NCCA

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 conceptual understanding it is important that probing and responsive discourse become the more dominant aspects of Maths Talk in the classroom.

> Maths Talk is defined as '... patterned ways of using questioning, explaining, listening, and different modes of communication in the classroom to promote conceptual understanding in math for all learners.'
>
> **(Sztain *et al.* 2020)**

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.

> 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)**

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 you own methods

> '... It's easy to start a discussion by asking children to share their thinking... Knowing what to do with students' ideas and teaching children how to meaningfully participate in discussions can be a lot more daunting.'
>
> ***(Kazemi and Hintz 2014)***

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 _____ ?

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