Productive Math Mindsets—Everywhere!

K20 Center, Shayna Pond, Brittany VanCleave, Alexandra Parsons, Amber Stokes, Teresa Lansford
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Essential Question(s)

How can I support productive mindsets in the mathematics classroom?

Summary

No more: "I'm not a math person!" "Growth mindset" is more than a buzz phrase—it shapes instructional choices. This session explores what growth mindset is and how it can support reluctant math learners. The math achievement gap—the math anxiety and frustration that comes with that—is very real for teachers and students. To help with that, the root cause of why students disengage from learning math needs to be examined and addressed. In this session, we will dig into incremental (growth) mindset, how that applies specifically to learning math, and structures and strategies to help grow more resilient math students—in person or virtually.

Learning Goals

- Analyze characteristics of a growth mindset in math classrooms.
- Identify growth mindset learning strategies in curriculum.

Attachments

- Math Mindsets—Productive Math Mindsets Everywhere.docx
- Math Mindsets—Productive Math Mindsets Everywhere.pdf
- Presenter Slides—Productive Math Mindsets Everywhere.pptx
- Student Profile Discussion Guide—Productive Math Mindsets Everywhere.docx
- Student Profile Discussion Guide—Productive Math Mindsets Everywhere.pdf

Materials

- Presenter Slides (attached)
- Student Profile Discussion Guide (attached)
- Handout (attached; one per participant)

Engage

Facilitator's Note

Make sure that all participants have a digital or physical copy of the attached **Math Mindsets** handout for use throughout the presentation.

Begin the presentation on **slide 4.** Introduce the book *Mathematical Mindsets* by Jo Boaler. Explain that the author writes about seven components, or "mindset messages," that help build a resilient growth mindset in math learning. Read the seven messages:

1. All students can learn math to the highest levels.
2. Mistakes are valuable.
3. Questions are important.
4. Math is about creativity and making sense.
5. Math is about connections and communicating.
6. Value depth over speed.
7. Math class is about learning, not performing.

Share with participants that they should keep these in mind for the next activity.

Explore

Go through **slides 5–8**, explaining that each slide shows an example of a student you might meet in your classes. For each slide:

1. Read the student's characteristics aloud.
2. Ask participants to picture one of their own students that meets this description.
3. Ask participants to think about what strategies they already use with this type of learner, and what mindset messages would help this student grow.
4. Use one of the optional integration methods below for participants to respond to questions 3 and 4.
5. Review the results.

Optional Facilitation Integrations

Tech Integration: To integrate technology, consider creating a Mentimeter to use for one or all four slides for participants to respond to question 3 and question 4 on their Math Mindsets handout. Refer to the **Student Profile Discussion Guide** for elaboration on responses that come in through Menti.com.

Strategy Integration: If you want to incorporate movement into this part of the lesson, consider using a modified version of the Four Corners instructional strategy for students to respond to question 3 and question 4 on their Math Mindset handout. Post the seven mindsets around the room. Have participants gather around the mindset they believe fits the first scenario. Then, have them discuss their choice with the other participants gathered around the same mindset as them. Repeat this for the following three scenarios.

Explain

Explain to participants that they will now dive deeper into each of the seven components of a productive math mindset.

Show the chart on **slide 9** to participants. For each mindset message, talk about how to reinforce that component in the classroom and any struggles that may arise for educators and students. Remind participants that they have this chart in their handout.

Extend

Display **slide 10.** Explain that below each mindset message, participants will find an activity or strategy that can support student growth.

Tell participants to pick one or two activities to read through while thinking of ways it supports the mindset message above it. Give participants 10 minutes to explore the resources. Then, have them share what they learned.

Facilitator's Note: Link Accessibility

Participants need to be able to access the links on this slide.

Start the 10-minute timer on **slide 11.**

Embedded video

https://youtube.com/watch?v=9gy-1Z2Sa-c

Evaluate

Once time is up, move to **slide 12**. Go over the reflection questions and have participants share their answers, thoughts, and opinions.

Reflection Questions:

- Based on your exploration of the activities, which one would you be most likely to incorporate into your classroom to support the growth mindset of your students?
- Why did you pick this activity?

Resources

- Boaler, J. (2022). *Mathematical mindsets: Unleashing students' potential through creative mathematics, inspiring messages and innovative teaching* (2nd ed.). Jossey-Bass.
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