

## An introduction to maths talk

### What is maths talk?

Maths talk is a collaborative process where children's thinking, strategies and ideas are discussed, shared and/ or exchanged. Using maths talk in classrooms can help reveal children's understanding and misunderstandings. It can support their maths learning by boosting memory, developing maths language, promoting deeper reasoning as well as developing social skills across all subjects. Maths talk in classrooms can be categorised as probing, responsive, eliciting and correcting. Although all have a place in developing children's understanding, it is important that probing and responsive discourse become the more dominant aspects of maths talk in the classroom.

'Talk is an important way to build that sense of community and to help children grapple with important mathematical ideas.'

(Kazemi and Hintz 2014 p.14)

### Where will I start?

Building an atmosphere and culture of respect and risk-taking is critical to the success and impact of using maths talk in supporting conceptual development and critical thinking. In an inclusive classroom, all children need to feel comfortable enough to make public their ideas and to challenge those of their peers if they are to progress mathematically.

Ronda's (2012) '**Four Freedoms**' to support development in maths for every child in an inclusive classroom are:

- 1** Freedom to **make mistakes**
- 2** Freedom to **ask questions**
- 3** Freedom to **think for yourself**
- 4** Freedom to **choose your own methods**

### Engaging children in productive maths talk

It can be challenging for teachers to ensure that productive maths talk emanates from classroom tasks. It will not happen without appropriately challenging and engaging tasks. Focusing on a clear learning outcome can help the teacher select which talk move is most appropriate at each stage of the lesson.

The Productive Talks Move table is based on Chapin et al.'s (2009) 'Talk Moves' helping the teacher identify the purpose of the 'Talk Move', explaining how this is executed and some examples are provided to get the discourse started.

**Productive Talk Moves Teacher can engage in** (based on Chapin *et al.* (2009))

#### 1. Helping individual children clarify and share their own thoughts



#### Talk Move:

#### Wait Time

Purpose?

Gives children time to formulate and verbalise thoughts.

How?

Teacher waits at least 4 seconds after asking the question before taking answers.

Example:

*'I know you're thinking hard. In a little while I'm going to ask you for your ideas. Think about what you are going to say.'*



#### Talk Move:

#### Turn and Talk

Purpose?

Gives children individual time to focus and refine their thoughts with a partner.

How?

Teacher allows children 30 seconds to work alone; then one minute to verbalise thoughts with partner.

Example:

*'Think about this question for thirty seconds and then share your thoughts with your partner.'*



**Talk Move:**

**Revoicing**

Purpose?

Allows teacher to consider and check for understanding; allows other children to hear classmates' ideas again.

How?

Teacher repeats all or part of a learner's response, checking with them that your interpretation is correct.

Example:

'So, you're saying that...' or 'It sounds like you're saying... is that correct?'



**Talk Move:**

**Say More/Clarifying**

Purpose?

Allows teacher to prompt learner to share their thoughts more fully.

How?

Teacher encourages learner to expand on their response and clarify their thinking.

Example:

'I'm not sure I understand, can you say more about what you're thinking?' or 'Can you give us an example?'

**2. Helping children orient to the thinking of others**



**Talk Move:**

**Repeating**

Purpose?

Children repeat or restate a classmate's idea.

How?

Teacher asks learner to repeat or restate another learner's thinking.

Example:

'Can you repeat what [ ] said in your own words?' or 'Who can say that again?'

**3. Helping children deepen their own reasoning**



**Talk Move:**

**Reasoning/Elaborating**

Purpose?

Children justify and elaborate their thinking and support with evidence.

How?

Teacher presses learner for further elaboration and evidence of their thinking.

Example:

'Why do you think that?' or 'What convinces you?' or 'What is your evidence?'

**4. Helping children engage with the reasoning of others**



**Talk Move:**

**Agree/Disagree**

Purpose?

Children are encouraged to respectfully agree or disagree with thinking of others.

How?

Teacher asks children to say if they agree or disagree with a classmate's view... and to say why that is so.

Example:

'What do you think of what [ ] said?', 'Do you agree?', 'Why?'



**Talk Move:**

**Adding On**

Purpose?

Offers an opportunity to all children to build on the ideas of others.

How?

Teacher opens conversation to all children to promote discussion.

Example:

'Does anyone have anything to add?'; 'Can anyone say what we might do next?'

## Sentence stems

1. \_\_\_\_\_ and \_\_\_\_\_ are similar/different because \_\_\_\_\_.
2. \_\_\_\_\_'s idea reminds me of \_\_\_\_\_.
3. \_\_\_\_\_ is important because \_\_\_\_\_.
4. A better strategy would be \_\_\_\_\_ because \_\_\_\_\_.
5. A definition that I learned today was \_\_\_\_\_.
6. A new maths idea I learned was \_\_\_\_\_.
7. Another strategy would be \_\_\_\_\_ because \_\_\_\_\_.
8. I can prove my answer by \_\_\_\_\_.
9. I can show this idea by \_\_\_\_\_.
10. I have a different way to solve \_\_\_\_\_.
11. I noticed that \_\_\_\_\_.
12. I predict that \_\_\_\_\_.
13. I think \_\_\_\_\_ because \_\_\_\_\_.
14. I think that makes sense/doesn't make sense because \_\_\_\_\_.
15. I want to add to what \_\_\_\_\_ said \_\_\_\_\_.
16. If \_\_\_\_\_ then \_\_\_\_\_.
17. My first step was/is \_\_\_\_\_.
18. My strategy is the same as/different than yours because \_\_\_\_\_.
19. Next time I solve a problem like this, I will \_\_\_\_\_.
20. Something that is important to remember is \_\_\_\_\_.
21. The answer is \_\_\_\_\_ because \_\_\_\_\_.
22. The factors that are most important are \_\_\_\_\_.
23. The first thing I did to solve this problem was \_\_\_\_\_.
24. To prove my answer is reasonable, I can \_\_\_\_\_.
25. What would happen if \_\_\_\_\_?

## References

Chapin, S. H., O'Connor, C. and Anderson N. C. (2009) *Classroom Discussions: Using math talk to help students learn, Grades K-6*, Sausalito: Math Solutions.

Kazemi, E. and Hintz, A. (2014) *Intentional Talk: How to Structure and Lead Productive Mathematical Discussions*, Stenhouse Publishers.

Ronda, E. (2012) *The Four Freedoms in the Classroom*, available: <https://math4teaching.com/the-four-freedoms-in-the-classroom>