

# Math Practice 8: Look for and Express Regularity in Repeated Reasoning (Facilitation Guide)

## Presenter:

## Intended Use

This facilitation guide is intended to be used by educators when viewing the presentation of Math Practice 8: Look for and Express Regularity in Repeated Reasoning in Repeated Reasoning. State Support Team staff, Educational Service Center consultants, districts, and schools are encouraged to use the resources as part of a professional learning series that covers all 8 of the Standards for Mathematical Practice.

The Math Practice sessions can be done in any order; however, it is beneficial to view Math Practice 7 before Math Practice 8. To get the full benefit of the professional learning series, educators should engage in the tasks and participate in local discussions on the Mathematical Practice. Therefore, viewing the professional learning series in small groups is encouraged over individuals watching it in isolation.

## Reproducing The Facilitation Guide

If you would like to make 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 at the times indicated in the recording and have discussions in smaller groups, and then in the larger group.

### DISCUSSION QUESTION

*PowerPoint Slide 16: 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 8: Look for and Express Regularity in Repeated Reasoning?”
- *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 8: Look for and Express Regularity in Repeated Reasoning?”, in a waterfall chat. Provide time for the attendees to read through and discuss responses from the waterfall chat prior to moving on.

### DISCUSSION QUESTION

*PowerPoint Slide 25: Kindergarten-Grade 2 Tasks*

- What is the same about the four problems below? What is different?
  - A. A student has 7 pieces of candy. He gives 3 pieces to a friend. How many pieces do he still have for himself?
  - B. A person with \$12 buys an item for \$8. How much money does the person have left?

- C. Packet A contains 9 pieces of candy. Packet B contains 5 pieces of candy. How many more pieces does A have than B?
- D. If one job pays \$11 and another pays \$7, how much more does the first job pay than the second?

### **DISCUSSION QUESTION**

*PowerPoint Slide 26: Grades 3-5 Tasks*

- Use mental math to solve the two Number Talk tasks.
- Discuss your mental math problem-solving strategies for both Number Talk Tasks with colleagues afterward.

### **DISCUSSION QUESTION**

*PowerPoint Slide 27: Grades 6-8 Tasks*

- Use mental math to solve the two Number Talk tasks.
- Discuss your mental math problem-solving strategies for both Number Talk Tasks with colleagues afterward.

### **DISCUSSION QUESTION**

*PowerPoint Slide 28: Grades 9-12 Tasks*

- Compare and contrast the mathematical proofs.

### **DISCUSSION QUESTION**

*PowerPoint Slide 30: Discussion Debrief*

- Where in your Breakout Room tasks did you observe opportunities for students to:
  - Make connections?
  - Identify shortcuts?
  - Recognize relevance?
  - Foster coherence?
  - Determine exclusions?
  - Exercise repeated reasoning?
  - Generalize?
  - Apply operations?

### **DISCUSSION QUESTION**

*PowerPoint Slides 31-36: Discussion*

- What do you think Math Practice 8: Look for and Express Regularity in Repeated Reasoning means or looks like at your grade level/course?
- How does your school or district support students' progression of repeated reasoning across grade levels and/or courses?

### **DISCUSSION QUESTION**

*PowerPoint Slides 37: Discussion Debrief*

- What do you think Math Practice 8: Look for and Express Regularity in Repeated Reasoning means or looks like at your grade level/course?
- How does your school or district support students' progression of repeated reasoning across grade levels and/or courses?

## Resources Links

### Ohio Department of Education Documents

- [Standards for Mathematical Practice](#)
- [Kindergarten-Grade 5](#)
- [Grades 6-8](#)
- [High School](#)

### Other Resources

- [Implementing Standards for Mathematical Practices](#) from Louisiana Believes
- [The Power of Making Mistakes in Learning Math”](#)
- [Implementing the Mathematical Practice Standards](#)
- [Mathematical Practice Standards](#) by Charles A. Dana Center
- [Standards for Mathematical Practice Rubric](#) by the Ohio Department of Education
- [Ohio Learning Standards](#)
- [Math Argumentation Rubric](#) (Draft)
- [What Isn't Mathematical Modeling?](#)

## References

Boston, M., Dillon, F., Smith, M., & Miller, S. (2017). *Taking Action Implementing Effective Mathematics Teaching Practices, Grades 9-12*. Reston, VA: The National Council of Teachers of Mathematics

Graham, K., Cuoco, A., & Zimmermann, G., (2010). *Focus on High School Mathematics: Reasoning and Sense Making*. Reston, VA: The National Council of Teachers of Mathematics

Gurl, Theresa J, et al. *Implementing the Common Core State Standards through Mathematical Problem Solving. High School*. Reston, Va, NCTM, 2012.

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., & San Giovanni, J. (2013). *Putting the practices into action: Implementing the common core standards for mathematical practice, K-8*. Portsmouth, NH: Heinemann.

## Conversation Notes: