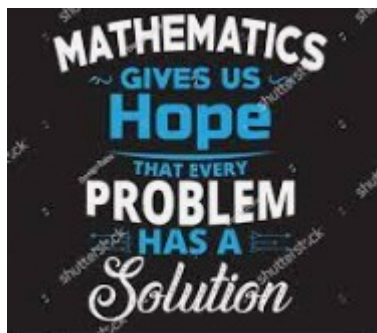


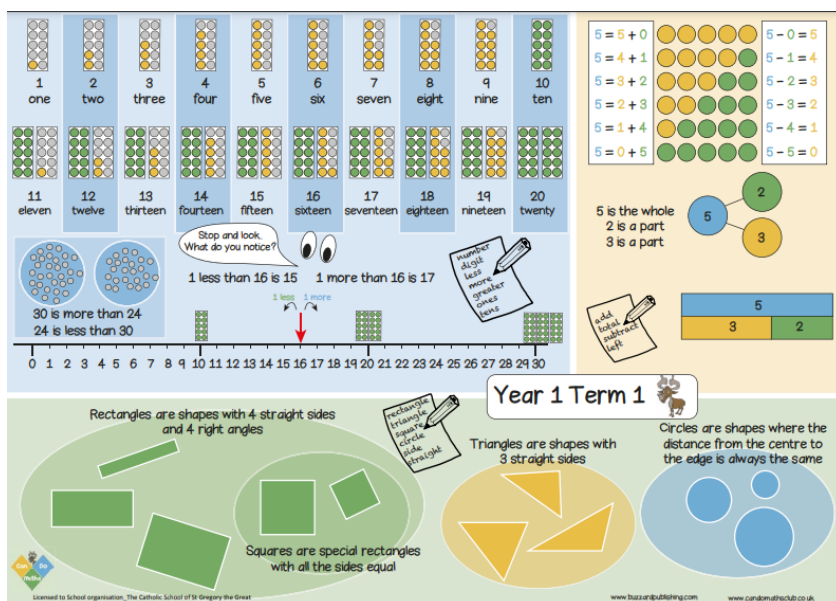
Welcome Back to School!



A very warm welcome back to school from the St Gregory's maths team, and a special welcome to families joining us for the first time. We hope the children are settling well into their new classes, getting to know their new teaching teams and adapting to the school routines. The maths team at St Gregory's are committed to providing the best maths education we can for your children, maintaining its high profile in school and encouraging positive attitudes, effort and participation. To that end, in addition to carefully planned lessons in class, we send out termly newsletters, offer parent workshops with ideas about how best to support in maths, run a [maths shop](#) where you can buy first class resources to support maths understanding, and a [maths games library](#) where you can borrow maths games to play at home. We also have maths pages on the school website packed with information about our [vision and approach to maths teaching and learning](#), [information about the 99 club](#), and [links](#) to useful documents, great websites and slides from previous parent workshops.

What the children are learning each term

We know from studies that strong relationships and communication between school and home really benefit children's learning. Knowing what your child is learning in class makes it easier for you to talk about it at home, which not only strengthens and consolidates the work they do at school but also helps them understand that what they are learning is valued and valuable. To help you do this, we make the brilliant [Knowledge Organisers](#) from our maths scheme of work available on our website. These are visual representations of the key learning, manipulatives and vocabulary for each term for each year group (except for [EYFS](#)). We really encourage you to have a look at the relevant knowledge organiser(s) for your child(ren) to help you support their maths learning. Year 1 term 1 is shown below as an example.



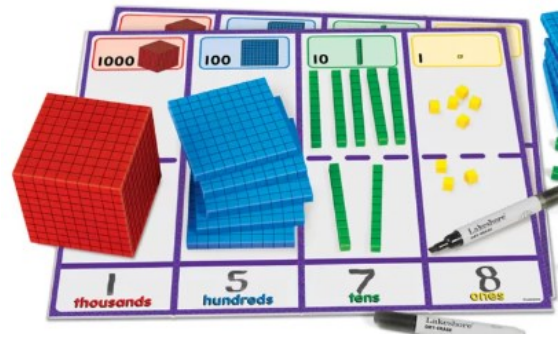
If you have a child in EYFS, see our [leaflet](#), which explains the key concepts covered and how you can help at home. Also available in [Polish](#).

Growth Mindset

At St Gregory's, we believe that all pupils are capable of increasing their understanding and enjoyment of maths. We also recognise that they have to believe it themselves, otherwise there is a risk that they won't try, or will give up at the first sign of difficulty. All learners must have this belief that they can succeed so they are motivated to try and to keep going. Fostering this **growth mindset**, which is the term for this belief that **we can improve by using learning behaviours such as effort, resilience, perseverance and practice**, is such a key part of maths in our school, that we launch each academic year with activities to highlight its meaning and importance. Here are a few photos of some of our pupils' definitions of a good mathematician, which encompass examples of these key learning behaviours, and another picture of some pupils putting them into practice to solve some tricky challenges together! Click [here](#) to read more about Growth Mindset at St Gregs.



Place Value



In many classes at the start of the academic year, following the *Growth Mindset* refreshers, there is usually a big focus on **place value**, as this is such a fundamentally crucial concept for children to master.

Place value is the term used to describe the **value of a digit in a number**, which of course depends on where it is.

Although there are only 10 digits in our number system (0-9), we can make any number using combinations of them within our place value system.

As numbers sequentially increase and we use up all available digits, we have to move to the next *place* to continue. So if there is a 9 in the *ones place* and we want to increase the value by 1, we have to move left to the next place, *the tens place*. Writing '10' shows that we now have one set of 10; 20 is two sets of 10 etc.

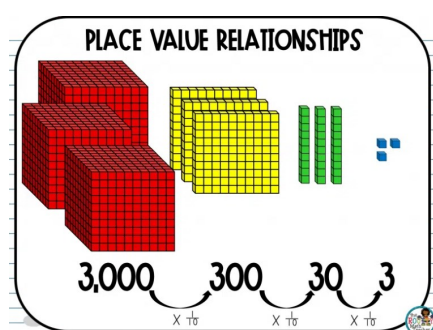
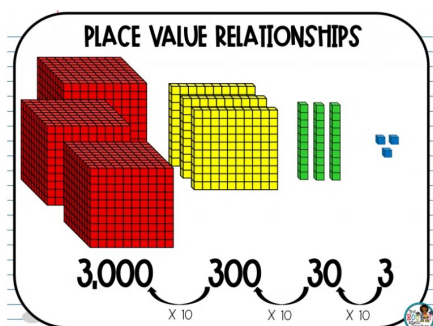
When we get to 99 (9 sets of ten and 9 additional ones) we have again used up all our available digits, and have to move to the *next* place, the hundreds place: we write '100' - and can think of this as one set of 100, or ten sets of 10 or even a hundred sets of 1, and this flexibility of thinking is extremely useful.

100	10	1
	9	9

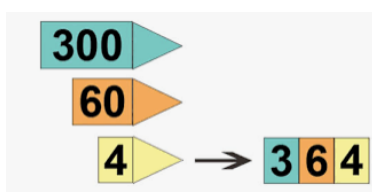
100	10	1
1	0	0

Place Value Cont'd...

A '3' in the ones place means three sets of 1 (3), but in the tens place means three 10s (30), and in the hundreds place three 100s (300) etc. So moving digits one place to the left increases their value by a factor of 10 and moving them one place to the right decreases the value by the same factor. It is this feature that makes multiplying and dividing by 10 and its powers, effortless (once you get the hang of it!)



The number 364 (below) has three 100s (300), six 10s (60) and four 1s (4) and is equal to $300+60+4$.



This ability to think flexibly, partition and combine numbers and use place value to easily multiply and divide by 10 and powers of 10, are all key skills for children to learn and are used in many areas of maths.

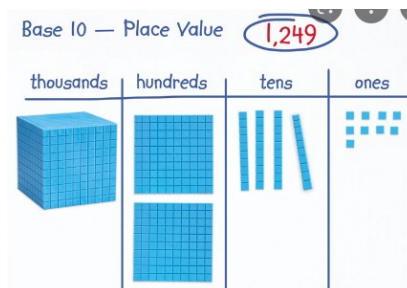


Place Value Cont'd...

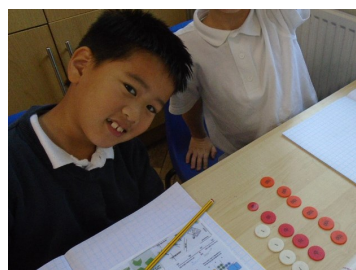
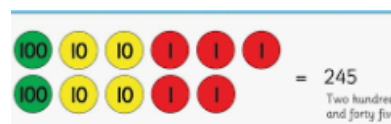
Many tools are used in class to help the children with their understanding of place value, including real apparatus to hold and manipulate as well as images on boards, in books or worksheets.

Some examples include:

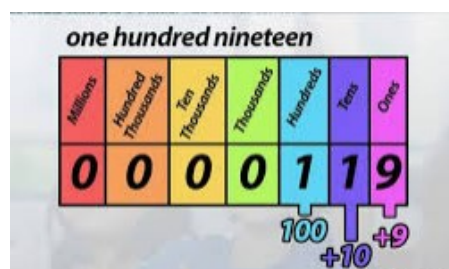
- base 10 blocks or dienes



- place value counters

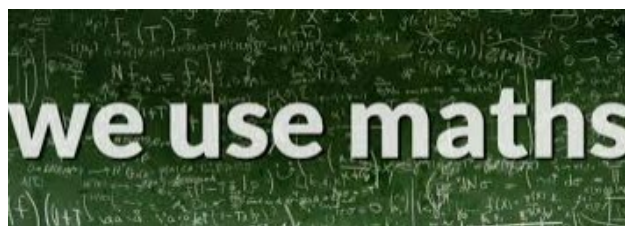


- place value charts.



Click [here](#) to watch a short video about place value (scroll down to 2nd video)

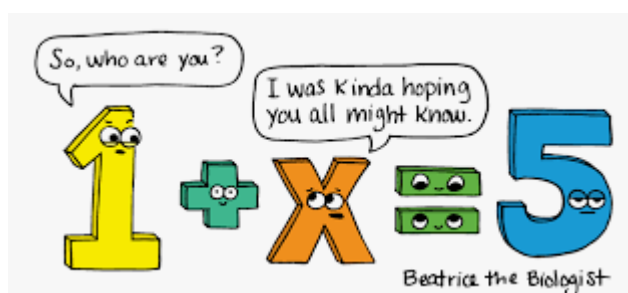
How I use maths in my job...



One of our parent Governors, Avela Pukwana, certainly does! Read what he told us below:

As an accountant I use maths daily and below are some of the examples:

- 1. Using basic mathematical operations e.g. (Addition, subtraction, multiplication and division).*
- 2. I calculate ratios and percentages e.g. How much cost is compared to revenue for the company*
- 3. Applying logical reasoning by using algorithms e.g. If there are 20 children in a class, 15 are girls then 5 should be boys.*
- 4. I calculate a lot of statistics that I send to government each quarter e.g. How many staff we have at my organisation and how many are fulltime or part-time and how many hours they work. We can also further break this down to how many are male or female.*
- 5. I use it to calculate budgets on how much we get and how much we can spend and better manage the money that we have.*
- 6. Calculating linear programming e.g. If we have a certain amount of students we can make so much profit.*
- 7. I use arithmetic by trying to manipulate numbers in different situations to come to the best conclusion. In accounting we call this scenario "What If" and you can make a lot of assumptions to come to the desired conclusion.*
- 8. I use maths as an apportionment calculator e.g. What amount of rent has to be paid, by considering the size of an office to the whole building.*
- 9. I use mathematics to plan my day. This is usually managing the time I have during the day and what amount of time I have for each task.*
- 10. One of my most favourite parts of being an accountant is using algebra or finding X as everything has to balance so you are continuously trying to find X.*



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!

For young children: [Count by Denise Fleming.](#)

Reviews: "The substance here is traditional-numbers from one to ten introduced with animals to count; the idea extended with tens to 50-but the presentation is outstanding....Fashioned with care, intelligence, and artistry-a delight." --Kirkus Reviews, pointer

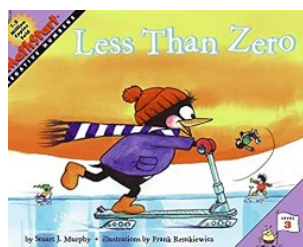
"A fresh, upbeat concept book...Very bright, very hip!" --School Library Journal, starred review

"The resounding vitality and immediacy of this selection turn a counting lesson into an exhilarating experience." --Publishers Weekly, starred review



For a fun look at negative numbers (first taught in year 4) :

[Less Than Zero by Stuart Murphy](#)

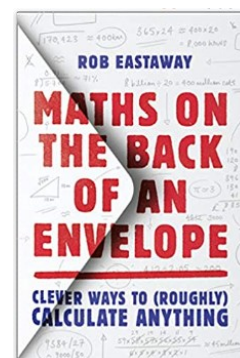


Amazon blurb: *Less Than Zero* is perfect for teaching negative numbers.... Perry the Penguin needs 9 clams to buy an ice scooter—but he's not very good at saving. As Perry earns, spends, finds, loses, and borrows clams, a simple line graph demonstrates the concept of negative numbers.

For adults: [Maths on the Back of an Envelope - Rob Eastaway](#)

Amazon blurb: Join Rob Eastaway as he takes an entertaining look at how to figure without a calculator. Packed with amusing anecdotes, quizzes, and handy calculation tips for every situation, *Maths on the Back of an Envelope* is an invaluable introduction to the art of estimation, and a welcome reminder that sometimes our own brain is the best tool we have to deal with numbers.

Copy available to borrow in the Maths Games Library!



What our children say about maths

We asked Tamara, Bertie, Filip and Fin in Year 4 Greet what they thought about maths. Here's what they said:

What is maths? It's about numbers; you add, subtract divide and times. It's calculations, problem solving and explaining. **Is it important and if so, why?** It's important because it's always good to get better at things...because it can be useful in the future ... if you ever got a job and were an employee and your boss gave you the wrong amount of money you could tell him.... You need it to pass important tests... If you went to the shops and someone gave you the wrong change you could work out what it should be. Maths is used at home and at school. My mum and dad use it when they help me with homework and they use it at work. My great nan, she's 83 and she used to love maths when she was younger, and so do I. We do it together when I go to her house. This helps me at school. My dad gives me an allowance and I use my maths to check he has given me the right amount! Mum or dad would use it to check they've been given the right change. When it was the school disco, I ordered chips for me and a friend and wasn't given any change. But I worked out what the change should have been and it was then given to me. It's important for money. Adults probably use it for their bank accounts. **Is maths difficult? If so, what can you do about that?** Maths is sometimes difficult. It helps to keep learning. You can check back in your book to see if you've had a question like that before. You can also use brain, buddy, boss for help. Number-lines, bar models and column methods for addition and subtraction all help. Don't give up! **Is maths fun? Why / why not.** Yes! It's really fun - it's one of my favourite lessons. I just really like numbers and 'times-ing' and adding. All of it really. I like solving problems at maths. It's fun because I like working things out. Yes, because I like doing calculations and solving problems. Even better if there were more fun activities!



At the end of the summer term, we ran a competition and asked you to:

Send in pictures of maths in unusual places for the chance to win some prizes!

The winner is.... Jacob Brant in Deerhurst!!! Well done Jacob!!!

Here is his winning photo: “Using angles to find the best composition using leading lines” This is a technique that photographers use to guide our eyes in a photo and we love it!



And here is Jacob receiving his prize :



If you'd like the chance to win a prize, send in your own photos of maths in unusual places!

Famous Mathematicians



Each issue of the maths newsletter this year will feature a famous mathematician. We have chosen **Mary Somerville** for our first one. She was born in Scotland in 1780 and is best known for being the first person to sign a massive petition to parliament to give women the right to vote. She studied maths and astronomy and her areas of expertise were science writing and academia. The reason we've chosen her for this first issue however, is due to the sentiment behind her quote, below, which resonates so well with our St Gregory's learner profile.

"Sometimes I find [mathematical problems] difficult, but my old obstinacy remains, for if I do not succeed today, I attack them again on the morrow."

Like all successful mathematicians, Mary Somerville obviously had plenty of resilience and perseverance - a characteristic she also shares with Adventureman!

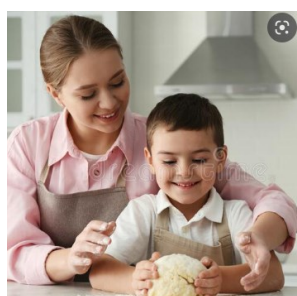
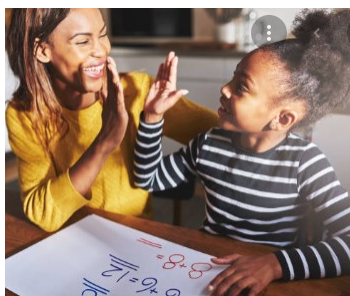


How Can I Support maths at home?

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.