

# MiS Presentation

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March 18, 2025

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- This project was conducted in partnership with Our Lady and St Thomas catholic school (OLST).
- OLST is a co-educational primary academy located in Willington for students aged 4 - 11.
- OLST is a small school with only on class of 18-20 students per year.

- Increase confidence in girls ability in maths
- This goes hand in hand with decreasing maths anxiety in girls
- In the long term this could possibly increase performance in girls, increasing number of girls achieving 'Greater Depth' in SATs

- Increasing confidence
  - Belief in their own abilities
  - Nationally girls perform at a very similar level to boys in SATs (Gov.uk, 2024)
  - Boys tend to believe more than girls do that their intellectual abilities cause their high marks in maths (Georgiou, S. N. et al, 2007)
- Decreasing anxiety
  - Maths anxiety: feelings of nervousness or apprehension in response to a current or future situation involving maths
  - Women are more than twice as likely to experience maths anxiety than men (National Numeracy, 2024)
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- Lunch time sessions about 30 minutes long
- Only girls in the session
  - Girls are said to be more confident and more likely to express themselves in a single sex environment
  - Girls reported that they felt more comfortable and liked science and mathematics more in a single-sex setting
- The content of the sessions is not defined by the aims.

The aim of this project is very individual, so it is important to get to know the students I am working with.

- What is the level of maths anxiety among the girls?
  - Majority of girls reported some symptoms of maths anxiety
- What are the causes of maths anxiety?
  - Judgement
  - Fear of being left behind
  - Frustration
- How can these causes be treated?

# Session 2: Möbius Strips

- Design:
  - No numbers
  - Focus on the process rather than the outcome
  - Intrinsic value intervention
- This session involved the girls constructing and exploring the physical properties of a Möbius strip
- The aim of this session was to allow the girls to enjoy the process of exploring new ideas



Figure: Möbius Strip



# Session 2: Möbius Strips

- The session consisted of 3 main activities
  - 1 Creating the Möbius strips
  - 2 Drawing on the Möbius strips
  - 3 Cutting the Möbius strips
- Evaluation
  - The session definitely promoted curiosity and creativity (maybe a bit too much)
  - The students enjoyed working through not understanding something
  - Some of the activities were too fiddly

- Design:
  - Utility value intervention
  - Getting comfortable discussing maths
- ① What is statistics?
  - How do we collect data?
  - How do we analyse data?
  - Why is statistics useful?
- ② Students collecting their own data
- ③ Talking about maths at home

# Session 4: Statistics - Data visualisation

- Why do we visualise data
- Creating their own data visualisation
- Physical representations of statistics

- Why do we visualise data
- Creating their own data visualisation
- Physical representations of statistics
- Evaluation:
  - Students developed understanding of basic statistics
  - Didn't create as much discussion around mathematics as planned
  - Mode of delivery was very similar to a lesson

# Session 5: Coordinate Grid

- Design:
  - Change mode of delivery
  - Make the session active
  - Incorporating cooperative groups in problem solving situations
- This session involved the students solving problems which would lead them from point to point on a coordinate grid
- The mathematics required was taken from lessons I had seen the students complete
- Each student had to solve one clue to lead them to the final answer
- Evaluation:
  - Students were very eager to solve clues
  - Students didn't understand coordinates as much as hoped
  - The problems given were effective revision for the children - "We had to do really difficult maths that we learnt ages ago"
  - Sacrificed quantity of learning for enjoyment

- Design:
  - Student ownership, developing their own tool they can use in the future
  - Students work together and share their solutions
- This session involved the students developing their own strategies for a simple game
- This task generalises allowing students to learn some basic problem solving strategies
- Evaluation:
  - Students were keen to complete the task as they wanted to beat me
  - Some of the more uninterested students seemed to benefit from this type of session

## Session 6: Talking about maths confidence

- While lesson structures, content and materials can all affect maths confidence

- Increasing maths confidence
  - Noticable increase in participation throughout sessions
  - Difficult to distinguish causes of confidence
- Decreasing maths anxiety
  - Design of sessions reduced maths anxiety within sessions
  - All students are willing to volunteer answers in sessions, which they may not do in regular maths lessons
  - Maths anxiety was definitely still present in some cases
  - Many methods for dealing with maths anxiety are without of the scope of this project