

Mathematics Content-Specific Considerations for Unfinished Learning & Best Practices

Vision

The central priority of acceleration is to ensure that all students in Rhode Island remain on track for college and career readiness in mathematics by moving forward with instruction on grade-level content, capitalizing on students' strengths and providing bridges to prior learning as needed. Accelerating student learning of grade-level content avoids the more typical practice of remediation in which students engage with large chunks of content from the previous grade prior to grade-level learning.

We recommend that this guidance be utilized in conjunction with an LEA's set of high-quality instructional materials to ensure that instruction is rigorous and grade-level appropriate.

Specific Considerations

- **Grade-/course-level** mathematics standards are the guide for instruction.
- Foundational grade-level content, content necessary to advance future learning, should be prioritized in order to provide time and space to accelerate grade-level learning.
- Identify prerequisite knowledge and skills relevant to supporting the understanding of grade-level content.
- Assessment should be used to determine **how** to bring students into a unit of grade-level instruction, not whether to bring them into it (Student Achievement Partners, 2020).
- Both in-person and remote instruction should incorporate the three elements of rigor embodied in the standards.
- Content instruction should continue to integrate the [Standards for Mathematical Practice](#) since they are closely related to social, emotional, and academic development (Student Achievement Partners, 2020), and draw on norms and best practices for remote instruction as circumstances require.

Best Practices

1. **Grade-/course-level** mathematics standards are the guide for instruction.
 - a. Educational experts in mathematics agree, teachers should focus on teaching their students grade-level content, so students remain on track for college and career readiness (NCTM, NCSM, 2020).
 - b. Educators at all grade levels should resist the temptation to begin the year by teaching/reteaching standards from a previous grade level.
2. Foundational grade-level content, content necessary to advance future learning, should be prioritized in order to accelerate grade-level learning.



- a. Consult RIDE’s Accelerating Student Learning guidance for [K-8](#) and [High School](#), as well as the guidance that may be provided by your [high quality mathematics curriculum](#).
 - b. For all grades and high school courses, consult the [guidance provided by Student Achievement Partners](#).
 - c. The notable courses are Algebra 1 (whether offered over the course of one or two years or in middle school) and Algebra 2 if it is offered the year immediately following Algebra 1. Teams of Algebra teachers should draw on their content expertise to come to consensus about what the content priorities should be. The [PSAT/SAT high school assessment targets](#) and the Student Achievement Partners’ Mathematics guidance will help inform what standards should not be eliminated from the prioritization, but by no means identify the scope of content that should be taught.
3. Identify prerequisite knowledge and skills relevant to supporting the understanding of grade-level content.
 - a. Educators in grades K-8 can use the [Coherence Map](#), the Rhode Island Mathematics Progressions, and/or their high-quality curriculum resources to assist in identifying relevant prerequisite knowledge and skills.
 - b. Content and course sequences in high school vary across the state. As such high school educators, and those middle school educators teaching Algebra or Geometry, will need to consider course sequencing and the breadth of standards within a prior course when addressing prerequisite skills. For example, a teacher of an Algebra 2 course will most likely need to think of standards from Algebra 1 as opposed to those from Geometry. Algebra 1 teachers should consider 8th grade standards that may or may not have been addressed due to COVID-19. Prerequisite skills for Geometry might link back to the standards for grade 7 or 8, so these students may only have typical areas of unfinished learning and not gaps attributable to COVID-19. Again, the [Coherence Map](#) is a helpful resource.
 4. Assessment should be used to determine **how** to bring students into a unit of grade-level instruction, not whether to bring them into it (Student Achievement Partners, 2020).
 - a. Formative assessment should be strategically and consistently used to gauge understanding of prerequisite knowledge and skills. Rather than an extensive assessment at the beginning of the year, assess students’ readiness for new content just prior to beginning a unit, and avoid the temptation to assess for prior knowledge unrelated to the content at hand. For some grade-level content, there are few if any prerequisite skills and therefore no need to pre-assess at all. (Student Achievement Partners, 2020).
 - b. Results from formative assessments should determine strengths and the need for just-in-time supports and scaffolding for grade-level content (NCTM, NCSM 2020).
 - c. The [Coherence Map](#) can be a useful tool when selecting formative assessment tasks.
 - d. Open-ended tasks and constructed responses can be useful for broadly assessing prerequisite knowledge and skills (NCTM, NCSM 2020).
 5. Both in-person and remote instruction should continue to incorporate the three elements of rigor embodied in the standards.
 - a. The standards call for a balance of procedural skill and fluency, conceptual understanding, and application, which should be preserved in either in-person or remote instruction. RIDE’s Accelerating Student Learning guidance for [K-8](#) and [High School](#) offer suggestions on how to structure a lesson aimed at accelerating learning while attending to the three aspects of rigor.



- b. Employing well-chosen, high demand tasks that connect to the students’ world provides them with opportunities to “engage deeply with grade-level mathematics by justifying claims, sharing their thinking and responding to the thinking of others” (Student Achievement Partners, 2020). The use of such tasks becomes of paramount importance during these times in order to avoid shallow engagement characterized by low cognitive demand, habits we wish to avoid instilling in our students. Some of the sources for high demand tasks include those found in the [Coherence Map](#), or [Illustrative Mathematics](#). Don’t overlook those provided in your own [high quality curriculum](#).
6. Content instruction should continue to integrate the [Standards for Mathematical Practice](#) since they are closely related to social, emotional, and academic development (Student Achievement Partners, 2020), and draw on norms and best practices for remote instruction as circumstances require.
 - a. Focus on integrating one or two relevant Standards for Mathematical Practice within a lesson to enhance content understanding.
 - b. Capitalize on the opportunities provided by the Standards for Mathematical Practice to build relationships, a sense of community, and student agency. For example, by providing norms for students to construct viable arguments and critique the reasoning of others, educators create an environment that allows students to work with and respect their peers, deepen their understanding, and increase their mathematical confidence.
 - c. In a distance learning environment, [establish “classroom” norms](#) and incorporate applicable structures and protocols from [RIDE’s best practices for remote learning guidance](#).

References

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