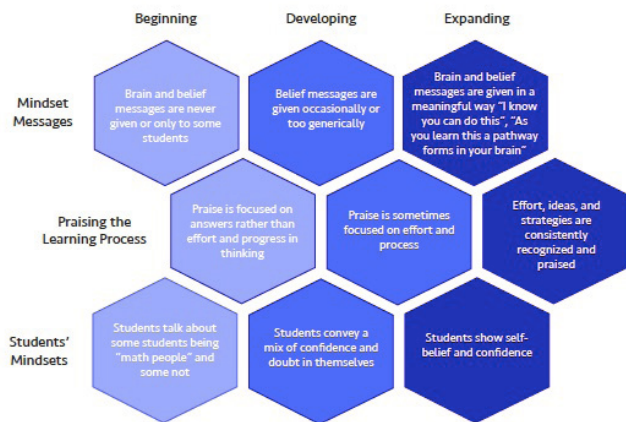


Mathematical Mindset Teaching Guide: User Advice

Jo Boaler and team
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Our Mathematical Mindset Guide has been designed to help teachers create or strengthen a growth mindset culture in their classrooms. This guide contains five Mathematical Mindset Practices. There are different stages described in each practice to help capture the journey of a mathematical mindset classroom and the evidence teachers may collect along the way for their own reflection or for discussion with colleagues. The guide has been designed for teachers to use in the process of self-reflection, or for coaches or administrators to use to encourage a mindset teaching culture. For further advice about ways to encourage growth mindset teaching practices, see Jo's book ([Mathematical Mindsets](#)) and the [youcubed](#) website.

Our goal for the guide is to support a mathematical mindset journey of learning and growth. Teachers can work with the guide individually or in collaboration with others. The guide is intended to be non-judgmental, non-evaluative, and iterative in nature. When using the guide consider the classroom community as a whole rather than the teacher alone. It is also important to note that while the goal of the guide is to communicate all aspects of a mathematical mindset classroom, it is not always possible to find evidence of all practices in one lesson. We encourage teachers, coaches, and administrators to use this guide, and the following reflection suggestions, iteratively over multiple lessons.



Below we describe how the guide can be used both for teacher reflection and also for teacher use with others: coaches, administrators and professional learning communities.

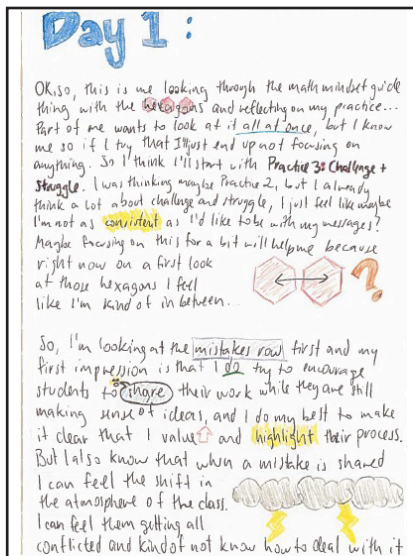
Teacher Reflection Ideas

Orient Yourself with the MM Guide: A place to start with this guide is to read through the five different practices and begin to notice what stands out to you. What questions does this raise for you? What do you wonder about your classroom? How does this apply to what you have been considering and working on already in your classes?

Understand Where You Are Now: You may begin by focusing only on one practice or you may decide to look at all five practices and reflect on one area from within each practice. Consider where you and your students are on their mathematical mindset journeys. Jot notes for yourself in whatever format makes sense to you: in the margins, in a journal, or in some other format (see our [example teacher journal](#)). It will be useful to have these notes to reference as you continue your journey through an iterative reflection process.

Consider Where You Want to Be: Looking through the guide, what is an area where you would like to focus your attention? Choose a specific practice or a few rows where you want to focus. It is important to pick only a few areas of growth at a time. Why did you choose this practice or these rows? What might ‘expanding’ look like for you and your students?

Move Toward your Goal: What are tangible and specific plans for your classroom learning community? When will you implement your plans? Who will be involved? You may want to focus on only one of your classes initially. Create a physical or digital space where you can collect evidence (lesson plans, student work, pictures, descriptions, student quotes, etc.) that highlights progress in each area. Who will you share your celebrations and questions with? Reflect on what you have tried. How have students responded? How might you adapt what you tried? What will you try next?



Example Teacher Journal

Teacher and Others (Coach/Administrator/PLC) Reflection

This guide can be used with colleagues, coaches, and administrators to make space for collaborative sense-making, and support the building of a mathematical mindset classroom. Whether you are an administrator, coach, or department leader focused on encouraging a classroom vision or goals, encouraging high levels of engagement from all students, or meeting grade level expectations by state or district measures this guide can help your conversations.

We recommend that all of these activities begin with a reflection as described in the Teacher Reflection section above.

Teacher and Professional Learning Communities

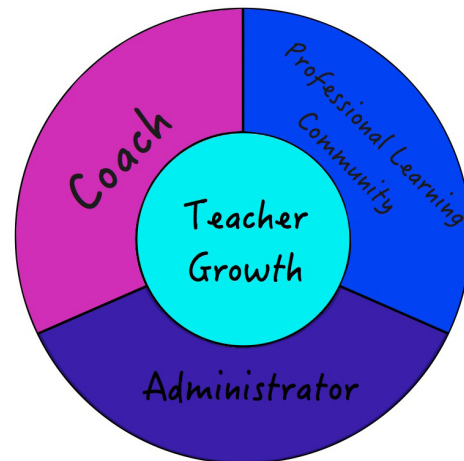
There are several collaboration activities you can engage in with teacher teams, here are a few ongoing activities to consider:

- **Identify a department goal:** Work with teams of teachers to create a vision and set of goals to shift towards a mathematical mindset classroom.
- **Develop a shared understanding of the guide:** Watch video examples of the expanding practices, discuss how the video is evidence of that practice and use it to understand the different stages.
- **Visit classrooms together:** Strong teacher teams spend time in each other's classrooms, they know what it feels like to learn mathematics at their school, the guide can help give space for that as well as common language for talking about what they notice and wonder about.
- **Collect department data:** As a team, when identifying a practice, brainstorm evidence to be collected in the classrooms. Possible data to be collected include teacher and student quotes, student-student interactions, teacher and student questions, number of times students speak, number of times teacher speaks, opportunities for groupwork, etc.

Teacher and Coach/Administrators

There are several activities coaches and administrators can engage with alongside individual teachers, here are a few ongoing activities to consider;

- **Observation cycle**
 - **Teacher Reflection and Goal Identification:** To begin, teachers should spend time reflecting based on the Teacher Reflection section above, this will help identify where the teacher would like to focus the coaching session.
 - **Coach Observation and Collection of Evidence:** After the teacher identifies a practice, or one area of a practice, the coach, or administrator, looks for positive evidence within a classroom observation. Multiple types of evidence such as student work, teacher talk, student talk, pacing, and discussion/collaboration structures can be used to help facilitate later discussions.
 - **Teacher and Coach/Administrator Debrief and Plan:** Finally, the teacher and coach/administrator will meet together to make connections between evidence and identified practices. Just like the self-assessment suggestions, the teacher and coach/administrator should make a plan through which the teacher can see growth over time on the specified practice.
- **Visit classrooms together:** Sometimes the best way to change practice is to spend time visiting other classrooms to get an idea of what is possible and to identify strategies to try. Before taking another teacher to someone's class have a conversation with the teacher being observed so that you and the teacher can be looking for evidence of the same practice.
- **Video student groups:** To capture evidence of students working together, set up a camera to record just one group of students identified by the teacher. Watch the video of the group together to make sense of the learning and interaction.



As always, we would love to hear your ideas and feedback on the ways you have used the guide and any refinements you make in your learning process. Share with us at #youcubed or @joboaler on twitter and in our [youcubed facebook group](#).