Math Practice 2: Reason Abstractly and Quantitatively (Facilitation Guide)

Presenter:

Intended Use

This facilitation guide is intended to be used by educators when viewing the voice-over recording of Math Practice 2: Reason Abstractly and Quantitatively. State Support Team staff, Educational Service Center consultants, districts, and schools are encouraged to use this resource as part of a professional learning series that covers all 8 of the Standards for Mathematical Practice.

Viewing the Math Practice series can be done in any order. While viewing the series is encouraged in groups, it can also be done individually. To get the full benefit of the professional development series, educators should engage in the tasks and participate in local discussions on Mathematical Practice. Therefore, viewing the professional learning series in small groups is encouraged over individuals watching it in isolation.

Reproducing the Facilitation Guide

If making copies of any portion of this facilitation guide or accompanying PowerPoint presentation, please credit the Ohio Department of Education and Workforce.

During Facilitation: Discussion Questions

Pause the recording at the times indicated in the recording and have discussions in smaller groups, and then in the larger group.

DISCUSSION QUESTION

PowerPoint Slide 9: In-person Discussion or Virtual Waterfall Chat

- *Live Session Participants:* Engage in local discussions using the question, “What comes to your mind when you think about MP 2: Reason Abstractly and Quantitatively? “
- *Virtual Presentation Participants*: Allow time for individual reflection and writing. Have participants enter their response to the question. “What comes to your mind when you think about MP 2: Reason Abstractly and Quantitatively?”, in a waterfall chat. Provide time for the attendees to read through and discuss responses from the waterfall chat prior to moving on.

DISCUSSION QUESTIONS

PowerPoint Slides 19-28: Looking at Tasks That Promote MP 2

- Explore the instructional tasks aligned to the grade level(s) you teach or work with the most.
- As you explore the instructional tasks, discuss:
    - Where in the task are there opportunities for students to show their understanding of MP 2?
    - As a teacher, how would you highlight this with your instruction?

DISCUSSION QUESTIONS

PowerPoint Slide 29: Breakout Room Discussions Debrief

- Where in the task are there opportunities for students to show their understanding of MP 2?
- As a teacher, how would you highlight this with your instruction?

DISCUSSION QUESTIONS

PowerPoint Slides 35-39: Exploring Resources for MP 2

- Review the MP Progressions documents for your grade band.
    - Kindergarten - Grade 5
    - Grades 6-8
    - High School
- As you're reviewing the MP Progressions documents, discuss "What do you think Math Practice 2: *Reason Abstractly and Quantitatively* means or looks like at your grade level/course?"

Resource Links

Ohio Department of Education Documents

- Standards for Mathematical Practice
- Kindergarten - Grade 5
- Grades 6-8
- High School

University of Arizona Progressions

- Standards for Mathematical Practice: Commentary and Elaborations for K-5
- Standards for Mathematical Practice: Commentary and Elaborations for 6-8

Other National Resources

- Carnegie Learning SMP Teacher Rubric
- Illustrative Mathematics
- Implementing Standards for Mathematical Practice
- Inside Mathematics
- Rich Math Task Rubric
- Robert Kaplinsky: Math CCSS Math Practices Readable

References

Illustrative Mathematics. (2014, February 12). Standards for Mathematical Practice: Commentary and Elaborations for K–5. Tucson, AZ.

Illustrative Mathematics. (2014, May 6). Standards for Mathematical Practice: Commentary and Elaborations for 6–8. Tucson, AZ.

Koestler, C., Felton-Koestler, M. D., Bieda, K., & Otten, S. (2013). *Connecting the NCTM process standards and the CCSSM practices*. Reston, VA: The National Council of Teachers of Mathematics.

O'Connell, S., & SanGiovanni, J. (2013). *Putting the practices into action: Implementing the common core standards for mathematical practice, K-8*. Portsmouth, NH: Heinemann.

Conversation Notes: