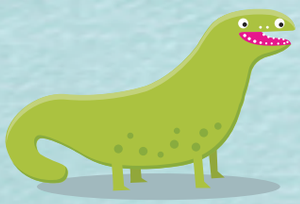
The Parent's Guide to

Helping Your Child with Primary Maths



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building key mathematics skills

The Children's Mutual

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Introduction

It should come as no surprise that parents are the most important factor in how well children do in primary education. You, the parent, set the stage for learning by doing the simple things such as reading to children when they are young, encouraging them to try new things and providing a safe, secure environment to help them excel later in school life.

Maths is a crucial aspect of a child's education, however unlike reading and English, it's not always obvious how to help with maths at home. The Parent's Guide to Helping Children with Maths is written to help parents understand how children learn maths in school and how they can help at home.

About the Author

Ged McBreen is a qualified maths teacher with 10 years classroom experience and a parent of two primary aged children. He's a passionate supporter of parents helping their child's education at home and he's an accomplished educational technologist – winning several awards. Gerard is the Co-Founder of **Komodomath.com** a new e-learning system for teaching children maths at home with a unique focus on parental involvement.

Why is Maths Important?

Maths is everywhere and we face some surprisingly tricky maths challenges every day - here are a few:

- Three for two offers – how best to compare "three for two prices" to the price of just one.
- Working out the amount of VAT paid when you've bought a new TV for £240 (answers on page 16)

How Much is a Maths Qualifcation Worth?

According to research by King's College, London people with an A-level in Maths earn 10% more than other A-level students - that's £136,000 over a lifetime. For a Maths degree it's a whopping £220,000 extra over a lifetime.

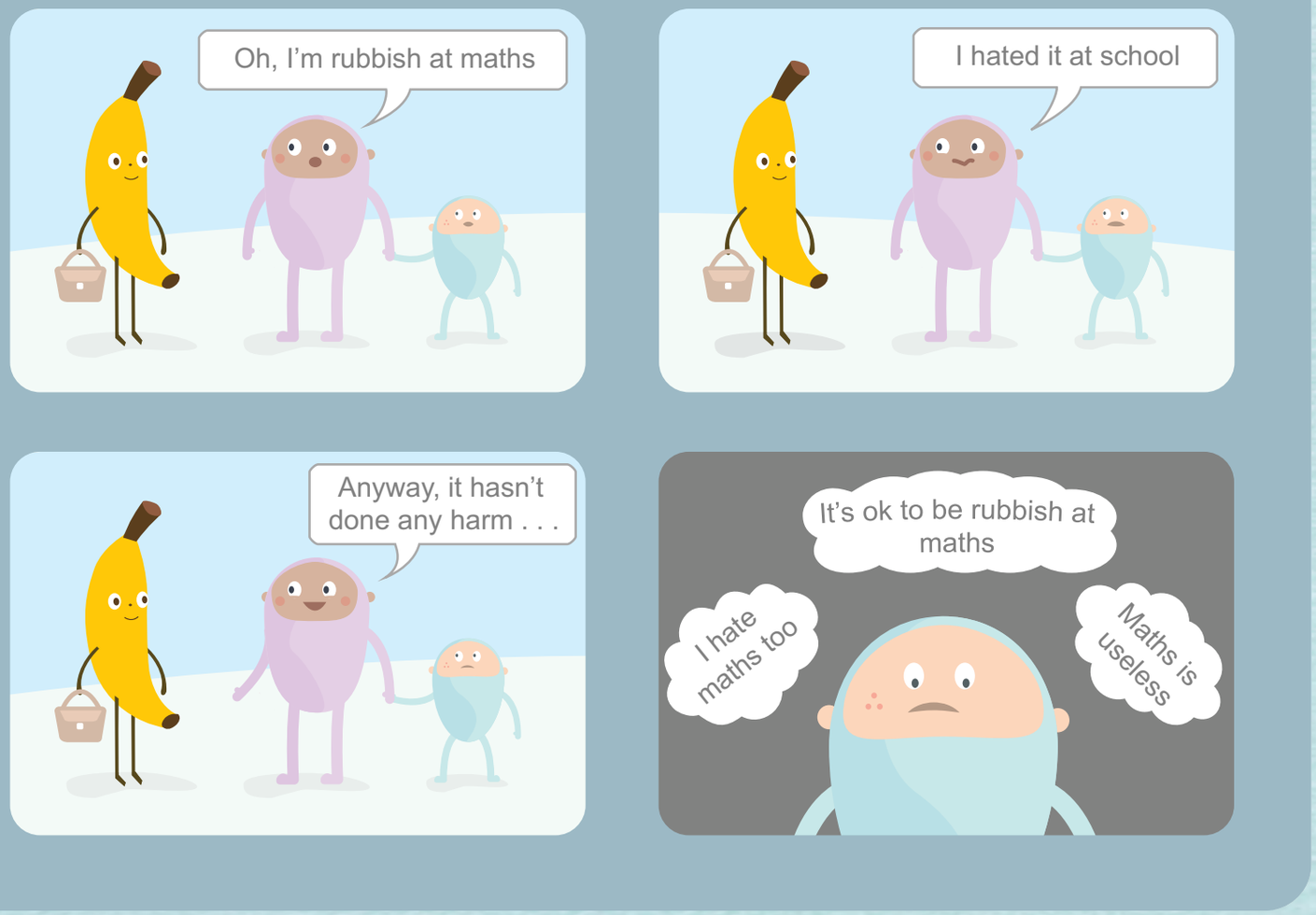
Maths in the Knowledge Economy

The last 20 years has seen a huge shift in the nature of our economy and workplace. The "knowledge economy" has increased the demand for maths qualifications – which rely of a good early grounding in maths.

As an example let's take a look at how the business of advertising has changed. It used to rely on non-mathematical creative skills. Not so now. In online digital advertising everything can be measured so the advertiser is responsible for targeting and tuning their campaigns in real-time to get the best return on investment. This requires a mixture of creative and mathematical skills so you can see through the mountains of data to measure and change the factors that matter. The new analytical approach requires maths skills.

Attitudes to Maths

Let's face it we've all got different memories of maths at school. Mine are positive but for some of you I'm sure they are pretty negative. It's easy to let your perceptions of maths affect your child – and this can set them off to a bad start.



Many parents find the prospect of helping their children with maths quite daunting - even if they are pretty good at maths. With a little confidence and some "have-a-go attitude" parents can make a big difference.

What's Changed
since we were at school?

Maths education has changed over the past 30 years and that makes our generation feel out of the loop. One obvious aspect that's changed is the way our children are taught some simple arithmetic skills.

There are two particular new methods that intimidate parents – these are "chunking" and "multiplication with grids". Whilst they appear completely unfamiliar the irony is that you have probably used them before without knowing it.

Here are two links to my blog articles that deal with these two new methods in more detail:

Chunking – A Guide to the New Long Division

Multiplication using the Grid Method

Don't let these changes put you off helping your child with maths!

Number Sense
is what we're aiming for

Maths educationalists refer to developing "number sense" as the main goal in early maths education.

Number sense is an intuitive understanding of numbers, their size, relationships, and how they are affected by operations such as adding, multiplication and division. It's a kind of "maths fluency" which involves applying mental arithmetic accurately and quickly but also knowing before hand what answer to expect.

If a child can achieve number sense they'll have the perfect foundation for future challenges in maths and related subjects.

> The only way to learn mathematics is to do mathematics
>
> Paul Halmos

Tips for helping at home

- Find time to show an interest in what your child is learning at school
- Encourage your child to work hard and praise when they've made an effort
- Encourage reading for pleasure by reading to your children at night. This will help with all subjects including maths.
- Create a time for learning at home that fits into the daily routine.
- Find a place for your children to learn where there are no distractions.

Many parents find the prospect of helping their children with maths quite daunting - even if they are pretty good at maths. With a little confidence parents can make a big difference. Extra help at home can have a big impact because in a class of 25 children your child won't get a lot of one to one time from the teacher. At primary age there are lots of ways you can help in a fun and rewarding way.

Helping with Counting

Age 3 & 4 is a great time to start learning to count - ideally at the kitchen table with real objects.

Things you can do at home:

- Counting buttons
- Play "how many" games. How many apples in the fruit bowl. How many if I eat one?
- Play sorting games – "place all the oranges into this bowl and the apples into this one. How many are in each?"
- Ordering objects – "put these tins in order, the smallest here and the biggest here"

There's more to counting than 1,2,3

Neuroscientists suggest we're born "hard-wired" for maths - so even at 12 months old we can recognise if there are 1, 2, 3 or 4 objects in a group. Here are some milestones in learning to count:

- Recognising how many objects are in a small set without counting.
- Knowing the "number words" from one to ten and their order.
- Know the sequence regardless of which number they start on.
- Conservation of quantity – children realise the number of objects stays the same unless any are added or removed.
- Counting non-visible objects – your child will realise they can count things they can't touch or even see – such as sounds, members of someone else's family, or even ideas.

Explore counting further in this blog article

Helping at Ages 5 & 6

At ages 5 & 6 the focus moves from counting to addition and subtraction.

Things you can do at home:

- Play board games with dice - such as snakes and ladders
- Ask children to set the table and let them collect the right number of knives & forks
- From a pack of cards (without the tens, Jacks, Queens and Kings) play a game of pairs where you try to turn over two of the same
- As above, but turn over two cards that add up to ten
- Talk about what numbers mean when they appear in everyday situations such as signs, adverts, on a clock face, a flat or a house number. For example, counting out odd and even house numbers
- Talk and ask questions about the common fractions, half, quarter, third whenever you are cutting pizza

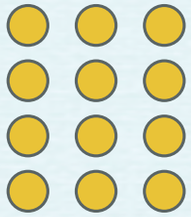
Number lines

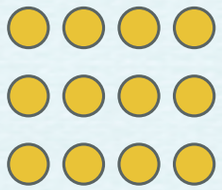
Number lines are an important visual aid for learning to add and subtract. To find out more about number lines and how you can use them see our Parent's Guide to number lines.

Helping at Ages 7 & 8

Ages 7 & 8 see the introduction of multiplication which leads on to division. Arrays are an important visual way to understand multiplication - here are two arrays illustrating that 4 x 3 and 3 x 4 are equivalent.

4 x 3 = 12





3 x 4 = 12

- Extra practice at times tables - it's important your child knows these fluently by 9
- Dice bingo - roll two dice and multiply the answer
- Scrabble – great for both English and Maths because of the scoring
- Chess is a great way for children to learn to strategise - which is a high level maths skill
- Learning a musical instrument can also help with maths. Some research papers suggest that learning music develops the same cognitive spatial-temporal part of the brain as mathematics

Parent's Guide to Learning Times Tables

Learning the times tables is a right of passage for school children – a kind of club membership that transforms their confidence once they join. Tables seem easy when you've learned them, but the prospect of having to learn them drives fear into children – and this in turn has a negative effect on learning.

For more on how to Help You Child Learn their Times Tables see this blog article:

The Parent's Guide to Learning Times Tables

Helping at Ages 9 & 10

By 9 your child should know their times tables fluently – so it's worth checking to ensure this is in place. They will also be dealing with decimals, fractions, percentages and money.

- Include your child in decisions around household finances - "which one is best value?", "how much is the window cleaner per year?"
- Monopoly is a fun whole family game involving handling money in hundreds
- Ask them to read the dietary information on various foods and ask "how many grams of fat in 100 grams of . . . "?
- Give your child responsibility for their own money. Open a bank account for them allowing them to track their savings.
- Get your child involved in any DIY projects you're doing - you can secretly check their measurements!
- Talk to your child about their school homework and ask them to explain what they're doing and how they do it.
- Don't miss any opportunities to talk and ask about fractions and percentages

The Importance of Practice

Learning maths isn't so different from learning a musical instrument. If you practice in the right way you'll get better. Maths practice develops "Number Sense" – the ability to be fluent in mental maths without thinking much about it. When you have this you can apply arithmetic quickly and reliably, estimate answers without effort and simply have an intuitive sense for the way numbers work. Like a musician's muscle memory number sense means you can do things without thinking hard – freeing up your brain to solve problems creatively.

How Maths Learning can go Wrong

Maths is a hierarchical subject so learning a new concept often relies on a sound understanding of what came before. Division for example it relies on understanding multiplication.

If a learner doesn't really understand an important concept it can impact later and when things are particularly shaky it can result in collapse in confidence which can be hard to fix.

What can you do?

It's best to keep up with how your child is doing in maths to ensure problem topics are addressed as soon as possible:

- If you have concerns go to see the teacher and ask how you can help at home.
- Consider doing some extra maths practice at home using a paper based or online resource.
- If your child is approaching secondary school and still has problems with maths it may be worth hiring a tutor - ideally one with maths teaching experience.

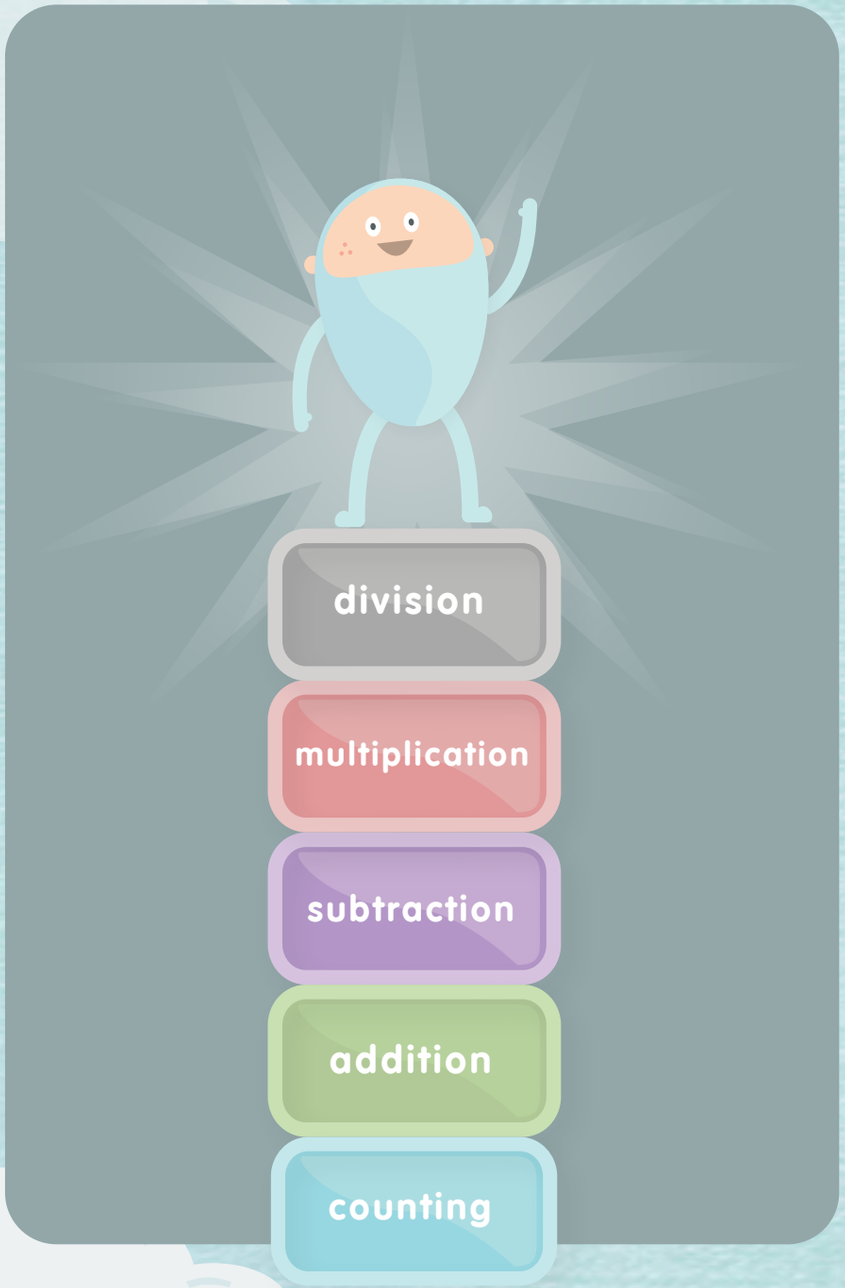
Most problems learners have with maths can be easily sorted out. The earlier they're addressed the better!

Embrace Technology

Tablets have revolutionised home learning and children love using them. They're easy to use, engaging and they're portable so children can learn anywhere. There are a lot of maths apps out there so it's worth finding out which are educationally beneficial.

What makes a good Maths App?

- Is it personalised - so the learning matches your child's needs?
- Does it have a broad curriculum?
- Is it suited for your child's age?
- Is it designed by teachers?
- Is it designed for home use or is it intended for schools?
- Does it have a way of rewarding and motivating learners?
- Does it have good reviews, awards, testimonials?



Round Up

Maths is a passport to a world of career opportunities and primary maths is the foundation for this. The goal is developing "Number Sense" - a kind of "maths fluency" which involves applying mental arithmetic accurately and quickly - and intuitively knowing if answers feel right or wrong.

Helping your child with maths at home can be daunting, but most parents are a lot better at maths than they think they are. It's worth putting on a "have a go" attitude because the extra practice and one-to-one attention can have a big impact. Helping can be as easy as playing a board game or discussing maths with your child.

Encouragement Works

Finally, and most importantly, don't forget to encourage your child. You don't always need to understand what your child is learning – showing an interest and encouraging always has a positive effect. Praise works best when it's for effort and not necessarily for being quick or getting top marks. Praising for effort encourages learners to try harder which promotes a good attitude to learning.

Links and Resources

The Primary Maths Curriculum (England)

The Primary Maths Curriculum (Scotland)

The Primary Maths Curriculum (Wales)

The Primary Maths Curriculum (NI)

Maths for Mums and Dads

Mumsnet - Talk Primary Education

Komodo Maths
Online learning system for teaching maths at home for ages 5 to 11 on tablet or computer)

Answers from Page 3:

2 for 1 offers are easy to understand because we buy twice the number of items for the same price - making each item half price.

3 for 2 offers aren't so intuitive - so here's a way to think about them:
A 3 for 2 offer means one item out of three is free - so the price is one third or 33% less. The saving per item on a 3 for 2 offer will always be 33% whatever the original price.

Calculating the VAT element you pay when the full price is £240 can be also be tricky.

First here's the wrong way: 20% of £240 is £48 so the VAT paid was £48.
For the correct way - let's say the price before VAT is 100%. The price after 20% VAT is 120% of the original and if 120% = £240
10% = £240/12 which is £20, so 20% VAT is £40 - or 2/12 or 1/6.

The 20% VAT element will always be one sixth!

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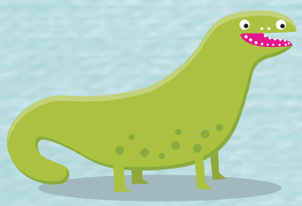
thanks for reading, Ged



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