

Supporting Positive Mindsets





Maths matters.

Everyone uses it every day, often without thinking about it. It's used at work and at home, in managing finances and helping children with their homework. But many adults struggle with maths. Others get by but may not have the skills and confidence with numbers they need to feel comfortable supporting their children or to work with numbers in their daily life.

Many people are anxious about maths and will do anything they can to avoid it. Others just do not believe they can do better. National Numeracy knows that busting the myths around numeracy and helping people to change their mindset is vital in helping them improve their skills.



Shahana's story

Shahana works in a primary school that took part in a parental engagement project with National Numeracy. She found that engaging parents with maths made a big difference in the school community.

"Parents were taking part, they were taking activities home, keen to ask questions and find out more. The children that used to sit back and were reluctant are now taking part – the whole community involved in maths!"

With parents more engaged, Shahana said, "There's a real difference in children's self-esteem and motivation."

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Why should we engage parents and carers with maths?

Parents, carers and families give children their first experiences of maths. It's important that those first encounters with numbers are positive. This can have a big impact on how children respond to maths, both now and in the future.

Research shows that engaging parents and carers with their child's education leads to raised attainment at school. It can also improve children's behaviour and school attendance. In primary schools, family influences have a bigger impact than school on children's attainment.¹

With maths, children who have strong numeracy skills are more likely to stay in education longer, to be in work as adults, and to earn more throughout their lives. The research shows that children are more motivated to learn about maths when their parents talk with them about the numeracy in everyday life.²

Parents and carers don't need to be maths experts to have an impact. No matter what their maths level is, all families can make a difference to their children's confidence with numbers.

For parents who struggle with maths themselves, supporting their children can be a strong motivator for improving their own confidence with maths. Working with parents and carers to support children's maths learning can raise the skill level of both the child and the family.

This guide explores some of the ways to support both adults and children in developing positive attitudes towards maths.

¹ Desforges, C. and A. Abouchaar (2003). *The Impact of Parental Involvement, Parental Support and Family Education on Pupil Achievement and Adjustment: A Literature Review*, Department of Education and Skills.

² Students' motivation to learn maths is higher among students whose parents discuss with them how mathematics can be applied to everyday life or who obtain mathematics materials for them. *The Programme for International Student Assessment 2013*.

Top tips for adults supporting children

Parents and carers don't need to be maths experts to be able to support their children. All families can make a difference to their children's maths learning by following these top tips.



Talk positively about maths

Children learn from example, so avoid saying things like, "I can't do maths," or "I hated maths at school." It's easy for children to take that on board themselves. Keeping things positive is more likely to help children develop self-confidence with maths.

These are simple tips that anyone can do regardless of their numeracy level.

However, people often feel more comfortable supporting their children with maths if they improve their own numeracy skills and confidence. The National Numeracy Challenge is a free, online learning tool to help adults take the first steps to improving their skills and confidence with numbers.



Point out the maths in everyday life

Maths is all around us – it's not just something that happens in school! Showing children the numbers in things like cooking, using money and planning journeys is a simple way to bring maths to life. This will help them see the value of learning maths.

As with children, having a positive mindset can make a big difference to adults' readiness to engage with maths learning. The following pages explore how to support this in adults.



Praise children for effort rather than talent

Giving children praise is important, but the type of praise we use can have an impact on how they feel about maths. Praising children for the hard work they've put in, or for working out the steps to get to an answer, is more helpful than simply telling them they're clever. It helps them see that it's not about natural ability – but that by working hard they can always improve.

Understanding maths anxiety

Experiencing maths anxiety is very common. Many people suffer 'mind blanks', stress or even physical symptoms such as a racing heart when faced with maths problems. People who experience anxiety around maths often avoid situations where they may have to use numbers.

This can prevent adults from engaging with their children's learning. It can also prevent people from furthering their own learning.



We often hear people saying things such as:

"When I think about maths, I feel anxious and embarrassed. When my daughter brought home her first set of maths homework, it was exciting for her but I took one look and knew I couldn't do it."

Union Learning Representative

"The kids used to come and ask me for help and I'd make excuses because I didn't want them to think I was stupid."

Distribution worker

"My mind just goes blank, I have a complete mental block and I can't do anything to do with numbers."

Administrator

"When you mentioned maths, I literally wanted to run out of the room. I could feel my blood pressure rising."

Healthcare Assistant

These kinds of responses are often caused by past bad experiences of maths. School experiences, home or family life, the prevailing negative culture towards maths in the UK and learning difficulties like dyscalculia can all play a part.

Maths anxiety can also be passed on from adults to the children they look after. So, for adults to feel comfortable supporting children with numbers – or to take the first steps to improving their own numeracy skills – it's important to overcome these attitudes and strongly-held beliefs surrounding numeracy.

National Numeracy's approach to supporting adults is based on research around building positive responses to negative situations. It's as much about attitudes and mindsets as it is about maths.

To begin with, understanding that learning as an adult is very different from learning at school helps adults to take that first step into learning. Learning as an adult offers more choices including what, where and how to learn.

Using the National Numeracy Challenge, people can learn in their own time and space, and there is no one looking over their shoulder, which often increases anxiety.

The National Numeracy Challenge is based on different, more practical everyday skills than the maths we learned in school. It has been built specifically for adults who want or need to improve their numeracy skills, including those who have low confidence.

The Value, Belief and Persistence approach is based on research around building positive responses to negative situations. It's as much about attitudes and mindsets as it is about maths.



Oreleo's story

Oreleo had a shaky start with maths, which began in primary school when his teacher called him useless. He felt there was no point in trying.

Maths continued to hold him back later in his life, for example when it came to finances, he would avoid making decisions. He said, "The anxiety stuck around until I was nearly thirty."

After working through his barriers, Oreleo used the National Numeracy Challenge and has since completed his Functional Skills Level 2 in Numeracy.

"The anxiety stuck around until I was nearly thirty."

In this guide, we outline National Numeracy's framework of Value, Belief and Persistence. This is an approach aimed at dispelling the myths around maths and introducing a more positive approach to improving numeracy skills. The framework can also be helpful for parents and carers thinking about the messages they give children.



Value

“Understand the importance of maths in everyday life and the benefits of improving numeracy”

Value is the motivation to learn. When people are asked to learn something, they need to know why it is useful. People need to know the benefits that improving their numeracy will bring them.

Many people are told “it’s ok to be bad at maths”, and evidence shows that many people grow up thinking that they don’t need maths. We often hear people say, “I don’t need maths in my life, or my job so why do I need to improve?”

Often maths is associated with topics taught at school, such as algebra and trigonometry, which do not necessarily hold value in everyday life.

But when people start to think about where they do use maths in their everyday life, they usually

come up with many examples. We need to make sure parents and carers understand where they use numeracy both at work and home such as planning journeys, managing their money, cooking and shopping.

Understanding this can help parents and carers point out the usefulness of maths in everyday life to their children too.



Activity idea

Ask the parents and carers you support to think about one task they regularly do at home. What numbers are involved? Discuss how numbers are useful and important in everyday life and how they can point this out to their children too.



Jason’s story

Jason always found maths daunting. He wanted to improve because he was unable to help his children with their maths homework and he felt he was letting them down.

He said, “Originally, I did it for my kids, but I found it helped with work too.” Jason felt more confident to do well in his job at a distribution centre and used his new skills to take on more responsibilities.

He no longer shies away from situations that involve maths. Even everyday challenges became easier, he said, “Being able to split the bill in front of my mates made me feel ten feet tall.”

“Originally, I did it for my kids, but I found it helped with work too.”

Belief

“Recognise that ability is not fixed and develop a can-do attitude”

Belief means understanding, accepting and recognising that everyone can improve their numeracy.

Importantly, for learners, it’s being aware that if ‘everyone’ can improve, then that means they can too.

When parents and carers are anxious about maths, it’s valuable to explore where their fears may be coming from. Often it is not the maths itself. It may be to do with the way they were taught, the kind of things they think of as maths or things they were told in childhood.

People’s mindsets around maths have often developed from experiences at school, a fear of failure or worries about looking stupid. Maths is one of the first subjects in which children are put into sets, so at an early age they are led to believe they are either good or bad with numbers.

This causes many people to believe that some people are born to be good at maths and that they are not one of them. They therefore believe that they can never be good at numeracy. This is known as a ‘fixed mindset.’¹

Parents and carers need to be assured that everyone can improve their numeracy. People like to learn in different ways and learn at different paces, but their ability is not fixed in stone. There is no evidence that there is a ‘maths gene’ that makes some people better at maths. Understanding this is known as having a ‘growth mindset.’ It helps to reframe thoughts to have more of a growth mindset. For example, going from, “I will never get this,” to “I haven’t understood this yet.”

Having this mindset themselves can also help parents and carers to pass on positive attitudes to their children. If the adults in the family can learn and improve, then it shows the children that they can too.



Activity idea

Have a look at the ‘Mythbuster’ document with the parents and carers you support. Do they agree or disagree with the statements? Why? Use the poster to bust some common myths about maths.



Susan’s story

Susan was fed up with not feeling comfortable with the maths needed to work with money. She tried to avoid the financial aspects of her job, which was a tough act to pull off considering she managed the office budgets!

She was determined not to accept her parents’ philosophy that her family was genetically bad at maths. Despite finding it difficult, she kept going and didn’t give up until she had achieved her goals.

She said, “I knew I could address my issues if I put in a bit of effort.”

The National Numeracy Challenge has helped Susan to make sensible financial decisions and she now feels more confident to keep refreshing her skills.

“I knew I could address my issues if I put in a bit of effort.”

¹ Dweck, C. S. (2006). *Mindset: The New Psychology of Success*. New York: Random House Publishing Group.

Persistence

“Recognise that everyone struggles in order to succeed – it’s part of the learning process.”

It helps if people recognise that improving their maths skills may feel hard. Learning any new skill is difficult and it is often a struggle. But struggling does not mean that someone can’t improve or that they are simply bad at maths. Everyone struggles at some point and making mistakes or finding it hard is a normal part of learning.

When learning to drive, people don’t expect to get the hang of it straight away. It takes many hours of practice to learn. Many people don’t pass a driving test the first time. Some don’t pass the second or third time either. But they’ll usually get back in the car and take more lessons until they’ve got the skills they need. They don’t think, “I’m just not a driving person.”

Parents and carers may have struggled at school or failed a qualification; they might be struggling to learn as an adult. But everyone can learn, improve and get the skills they need in the end. This is just as true of adults as it is of children.

When you, or parents you work with, face barriers to learning, we have found the following helps:

- Understanding how you learn most effectively, whether that’s in a classroom environment or in your own space and time

- Setting realistic goals
- Learning in daily bite-size chunks
- Asking for support when you need it
- Seeing mistakes and setbacks as useful rather than off-putting
- Finding different ways to solve a problem if the first attempt doesn’t work



Activity idea

Ask the parents and carers you work with to share something else in their life they have struggled with and had to persevere with, such as learning to drive. Talk about how learning maths is no different to learning any other skill: it takes persistence, time and effort.

“Learning can be difficult, but it’s like running: you wouldn’t run a marathon without improving your stamina over a period of time.”



Rachel’s story

Rachel is a manager in the Civil Service who never thought of herself as a maths person. But instead of accepting this, she looked for support online.

She pushed herself to give the National Numeracy Challenge a go. Rachel found that it helped by allowing her to go back to basics and refresh her learning.

By breaking it down into manageable sections and persisting with working on her weak spots, she improved her skills and confidence.

She said, “Learning can be difficult, but it’s like running: you wouldn’t run a marathon without improving your stamina over a period of time.”

Talking about her experience of the National Numeracy Challenge, she said, “It is no exaggeration to say, it has potentially been life changing.”



Mel’s story

Mel needed a maths qualification for her nursing career, but numbers scared her. “I had no confidence even to try. At one point, I wanted to give up the whole thing. I just did not like maths. I thought I could never do it.”

She also didn’t feel able to help her daughter with maths homework. “I didn’t have a clue where to start.”

“Now I know I can actually help my daughter and I’m a proud mummy!”



Gillian’s story

Gillian started to struggle with maths in secondary school. “I just felt lost in maths lessons. That then grew into maths anxiety.”

She needed maths for her career as a primary school teacher. She passed her exams but didn’t feel comfortable with maths. “When I started teaching, I remember panicking and having to teach myself every lesson the night before, not feeling confident.”

She says that knowing what maths anxiety is, helped her. “Being open and honest about it is good. I’m open with the kids saying, ‘I can’t really figure that out, let’s work it out together.’ Having the confidence to make mistakes is what makes it easier for me.”

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