

Mathematical Practice Virtual Professional Learning Series

Math Practice 8: Look for and Express Regularity in Repeated Reasoning

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Intended Use

This facilitation guide is intended to be used by educators when viewing the voice-over recording of Math Practice 8: Look for and Express Regularity in Repeated Reasoning in Repeated Reasoning. Districts and schools are encouraged to use the resource as part of a professional learning series that covers all 8 of the Standards for Mathematical Practice.

Viewing the recordings of 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

Please credit the Ohio Department of Education if making copies of any portion of this facilitation guide or accompanying PowerPoint presentation.

During Facilitation: Discussion Questions

For each discussion question(s), pause the recording and facilitate a group discussion.

Discussion Question

PowerPoint [Slide 14](#): Chat activity

1. What comes to your mind when you think about SMP 8: Look for and Express Regularity in Repeated Reasoning?

Discussion Question

PowerPoint [Slide 21](#): [Number of Diagonals](#) Video

1. Is there evidence of 4-Step Process in the Video? Support your response.

Discussion Questions

Discussion takes place in Breakout Rooms A composed of educators of mixed grade bends. The Task for Breakout Room promotes SMP 8 and can be accessed from Jamboard.

PowerPoint [Slide 23](#): Focusing on 4-Step Process, review the [Collatz Conjecture](#) Task.

1. What do you notice?
2. What do you wonder?
3. What is the hypothesis?
4. What Math Teaching Practices can help to develop SMP.8 skills?
5. What do you think of SMP.8 in this Task?
6. What do you think SMP.8 should look like at your grade level?

Discussion Question

PowerPoint [Slides 27-34](#): Focusing on SMP.8 and 4-Step Process, work on “How many Squares are in the Border of an “n x n” grid” Task. Use Chat to write your responses.

1. Can you apply the same process to the different size square border?
2. What do you wonder about the outcomes?
3. What evidence of SMP.8 and 4-Step Process did you notice?

Discussion Question

PowerPoint [Slide 35](#): Verification and Equivalence

1. Where do you see a connection between SMP.8 and SMP.7?

Discussion Questions

PowerPoint [Slide 39](#): [How Long is It from the First Bird to the Last](#) Video

1. What do you notice about students’ thinking?
2. How do you think students’ thinking proficient in SMP.8 should look like?

Discussion Questions

Discussion takes place in Breakout Rooms B composed of educators of mixed grade levels. Educators stay in the same Breakout Rooms. This time they discuss the Task focusing on Standards for Math Practice Progressions document. The Task promotes SMP.8 and can be accessed from Jamboard.

PowerPoint [Slide 52](#): Review the [Djinni’s Offer](#) Task.

1. What do you think of SMP.8 in this Task?
1. What do you think SMP.8 should look like at your grade level?
2. What do you think students’ SMP.8 skills in earlier grades and students’ SMP.8 skills in subsequent grades should be?
3. How can you help your students to strengthen their SMP.8 skills as they progress through the grades?

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

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

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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.

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