

# Using data to inform teaching practice and professional learning linked to evidence-based practice



**Meet Matt Whight**  
Wingham High School's MGT trainer

## Lifting student success in mathematics

The Mathematics Growth Team (MGT) consists of school-based expert mathematics secondary teachers embedded in schools to; support, challenge and improve the pedagogical and assessment practices of mathematics educators in both primary and secondary contexts.

Their end goal is to improve student outcomes in mathematics and redefine the mathematical mindsets of children, parents and communities (Anderson, Boaler and Dieckmann, 2018).

Being school-based and having a consistent 0.4 teaching allocation within a school allows team members to maintain currency with constraints and challenges faced by current teachers. It also improves their ability to provide personalised professional learning at the point of need for relevant individuals and teams of teachers (Martinovic et al., 2017).

Embedding the MGT into schools also allows for mentoring and coaching to occur with staff in situ over a sustained period of time, which is a crucial part of implementing long-term changes in teaching practice (Cartwright, 2020). Existing staff in schools where the MGT operates have scheduled RFF time to facilitate regular lesson observation, structured discussion on pedagogy, reflection on practice and action research.

## Wingham High School Mathematics Growth Team in practice

Wingham High School is a rural comprehensive school located in the picturesque Manning Valley on the Mid North Coast. Their teaching staff of 55 is made up of beginning teachers, experienced and mid-career teachers. Their Learning and Support team consists of 7 experienced staff and 1 Aboriginal Education Worker. The student body consists of an enrolment of 596. There are 90 Indigenous students making up 15% of their student population.

The School has a broad and challenging curriculum providing for the comprehensive needs of their students. There is a strong focus on the development of skills for future learning which is reflected in teaching practice. Transition to work programs and Vocational Education Training (VET) courses are a significant part of our curriculum. Our two Trade Training Centres (Construction and Hospitality) continue to play an important role in these programs.

## Focus 1: Collaboration

Building the mathematics education community of practice through the strategic leadership of cross-school work groups.

*"It has been an influx of motivation, energy and greater confidence with this program. I personally look forwards every week to learn new ways to engage my students. They are eager to learn and approach new learning situations with greater confidence. My students have become greater risk takers and participate more willingly in Maths lessons, they are falling in love with learning."*

Gerardo, Mathematics Teacher

## Focus 2: Professional Learning

Co-designing and delivering high quality professional learning experiences, resources and support material for mathematics teachers, drawing on a strong evidence base, to support improvement in mathematics achievement across the participating schools.

A variety of pedagogical practices are being trialled in classrooms. This includes staff utilising:

- Pictorial representations including Algebra tiles, the area model and the Singapore bar model
- Tasks to promote mathematical discussion including number talks, always, sometimes never and which one doesn't belong problems.
- Alternate style tasks such as open middle maths, maths venns and goal free problems
- Frayer diagrams
- Think boards to support problem solving
- Example problem pairs (as part of explicit teaching)
- Mini-whiteboards as a learning and formative assessment tools

### Focus 3: Teacher development

Developing teacher and leader capacity to employ evidence-based practice in a classroom, identifying the mathematics learning needs of students in both primary and secondary contexts.

Staff have developed their skills using a variety of learning tools including; spreadsheets, Desmos and Geogebra.

### Focus 4: Monitoring student success

Monitoring the impact of practice on student learning and lead the evaluation of interventions with reference to identified comparison schools.

Staff are using a variety of summative assessment styles including investigations and Pirozzo matrices. In addition, staff have been using formative approaches and trying to activate students as learning resources for each other. Some have enabled students to make multiple attempts to demonstrate their knowledge/growth.

How students help other students learn?

*“Students in class help each other by talking and explaining things to each other”*

Matilda, Year 8, Wingham High School

What do teachers do to help you learn?

*“Teachers do hands on activities to help students learn. They use different equipment like blocks clocks and whiteboards to help explain the different things they’re teaching.”*

Matilda, Year 8, Wingham High School

*“Teachers provide examples to help with a better understanding of the topic. Use of whiteboards for a more convenient practice for the topics, they allow an ease of manipulation.”*

Charlie, Year 12, Wingham High School.

### Observable impacts at Wingham High School on students and teachers

Data to inform teaching practice: Staff have analysed HSC RAP data to identify student misconceptions and reflect and modify programs for future use.

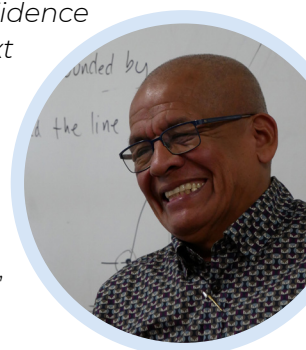
Short formative assessment tools, such as diagnostic multiple choice, are utilised to know where our students are at and identify the next steps in their learning journey.

Analysis of data including the 2020 Numeracy Check-in has informed the direction of future professional learning to support the development of multiplicative strategies.

Professional learning linked to evidence-based practise: staff engaged with growth mindset research through completing the How to Learn Math for Teachers course (youcubed.org). Staff will develop student’s growth mindsets through not only their own practice, but also by student participation in videos and activities accessed through the youcubed site.

*Growth Mindset PL “has delivered a fusion of specific practices and general insight in how our kids who were failing, losing confidence and came to believe that they were not good at Maths, now have gained confidence and eagerly look forwards to next lessons.”*

Gerardo, Mathematics Teacher



By utilising a model that brings together data and evidence-based research we can look to lift all students’ success in mathematics.

The use of data to inform teaching practice is increasing not only within Wingham High School but also within the networking schools that MGT trainer interacts with. The data helps all teachers - not just the MGT trainer - to enable them to make informal choices for their students.

The use of evidence-based guidance on effective practice to improve student outcomes aligns with the School Success Model to lift student success in mathematics. While it will not appear identical in every classroom, evidence-based high-impact teaching strategies are consistently informed by the best available research, student feedback, practice and valid evidence of student learning.

#### For more information regarding the Mathematics Growth Team contact:

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