Great Oracy Exhibition 2024

Let's Talk Maths

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Talk for Maths

Ravi has completed the following question for his homework.

How would you explain to Ravi what he has done wrong?

Solve $7x - 5 = 23$.

Show how you worked out your answer.

23						
x	x	x	x	x	x	5

18					
x	x	x	x	x	x

6 lots of 3 = 18

$x = 3$

In this session we will discuss

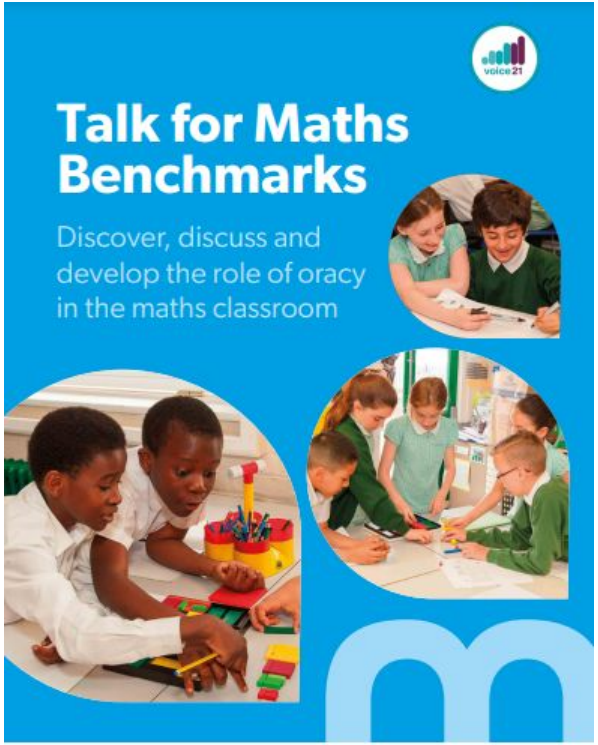
- The Talk for Maths Benchmarks

With a focus on:

- What exploratory talk is for maths and how it deepens understanding
- How manipulatives can be used as a tool for talk

Talk for Maths Benchmarks

- Culmination of a year long project with between OUP and Voice 21
- Aim to define excellent practice for oracy in the maths classroom.
- Videos and top tips
- Developed as a practical framework with the aim of establishing a shared understanding for oracy and maths.



The Benchmarks

1. Plans frequent exploratory talk opportunities
2. Uses manipulatives as a tool for talk
3. Connects classroom talk with being a mathematician
4. Teaches vocabulary explicitly, according to a school-wide progression
5. Harnesses uncertainty to develop deeper understanding

Talk for Maths Benchmarks

Understanding exploratory talk

Exploratory talk

‘Exploratory talk which is typical of the early stages of approaching new ideas… is hesitant and incomplete because it enables the speaker to try out ideas, to hear how they sound, to see what others make of them, to arrange information and ideas into different patterns.’

Presentational talk

‘In presentational talk the speakers’ attention is primarily focused on adjusting the language, content and manner to the needs of an audience,’

(Barnes, 1992)

Top tips for exploratory talk

1. Understand the characteristics and purpose of exploratory talk

2. Promote linguistic diversity

3. Establish clear guidelines and provide appropriate scaffolds

4. Use groupings thoughtfully to facilitate talk and encourage active listening

5. Select a stimulus that invites multiple perspectives

Talk for Maths Benchmarks

Talk for Maths

- Theoretical support for use of manipulatives supported by developmental theorists: **Piaget (1965), Bruner (1964) and Montessori (1948)**
- Talk & manipulatives deemed important by: **Zoltan Dienes, Jerome Bruner, Richard Skemp** and **Lev Vygotsky**
- **(Mathematical)** communication requires external representations, including spoken language, symbols, pictures and objects **(Nuffield Foundation, 2017)**
- ‘Only by thinking and talking about the similarities and differences...can students construct relationships’
- Peer interaction whilst using manipulatives means students are more likely to construct the relationships that teachers intend **(Hiebert and Carpenter, 1992)**

Top Tips for using manipulatives as a tool for talk

1. Consider which manipulative to use, when to use it, and why
2. Use manipulatives across school, with every pupil
3. Model narration when using manipulatives and scaffold with conversation stems
4. Use questions to probe a pupil's thinking and encourage reasoning
5. Encourage the use of manipulatives to justify, convince and offer reliable proof.

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Deepening mathematical understanding through talk

numicon ESSENTIALS

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Thank you!

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