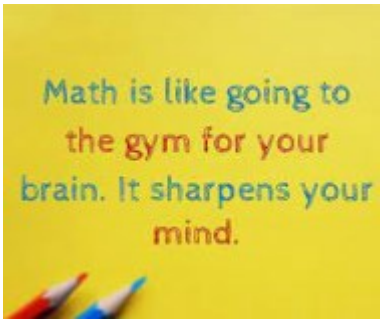
Welcome...

... to the last maths newsletter of this academic year. The children have already achieved so much and there are some important dates coming up for some of our pupils to demonstrate the maths skills they have acquired so far, including statutory SATs for our pupils in Years 2 and 6 (involving retrieval fluency, reasoning and problem solving) and the Multiplication Tables Check for those in Year 4 (testing retrieval fluency of times tables - a key skill in everyone's maths toolkit).

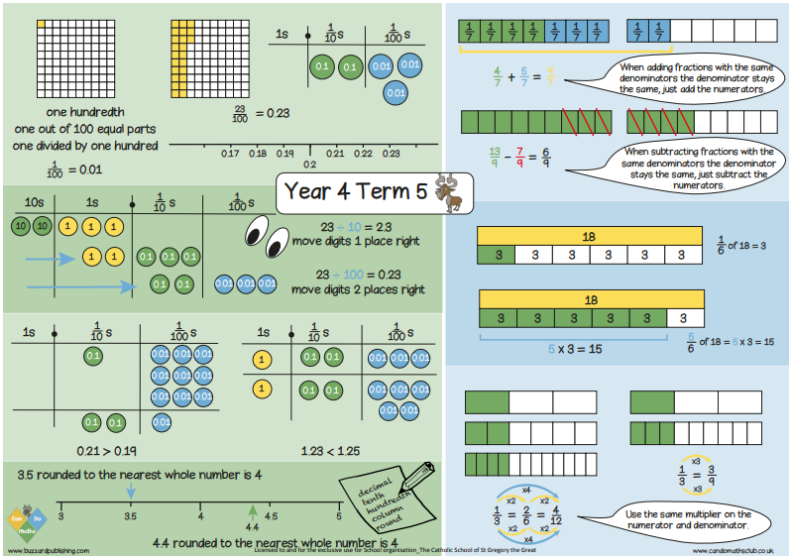


Remember to head over to the school website for a wealth of information about Maths at St Gregory's School. You can read up on recent Maths events including the well attended EYFS workshop (slides available if you missed it!) plus photos of some of our pupils at the Y5 challenge at the Ladies College, Y3 Maths Puzzles event, the ever popular Number Day in February and the HSBC Money workshops.

Some of our most recent features on the website include the mastering number programme in EYFS and KS1 and information about the new number bonds club which precedes the times tables 99 club. We hope you find the information useful and we welcome any feedback, including ideas that would help you as parents!

What the children are learning each term

A reminder that the very useful maths **Knowledge Organisers** can be accessed via our school website. These exemplify the idea that a picture paints a thousand words, because at a glance, the visual representations give you an outline of the key learning, manipulatives and vocabulary for each term for each year group (except for **EYFS**). They are a very quick and easy way of seeing what the children are learning each term, enabling you to talk about it, support at home and demonstrate the value of learning maths. Year 4 term 5 is shown below as an example.



If you have a child in EYFS, see our **leaflet**, which explains the key concepts covered and how you can help at home. Also available in **Polish**.

How can I help my child with maths when it's taught so differently now?

It has long been recognised that parental engagement has a large and positive effect on children's learning but how best to tap into this powerful resource?

It can be tricky for a parent to support any area of their child's education for many reasons including time restraints, own school experiences, low confidence etc. This can be especially true for maths, an abstract subject which still has the potential to generate anxiety. It is made even more difficult when the way it is taught in schools in the UK today is possibly quite different from the way you learned it at school, whether that was here in the UK or in schools abroad.

To make it easier for parents to get to grips with how maths is currently taught at school in the UK, White Rose Maths have produced some great video shorts which cover some of the main ideas, including:

- place value
- subtraction
- multiplication
- division
- fractions
- Algebra

Alongside each of the videos, there are parent guides, which include some great ideas and printable resources that can be used to help children visualise the concepts, acting as a bridge to understanding the more abstract formal written methods.

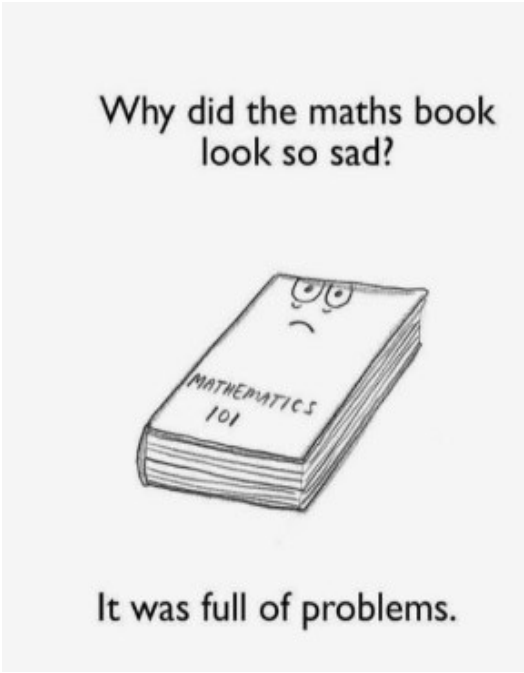
Some of the benefits of these videos:

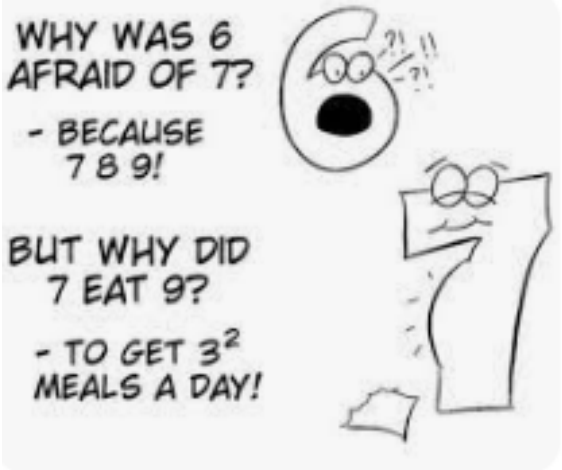
- They are short
- You can play them when it suits you
- You can pause and repeat if you don't get it the first time
- No added stress of other parents "getting it" before you!

Click here to head over to the videos and have a look.

Good luck! Enthusiastic engagement with your child's maths journey will undoubtedly have a positive effect - on both their attitude and attainment - and may also be a trigger for brushing up on your own maths knowledge and skills!

Maths funnies





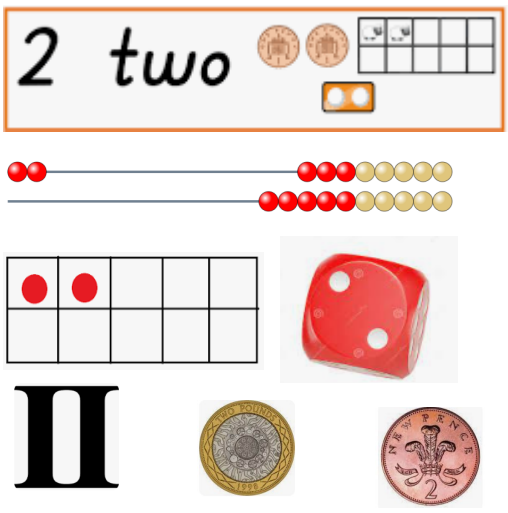
My favourite number

Mrs Spencer in Year 6 Fairford class has chosen 2 as her favourite number. She told us...

"It's my favourite age. I'd like to be 2 again or have my daughter 2 again!"

Here are some cool facts about 2:

1. 2 is the first prime number. (A number divisible by 1 and itself—has exactly 2 factors)
2. 2 is the only even prime number!
3. A number can only be called *even* if it is divisible by 2.
4. 2D stands for 2 dimensional. The 2 dimensions are length and width. Ie. It's flat!
5. A binary number uses base 2 system, i.e. there are only 2 symbols (usually 1 and 0). The number 2 is represented as "10"! Our decimal system is base ten (10 symbols).
6. The prefix bi– meaning two, is found in lots of English words—bicycle (2 wheels), bilingual (2 languages), bisect (cut in 2).
7. 2 is found in other words such as: pairs, twins, double, duo, duel, couple, deuce.



Year 4 and the MTC

Do you have a child in year 4? If yes, then they will be taking the Multiplication Tables Check this June. This online test aims to determine whether your child can fluently recall their times tables facts up to 12x12. Information about the test can be found here.

Times tables are an important component of the curriculum in class and the children are given plenty of opportunities for retrieval, especially through our fortnightly 99 club.

Times tables fluency is a useful skill as it helps free up thinking for more complex problem solving.

Supporting at home can be very effective. Fun, frequent and regular practice is best.

There are lots of great websites for learning and practicing times tables:

Timestables.co.uk is a great website dedicated to times tables learning and practice. It even has a check very similar to the one the children will take in June.

BBC supermovers is a fun way to practice times tables to music and movement.

Topmarks have a range of games and activities related to times tables.

Maths chase is a fun retrieval game.

For a complete and comprehensive times tables course, check out Steve Wyborney's videos.

Don't forget to head over to the school website for more ideas.

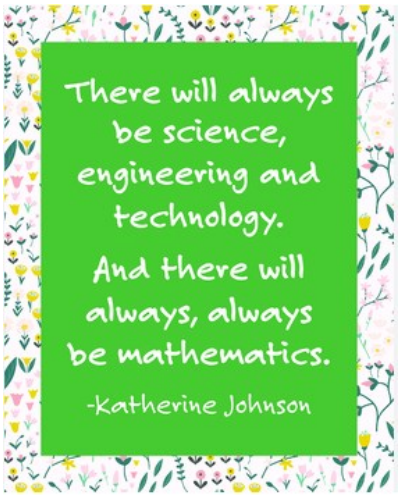
If you would like any printed resources from school, or if your child is struggling, ask to speak to your child's teacher who will be able to advise.

Famous Mathematicians

This issue's famous mathematician is **Katherine Johnson**.

Katherine was an American born in 1918 and was a mathematician in the field of aeronautics (the science of building aircraft!) and orbital mechanics (science concerning spacecraft). She is best known for the following achievements:

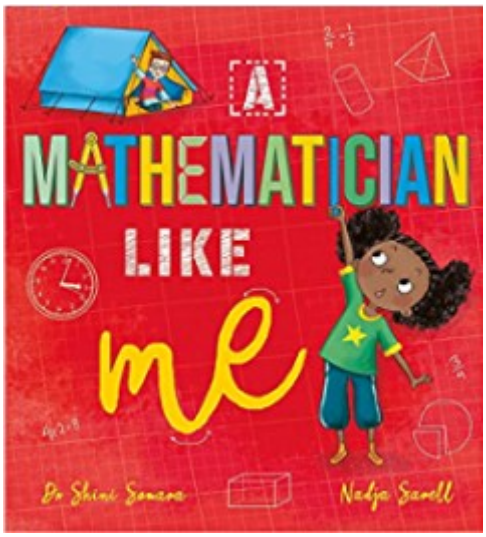
- Calculating the trajectories (paths) of many spacecraft, most famously Apollo 11 in 1969 to reach the moon and return safely to Earth!
- Checking computer calculations by hand at the request of astronauts, to ensure they were correct!
- Supporting the Apollo 13 mission to ensure the safe return of astronauts following a malfunction;
- Helping to develop the space shuttle program.



Book Recommendations

Due to the huge benefits and crucial importance of reading, the maths team like to recommend some maths related books each issue: we can brush up on our maths AND get some reading practice all at the same time—WIN:WIN!

A Mathematician Like Me by Dr Shini Somara



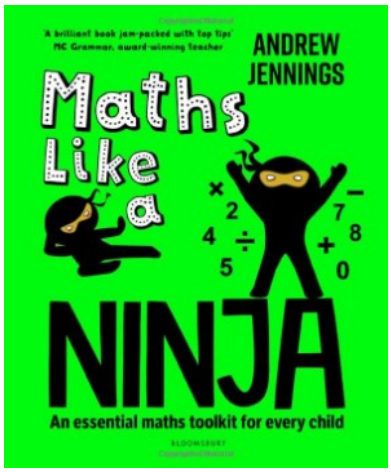
Amazon blurb:
Striking illustrations and an empowering story combine to introduce young readers to the world of maths, creative thinking and problem-solving.

Setting off on a camping adventure with her cousin, Aliyah soon discovers that numbers are everywhere, whether it's counting out money at the shops, planning trips on the train or even stargazing in a forest. As Aliyah solves some sums of her own, she learns about the brilliant mathematicians who have helped us understand our world. Soon she can't wait to become a maths whizz too!

With pages encouraging kids to play maths games with their friends, this brilliant picture book written by engineer and TV presenter Dr Shini Somara unlocks a love of numbers and creative thinking, and celebrates women in STEM.

Maths Like A Ninja by Andrew Jennings

'Here is basically 'the bible' for parents (like me!) with kids in junior school – it's everything a parent needs to know and understand in the curriculum from fractions basics to calculating the volume of a cuboid and everything in between…' – Sara Davies MBE, Founder of Crafter's Companion and Dragon on BBC Dragons' Den



Amazon blurb: When your child comes home with the dreaded maths homework and you don't know your BIDMAS from your BODMAS, then *Maths Like a Ninja* is the book for you. It's jam-packed full of all the key concepts children need to know, all the mathematical terminology they'll ever come across in primary school and tons of easy-to-follow visual examples on every area of maths featured in the Key Stage 2 curriculum. Whether a child is stuck on a fractions question or struggling to remember what composite numbers are, they'll find the answer in this handy all-in-one reference guide.
It supports teachers in planning and delivering lessons and shows parents how help their kids at home. Written by a practising teacher and creator of the successful Vocabulary Ninja brand, this book is worth its weight in gold. It empowers children to become independent (in school and at home) by providing them with all the information they need in one place. Neat, affordable and child-friendly, Maths Like a Ninja is game changing. Perfect for Key Stage 2 children, aged 7 and up.

Number bonds and number bonds club

What are number bonds?

Number bonds are pairs of numbers which add up to a certain number. Like fluency with times tables, fluency in number bonds, helps your children access many areas of maths and is a key foundation to mathematical mastery.

It can:

- Increase experience of success and therefore confidence, motivation and enjoyment of maths.
- Free up working memory to allow attention to focus on more complex, less routine problems.
- Improve engagement and assist understanding in many other areas of maths.
- Increase ability to spot patterns and relationships in both number and shape.

Quick and efficient recall of facts and procedures is essential in order for students to keep track of sub -problems, think strategically and solve problems.

Number bonds in the curriculum

The Early Years Foundation Stage Learning Goals in Number include:

- Have a deep understanding of number to 10, including the composition of each number.
- Subitise (recognise quantities without counting) up to 5.
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

The Key Stage One National Curriculum objectives include:

- Represent and use numbers bonds and related subtraction facts within 20 (Year 1)
- Recall and use addition and subtraction facts to 20 fluently (Year 2)

Number Bonds Club

To provide plenty of recall opportunities for the children, we have launched a pre-99 Club (99 club is for times tables) called Number Bond Club. Similar to 99 Club, written questions are solved independently in a 10-minute time constraint. When all questions have been answered correctly, a child may move up to the next club.

Number Bond Club contains Number bonds to 5, 7, 9, 10, 13, 15, 17, 20 (totalling 8 clubs). In line with National Curriculum expectations, we would aim for all Year 1 children to have achieved Number Bond Club (Number bonds to 20) by the end of Year 1. Once the Number Bond Club has been completed, each child is awarded with a certificate and able to progress onto the 99 Club.

Number Bond Club begins within Term 2 of Year 1 at a time agreed to be most suitable for the cohort of children within their EYFS to Year 1 transition.

Pictorial versions of the test have also been produced to support children further. For children who may be finding it difficult to answer the numeral + numeral, the pictorial representations are able to provide further scaffolding for our learners. See the school website for further information.

How I use maths in my job...

This term, Mrs Winter's nephew is sharing different ways that he uses maths in his role as an officer in the Royal Engineers corps of the Army.

As an officer in the Engineering Corps, I have to use Maths in lots of different ways. Here are just some of them:

- Map reading skills are crucial. We have to work out how far we have to go and estimate our average speed in order to work out the time we will reach our destination. This involves working with **scales**, **ratios** and **co-ordinates** and all four maths operations.
- As a Royal Engineer I have to do **volume calculations** to work out how much material I need to order to build roads, bridges, helicopter pads, etc. This involves working out how wide, long and deep they need to be and multiplying these dimensions together to obtain the volume of material required.
- I need to work out how much fuel is used per hour for my engineering equipment (such as diggers and cranes) so that I order the correct amount for each job. Different vehicles use different amounts of fuel, generally the bigger the engine, the more fuel it takes. Converting from gallons per hour to litres is also required. All of this involves working with **ratios** as well as **addition, multiplication and division**.
- When I'm organising dietary requirements for our soldiers, I have to estimate how many calories they need each day, and ensure that the food they get provides them. Again, this involves a lot of **addition** and **multiplication**.

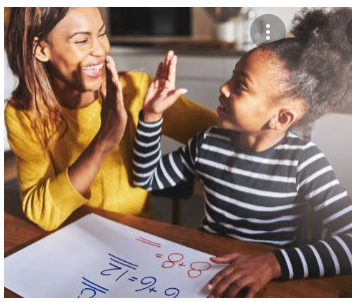
Depending on the situation, these calculations may have to be done mentally, using just a pencil and paper for jottings, while more complex calculations are done using calculators or spreadsheets.

How Can I Support maths at home?

Here are some **top tips** for **engaging your children with maths**, which can make an *enormous* difference to their attitudes, engagement and attainment!

- **Have fun** and model **positive attitudes** to maths—this alone can have a huge effect!
- Use **maths talk** every day—count stairs, money, toys, objects.
- **Sing** counting songs, e.g. Ten Green Bottles. Google search bbc nursery rhymes.
- Ask children to say **how many** without counting—then check!
- **Play games** with dice/dominoes and say how many dots without counting!
- **Identify shapes**—wheels, windows, tiles, mirrors.
- **Do baking** together—great for all areas of maths e.g. measuring, sharing etc!
- Develop **memory** skills—e.g. phone numbers, times tables, nursery rhymes.
- Ask children to **help lay the table** with enough cutlery and crockery.
- Collect, **sort and group** items, e.g. stones, feathers, conkers, leaves.
- **Make / continue patterns** of items, e.g. building blocks, toys, items from garden.
- **Spot numbers** when out and about e.g. on buses, houses, clocks, phones etc.
- **Use tens frames** often e.g. for reward charts, or scoring in games.
- **Watch Numberblocks** on Cbeebies—TV programme written by maths specialists.
- Deliberately **make mistakes**—showing it's normal to make them and fun to spot them.
- Play **outdoor games** like skittles, hopscotch.
- **Read books with maths concepts** e.g. One is a Snail, Ten is a crab, The Doorbell Rang.
- Draw attention to **more or less**, bigger smaller, taller shorter etc.
- Ask questions such as **"How many more?", How many altogether?" "How many left?"**
- **Learn their methods** e.g. bar modelling, column addition / subtraction.
- **Practice reading the time** including on analogue clocks.
- **Use fractions** in daily life.
- **Practice times tables—**they're *essential!*
- Talk about when and how you use **maths at home or at work**.
- Involve them with **problem solving** e.g. at the supermarket 2for1 deals, 25% off sale
- Use **open questions** when helping with homework instead of 'doing it for them' e.g. how did you get that answer? / what method did you use?
- Play to their **love of technology**. Lots of maths apps are free including Khan Academy, Mr Thorne's Maths, DoodleMaths
- **Provide challenge**—use NRICH or Transum.

For more detail, see the attached link



With every good wish **from the Maths Team.**