

# NANAMIC conference 2024

‘This worked for me!’  
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Published by ATM

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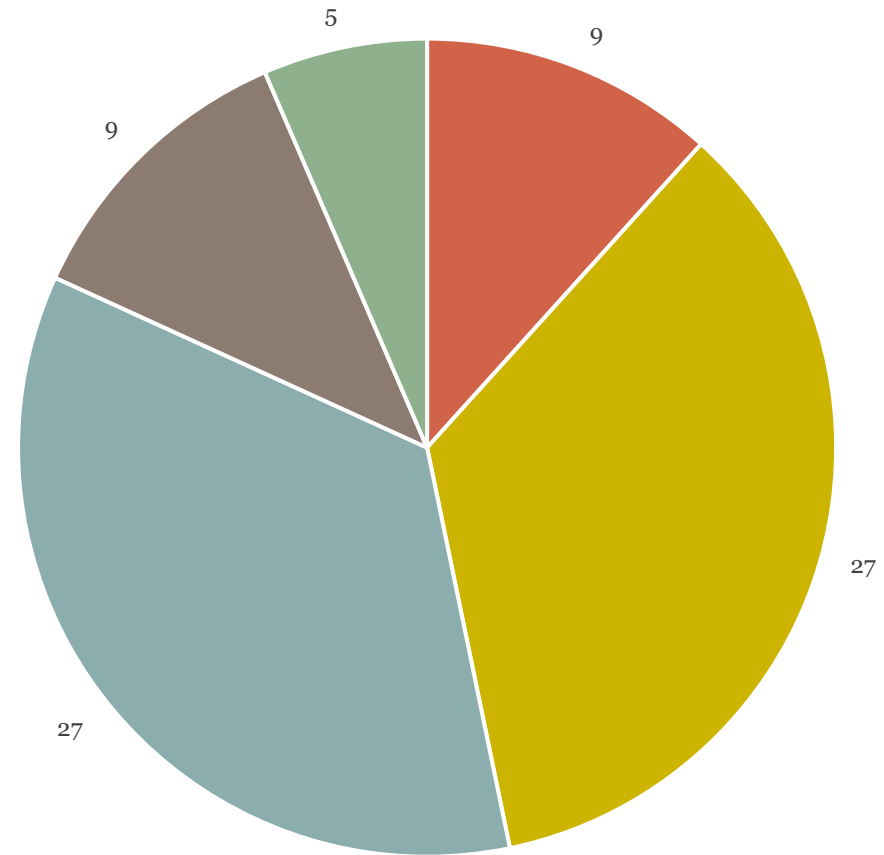
# Preparation for content

- In June of 2023 I had an email...
- Fiona and the Association of Teachers of Mathematics
- List of possible topics for chapters in a new publication for teachers of re-sit GCSE mathematics
- About what worked for us as teaching individuals- we are all different!
- Approximately 2000 words per chapter
- First submission, revisions and tidying, second submission...
- 'This worked for me!' launched in January 2024
- Promoted at joint conference in Stratford-Upon-Avon in April
- 108 copies sold so far
- AQA may send out copies to all their FE centres- ATM negotiating!

# Contents

- Introduction by Fiona; write up/review by Steve Pardoe
- What do we need to know about our learners?- Jenny Stacey
- A starter- the Swedish Number Game –Tom McCormick
- What I say when someone says “I can’t do Maths”- Natacha Shakil
- Using double number lines to support proportional reasoning- Byron Sheffield and Jane Barnett
- Misunderstandings and misconceptions- Fiona Allan
- The use of the Socratic method to foster discussion- Despoina Boli
- Daily Maths- Julia Smith
- Language in the resit GCSE Maths classroom- Jenny Stacey
- Non-mathematical starters- Despoina Boli
- Engaging real-world investigations- Martin Newton
- Why I changed, “From Sage on the Stage to Guide on the Side”- Joan Ashley
- Mean, median, mode and range- a Standards Unit activity- George Lane
- Three sessions that worked for me- Andrew Davies
- Creating GCSE Maths revision cards- Bernadette Evans

Maths anxiety vs confidence: 77 learners surveyed Sept 2016

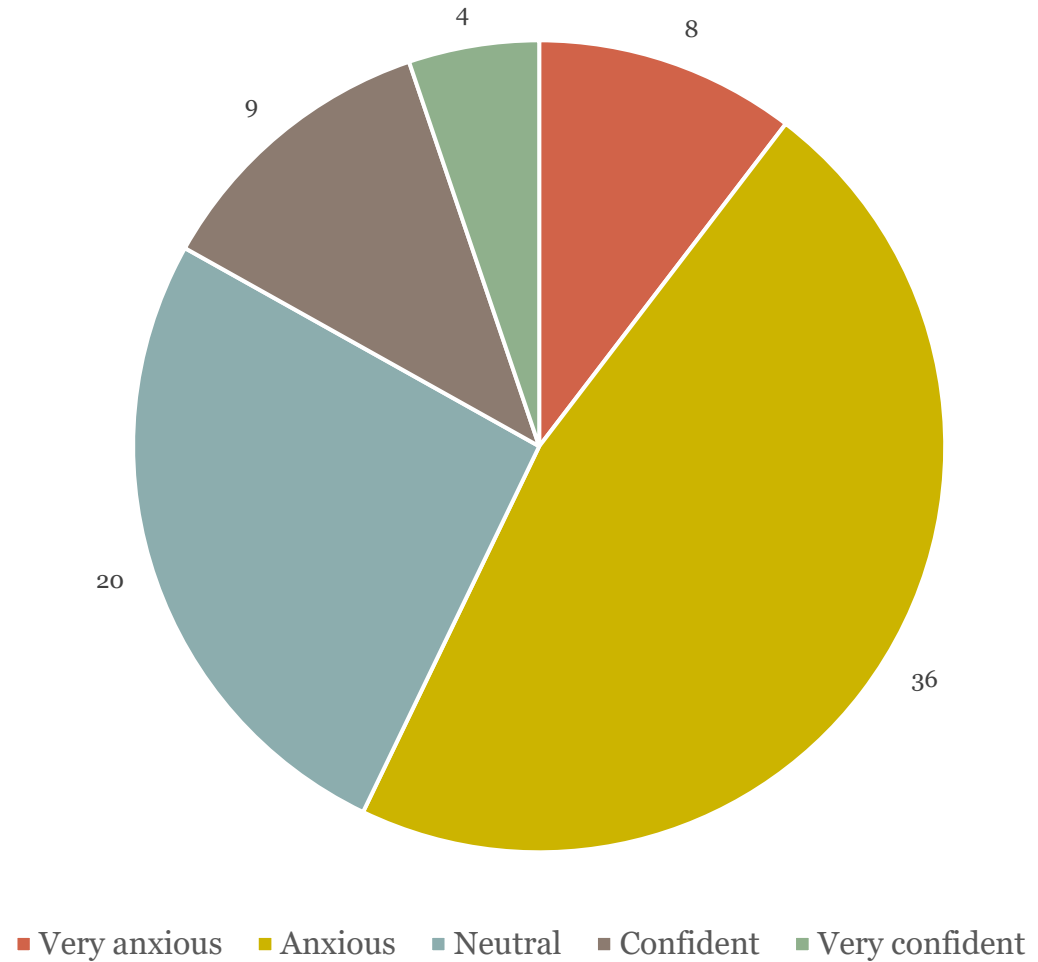


■ Very anxious ■ Anxious ■ Neutral ■ Confident ■ Very confident

Experiences,  
personalities,  
and research  
lead to  
positioning as a  
teaching  
professionals:  
maths anxiety

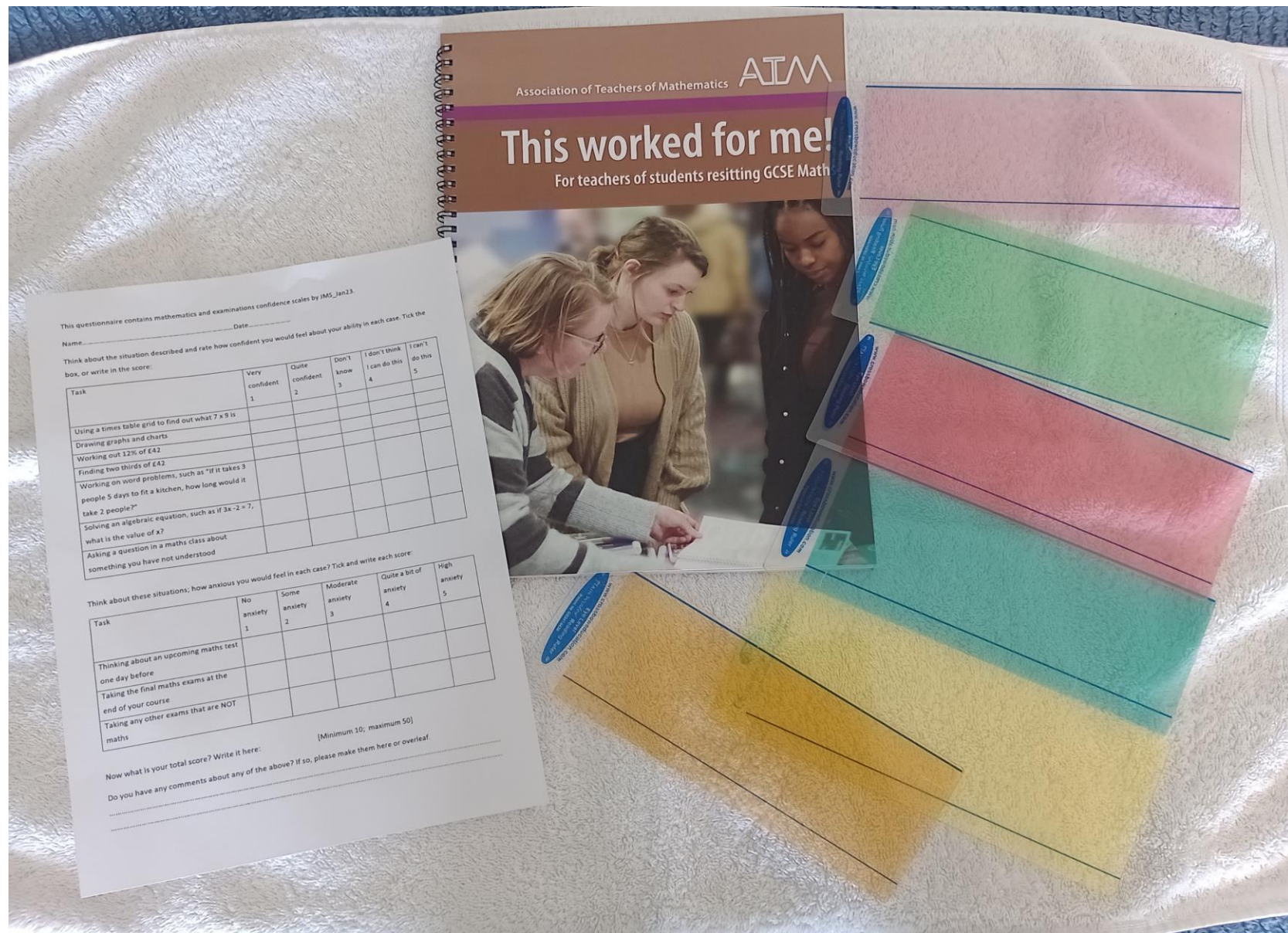
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Exam anxiety vs confidence: 77 learners surveyed Sept 2016





Content  
shared:  
Know more  
about our  
learners



# Content shared: The language of maths

## Specialist word bank

Refer to the command words below from your specific exam board, and see the associated definitions online for [AQA](#) and [Edexcel](#). The lists themselves are not exhaustive, but these are words specifically highlighted by the exam boards.

Please note that OCR and WJEC Eduqas do not have command words specifically highlighted for their GCSE Mathematics qualifications.

| Command words used in GCSE Mathematics exams | AQA | Edexcel |
|----------------------------------------------|-----|---------|
| assess                                       | ✓   |         |
| calculate                                    |     | ✓       |
| comment*                                     | ✓   |         |
| complete                                     | ✓   | ✓       |
| describe                                     | ✓   | ✓       |
| draw                                         | ✓   | ✓       |
| estimate                                     | ✓   |         |
| expand                                       |     | ✓       |
| explain*                                     |     | ✓       |
| factorise                                    | ✓   | ✓       |
| find                                         |     | ✓       |
| give / give reasons*                         | ✓   | ✓       |
| justify                                      |     | ✓       |
| measure                                      | ✓   |         |
| multiply                                     | ✓   |         |
| plot                                         | ✓   |         |
| prove                                        | ✓   | ✓       |
| rotate                                       | ✓   |         |
| shade                                        | ✓   |         |
| show*                                        | ✓   | ✓       |
| simplify                                     | ✓   | ✓       |
| sketch                                       |     | ✓       |
| solve                                        | ✓   | ✓       |
| translate                                    | ✓   |         |
| work out                                     | ✓   | ✓       |
| write / write down                           |     | ✓       |

\*Words identified in recent examiner reports as posing difficulties for students.

All four exam boards only specifically reference mathematical vocabulary in their specifications in two areas: the language of algebra and the language of factors and multiples.

However, vocabulary specific to mathematics is relevant to every topic, and this can be found in the detail of the relevant specification.

## Key areas of concern identified in examiner reports

Examiner reports specify many vocabulary errors and misconceptions, including errors in understanding mathematical symbols. In the Edexcel June 2018 report, the chief examiner even stated, 'A lack of mathematical reasoning continues to prevent some students from gaining marks when explanations are required ... centres are advised to practise these types of questions and the associated vocabulary'.

Some common misconceptions from the 2018 examiner reports include:

- confusing *area* and *perimeter*
- misunderstanding the term *proportion*



# Content shared: Helpful resources and ideas

- Students creating GCSE maths revision cards- an activity for students to create their own revision cards for themselves and/or the group- will consolidate knowledge and aid understanding (Bernadette Evans). [This reminded me that I used to do an activity with coloured paper- we made boxes and used them for measuring and calculating perimeter and area...]
- Graphing investigations for Higher tier students- students use graphing software to draw, say,  $y = 2x + 4$ , and investigate what happens when the coefficient changes, or is negative, what happens when  $x$  is squared or cubed (Andrew Davies). [ This reminded me that not all our students are Foundation tier, some may not have been in school for their 1<sup>st</sup> set of GCSE exams, some may have migrated into the UK and have differing levels of maths vs English skills. Also, some students could find this really engaging and motivating, HT or not, and many will have spiky profiles...]



# Content shared: Helpful resources and ideas

- Misunderstandings and misconceptions- ‘always take the smaller number from the bigger number’, ‘-7 is bigger than 3’, ‘when you multiply two numbers together you get a bigger number’, ‘all 2D shapes are regular’...(Fiona Allan). [this reminded me that I need to check for misconceptions and work with students to produce examples that do not match; also, I need to point out the difference between not understanding a topic or concept and making a minor calculation error, to counteract students obliterating work on an exam paper or in a book because ‘it didn’t look right’.]
- “Homework: traditionally our learners go home but they don’t work” (Julia Smith) [This reminded me that I am not alone!]
- “Changing how I taught: trying new ways of working is stressful” (Joan Ashley). [Yes, but it can be rewarding and good fun too.]
- Links to STEM resources, RME, Nottingham University ‘maths for life’...
- For me, this book is practical, hands on and reassuring!

Do you have  
something that  
has worked for  
you and that  
you would like  
to share?  
Contact details

- Shared in the session:
- [TWFM advert 3.pdf](#)
- Fiona has been asked to produce a similar format for Primary and Secondary education...
- A second issue for FE/GCSE re-sit students?
- stillknitting@gmail.com