Mathematical Mindset Online Course: Discussion Guide

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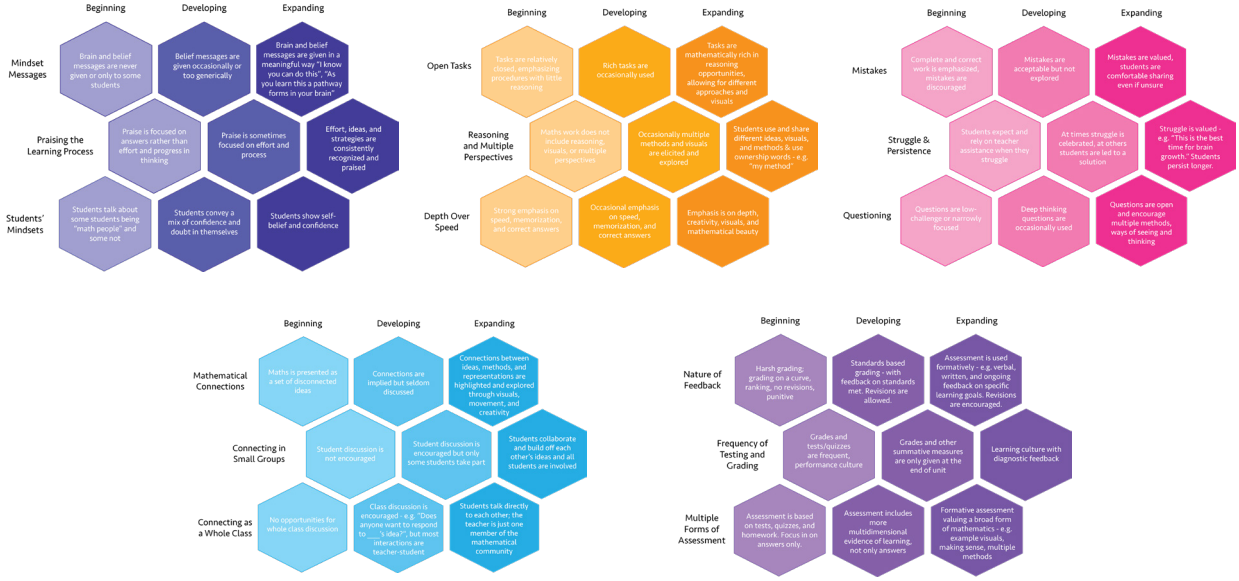
In a previous research study, we investigated the impact of teachers taking one of our online courses. Over a year a large group of teachers took "How to Learn Math" and implemented the ideas in their classrooms. Even in the first year of the teachers implementing the ideas, their students significantly improved their mathematics achievement on state tests, compared to students of teachers in the same districts who did not take the course (Anderson, Boaler & Dieckmann, 2018). In this initiative, the district leaders had arranged for teachers to meet regularly, in paid time, to discuss the ideas from the course, and plan changes they would make in their classrooms. We recommend this model for teachers taking our online courses. It is most helpful when teachers can discuss the course ideas in groups, and plan changes they can make in their classrooms, then reconvene to discuss the responses of students.

An important accompaniment to the Mathematical Mindset course is the Mathematical Mindset teaching guide, that can be seen below. On the youcubed site this is an interactive guide with classroom videos.
https://www.youcubed.org/mathematical-mindset-teaching-guide-teaching-video-and-additional-resources/

youcubed.org - Tasks & More - Mathematical Mindset Teaching Resources



A useful way to implement the ideas in the course is for a teacher to map where they are on the guide and identify areas they would like to work on, moving to the "expanding" hexagon in each section of the guide. We recommend working on one area at a time. Further ideas for using the guide as a reflection tool are given here:

https://www.youcubed.org/downloadable/user-advice-for-mathematical-mindset-teaching-guide/

youcubed.org - Tasks & More - Mathematical Mindset Teaching Resources - Mathematical Mindset Teaching Guide

In addition to the ideas above, the following questions are built upon the ideas in each lesson and can be used for teacher discussion and reflection.

Lesson 1

In the first class we talked about mindset and about damaging labelling. Where do you see labelling – formal or informal – happening in your school? What do you think you can do to reduce the impact or get rid of the labelling students experience?

Mindset Teaching Guide: Practice 1

Review the three areas in Practice 1: Growth, Mindset and Culture. How do these three areas of focus apply to what you have been thinking about and working on in your classroom? Where are you in your progression along these paths of practice?

Lesson 2

In this lesson we talked about important maths concepts that can emerge from rich tasks – which of the concepts you teach are discovered by students through rich tasks? How could you bring in more rich tasks that allow students to meet important concepts as they are investigating and exploring?

Mindset Teaching Guide: Practice 2

Review one area in Practice 2: Nature of Mathematics, Open Tasks. Where are you in your progression along these paths of practice?

Lesson 3

What opportunities could you create in your classroom for students to be creative – and to make important connections by drawing, writing in words, modelling and building? Are there content areas that you think would most benefit from that? If so, what are they?
What can you do to help all students, including visual creative thinkers (and not just memorizers and calculators), be valued? What changes would help this?

Mindset Teaching Guide: Practice 2

Review two areas in Practice 2: Nature of Mathematics, Reasoning and Multiple Perspectives and Depth Over Speed. Where are you in your progression along these paths of practice?

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Lesson 4

We know that times of struggle and making mistakes are important for brain growth and learning but students often feel bad about these moments. What has caused them to be fearful of struggle? How do you react to student mistakes and moments of struggle? What could you do to value struggle and mistakes?

Mindset Teaching Guide: Practice 3

Review the three areas in Practice 3: Challenge & Struggle. Where are you in your progression along these paths of practice?

Lesson 5

Why do we want students discussing mathematical ideas? What challenges do you meet in organizing effective groupwork, and what ideas did you get from this lesson that may help?

Mindset Teaching Guide: Practice 4

Review the three areas in Practice 4: Connections & Collaboration. Where are you in your progression along these paths of practice?

Lesson 6

Do your students have the freedom to "run wild with ideas"? Are they curious about maths? What could you do to encourage more times of freedom and curiosity? What do you most want to work towards in moving your teaching forward on the freedom scale?

Mindset Teaching Guide: Practice 5

Review the three areas in Practice 5: Assessment. Where are you in your progression along these paths of practice? What path of change do you envision for assessment? What is most important to address first?

Reference

Anderson, R.K.; Boaler, J.; Dieckmann, J.A. (2018). Achieving Elusive Teacher Change through Challenging Myths about Learning: A Blended Approach. Educ. Sci. 8, no. 3: 98.

Boaler, J. (2015). Mathematical mindsets: Unleashing students' potential through creative math, inspiring messages and innovative teaching. John Wiley & Sons.

Curriculum to support more ideas.
https://www.youcubed.org/resource/k-8-curriculum/