mathematics improves with practice. Stay consistent, ask for help when needed and challenge yourself to think deeply.

HOME LEARNING ASSIGNMENTS



At the conclusion of each lesson, students can be assigned home learning. This may be given out in class, uploaded to Microsoft Teams or set through MathsWatch.

In addition to assigned home learning, students are encouraged to work independently to improve the mathematics they have learned in class during each week.

To assist our students in preparing for exams and assessments, we offer MathsWatch Clip Reference Numbers. To close any knowledge or comprehension gaps, we advise students to review subjects after the tests.

MathsWatch

For this, MathsWatch is the perfect tool. Every student has a unique login that allows them to access worksheets, interactive questions with online marking, and videos. **Mathswatch.co.uk**

If you can't remember your password, please let your Maths teacher know.

MATHEMATICS LINKS

Mathematics is much more than numbers and equations — it is a way of understanding the world around us. From patterns in nature to technology, engineering and even art, maths plays a key role in solving real-life problems and developing logical thinking. What makes maths truly exciting is that it is full of discoveries, puzzles and surprising connections that challenge the way we think.

Today, students are not limited to textbooks. There are many online resources that make learning maths more interactive, visual, and fun. Websites and apps can help explain difficult concepts, provide practice questions, and even turn maths into games and challenges. These tools allow students to learn at their own pace and explore topics in a way that suits their style.

Some popular and helpful platforms include:

1. **Chalkdust Magazine** — A publication for the mathematically curious
   https://chalkdustmagazine.com

2. **Science Buddies** — Watch the video on people using everyday objects to find pi!
   https://www.sciencebuddies.org/stem-activities/find-Pi

3. **A Brief History of Maths** by Marcus du Sautoy, Professor of Mathematics
   https://www.bbc.co.uk/programmes/b00srz5b

4. **Maths Genie** – Exam questions, videos and practice papers
   https://www.mathsgenie.co.uk/

5. **Corbettmaths** - Revision cards, five-a-day study cards and more
   https://corbettmaths.com/

6. **Bank of England Museum:** Visit **Bletchley Park** to explore the world of codebreaking
   https://www.bankofengland.co.uk/museum

7. **Desmos** – Visualise graphs and explore mathematical relationships interactively
   https://www.desmos.com/

By using these resources, students can build confidence, improve their skills, and even start to enjoy maths in new and exciting ways. The key is to stay curious, practice regularly, and not be afraid to explore different methods of learning.

TEST YOUR MATHS KNOWLEGE

FIBONACCI PUZZLES – THE SOLUTION

A. 3 4 7 10 13 23
B. 5 7 12 17 19 22 24
C. 3 4 7 11 14 15 26
D. 1 4 5 9 13 17 30
E. 1 6 7 8 15 22 37
F. 3 5 8 11 19 27 46
G. 7 9 16 23 25 34 59
H. 4 5 9 14 18 19 22 23
I. 2 3 5 8 10 11 18 28
J. 5 6 11 17 22 23 27 28
K. 4 5 9 13 14 18 19 33
L. 5 6 11 17 22 23 29 35
M. 8 9 17 26 34 35 42 43
N. 5 9 14 19 23 24 29 53
O. 1 5 6 11 16 27 38 65
P. 1 6 7 13 19 25 44 69
Q. 2 5 7 12 17 29 41 70
R. 4 7 11 15 18 29 47 76
S. 6 7 13 20 26 32 45 77
T. 5 6 11 16 17 22 23 29 35
U. 1 3 4 5 9 13 22 31 53
V. 6 7 13 19 20 26 27 34 61
W. 1 3 4 7 11 15 26 37 63
X. 6 7 13 20 26 27 34 41 75
Y. 1 4 5 9 13 22 27 49 76
Z. 4 7 11 15 18 19 29 47 76

ST. ANNE'S
CATHOLIC
HIGH SCHOOL

www.st-annes.enfield.sch.uk
x.com/StAnnes_N13
Tel: 020 8886 2165