

## GROWTH MINDSET MAKES MATHS FUN!



Andrew Bowles, Principal Teacher of Mathematics and Science at Dalbeattie High School in Dumfries and Galloway recently completed Winning Scotland's Mindset Teams training programme alongside two colleagues. Their focus was on using growth mindset to help pupils become more engaged and confident in maths.

**"IT STRUCK A  
CHORD FOR  
ALL OF US"**

Andrew said: "All three Maths teachers at Dalbeattie High had an immediate feeling, the content of the programme struck a chord for us all. It answered the question we had been continuously asking, 'how do we tackle the high levels of maths anxiety in pupils coming from primary to secondary?' It was clearly the solution we were looking for."

**"IT CHANGED  
EVERYTHING"**

Reports from local feeder primary schools highlighted behavioural issues, and pupils were coming to secondary school with high levels of anxiety, specifically about maths.

Andrew used his growth mindset training to disguise the classroom tasks - making maths more fun and less abstract, so pupils didn't feel like they were doing maths.

Andrew said: "We 'conned' them!' 'And it changed everything!"

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### DESIGN A WHEEL

One task worked particularly well for Andrew; he briefed pupils to design a wheel with a chosen number of equally spaced spokes. The levels of creativity from the class surpassed his expectations. And the accuracy of the calculation of the required angles was impressive.

Competition has been important. Pupils were given regular opportunities for different challenges, such as mental arithmetic - producing different winners. This worked well across the class as it gave pupils the chance to excel in different areas. For example, those with lower literacy skills had the opportunity to be successful with the linguistic aspect stripped back.



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### CHANGE IN BEHAVIOUR

Teachers started to survey pupils before and after they taught using a growth mindset, helping them track the shift in attitudes and behaviours. They were seeing results by the second week of applying mindset techniques in a traditionally difficult maths area, algebra. The general level of anxiety before pupils come to High School is traditionally above 20%. The post-survey results showed only 4% of pupils were now anxious (compared to the national average of 45% from Winning Scotland's 2022 maths attitude survey), 74% enjoyed learning maths and 44% had improved confidence in the subject.

# 4%

only 4% of pupils  
are now anxious  
about maths



# 74%

enjoy learning maths

### ANECDOTAL EVIDENCE

A wealth of evidence and data can be shared from the school, but Andrew said some of the most satisfying is the anecdotal evidence from parents, who told the student support team about the positive change they can see in their child, with maths often quoted as a favourite subject.

Reflecting on the changes, Andrew said: "there was a significant difference with the S1's who were using a growth mindset; they were much more positive and confident. The atmosphere, their performance and behaviours were better than previous cohorts. They wouldn't be where they are now without the mindset training. I can't emphasize enough how clear and vast the difference is."

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*THERE IS ALMOST NO NEGATIVITY, ANXIETY OR BAD BEHAVIOUR THIS YEAR; INSTEAD, THERE IS A DESIRE TO LEARN. PUPILS ARE ASKING THE RIGHT QUESTIONS AND HAVING ONGOING CONVERSATIONS ABOUT THEIR LEARNING.*

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### NEXT STEPS

Dalbeattie High School are continuing their mission to embed a positive and resilient mindset in their classrooms. Where previously pupils may have started with traditional lessons, they now begin their journey by learning to produce circles and spirals from drawing only straight lines. The fun and imagination brings maths to life.