

The National Council of Teachers of Mathematics (NCTM) recognizes that as a classroom teacher, you face many uncertainties for the upcoming school year in your efforts to implement high-quality mathematics instruction for each and every student. Below are some recommendations for what mathematics education should look like for the next school year. NCTM also has recommendations for your building and district administrators as well as your mathematics leaders (coaches, supervisors, TOSAs, etc.).

No Standardized Testing for the 2020-2021 School Year

- **Equity:** With so many students having inadequate access to education during the pandemic, the results would highlight opportunity gaps rather than learning.
- **Time:** The time spent taking and preparing for standardized tests would be better spent teaching the concepts and building students' mathematical reasoning.
- **Finances:** Many districts are facing huge financial cuts. Money spent on standardized testing could be spent elsewhere to help avoid some painful cuts in services that directly benefit students.

General Recommendations

- Ensure a strong focus on high-quality mathematics instruction for each and every student, so that we do not fall back to de-facto tracking or a focus on memorization of skills/facts.
- Be intentional, sensitive, and comprehensive about addressing student concerns, questions, and reactions to the current state of events. Prior to having conversations with children, teachers need to have these deep conversations among staff, counselors, and other adults in the building.
- Advocate for yourself and your students.
- Practice good self-care and seek the supports you need, professionally and personally. Recognize that you need to establish boundaries when working remotely; allow yourself time off from work.
- Establish effective communication with families.
- Provide opportunities for students to play, explore, and appreciate the joy and beauty of mathematics.
- Use the Eight Effective Mathematics Teaching Practices as well as the Nine Equitable Mathematics Teaching Practices.
- Develop a culture of formative assessment and qualitative feedback and acknowledge the difficulty of doing so when in remote contexts.

Eight Effective Mathematics Teaching Practices

Establish mathematics goals to focus learning. Effective teaching of mathematics establishes clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions.

Implement tasks that promote reasoning and problem solving. Effective teaching of mathematics engages students in solving and discussing tasks that promote mathematical reasoning and problem solving and allow multiple entry points and varied solution strategies.

Use and connect mathematical representations. Effective teaching of mathematics engages students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving.

Facilitate meaningful mathematical discourse. Effective teaching of mathematics facilitates discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.

Pose purposeful questions. Effective teaching of mathematics uses purposeful questions to assess and advance students' reasoning and sense making about important mathematical ideas and relationships.

Build procedural fluency from conceptual understanding. Effective teaching of mathematics builds fluency with procedures on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve contextual and mathematical problems.

Support productive struggle in learning mathematics. Effective teaching of mathematics consistently provides students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships.

Elicit and use evidence of student thinking. Effective teaching of mathematics uses evidence of student thinking to assess progress toward mathematical understanding and to adjust instruction continually in ways that support and extend learning.

Planning and Preparation

- Learn to translate effective classroom teaching into online strategies—that is, how to do number talks, discourse, collaborative and cooperative group work.
- Learn to use technology to promote classroom discourse—that is, using breakout rooms, web-based applications, virtual manipulatives, strategies for asynchronous discussions.
- Be strategic about the physical arrangement of the learning environment and the availability of instructional tools (necessary vs. nonessential).
- In face-to-face instruction, create plans for working with and disinfecting shared tools—such as manipulatives, rulers, and so on.
- Consider alternatives such as virtual manipulatives (see list from myNCTM), objects available in most homes, easily made manipulatives, sketches of manipulatives.
- Be mindful of and actively undertake adjustments to support socialization in remote settings.

Considerations for Addressing Missed Content

- Collaborate with colleagues to ensure vertical articulation.
 - Attend to progressions of key concepts so that prerequisite skills are reviewed directly before building on them or integrated as appropriate rather than teaching missed content in isolation.
 - Seek out effective curricular resources to ensure effective learning progressions to help each and every student learn mathematics.
- Deeply engage students in doing mathematics rather than merely “covering” the content. “Coverage” is rarely learning. Students need to engage with mathematical processes and practices to build the mathematical knowledge, identity, and agency required for future success.
- Start teaching your grade level content and fill in the missed content, in context, along the way.
 - Resist the urge to rush through content; faster isn’t better.
 - Avoid grouping or sorting by perceived ability and coverage of content in the fourth quarter of the prior year. Avoid de facto tracking.
- Focus on creating positive mathematical identity at the beginning of the year to carry you through. Build on the strengths and experiences of the students without marginalizing or separating students.
- Help identify students for implementing effective tier 2 and tier 3 interventions to supplement rather than replace core mathematics instruction.

Resources

Access and Equity

- [High School Mathematics Lessons to Explore, Understand, and Respond to Social Injustice](#)
- [Catalyzing Change](#), including the book study
- [“Moving Forward: Mathematics Learning in the Era of COVID-19”](#)
- [The Impact of Identity in K–8 Mathematics Learning and Teaching: Rethinking Equity-Based Practices](#)
- [Teaching Mathematics for Social Justice: Conversations with Educators](#)

- [*Access and Equity: Promoting High-Quality Mathematics in Pre-K-Grade 2*](#)
- [*Access and Equity: Promoting High-Quality Mathematics in Grades 3–5*](#)
- [*Access and Equity: Promoting High-Quality Mathematics in Grades 6–8*](#)
- [*Access and Equity: Promoting High-Quality Mathematics in Grades 9–12*](#)

Teaching Practices

- [*Principles to Actions: Ensuring Mathematical Success for All*](#)
- [*Principles to Actions Toolkit*](#)
- [*Catalyzing Change*](#), including the book study
- [*Strengths-Based Teaching and Learning in Mathematics: 5 Teaching Turnarounds for Grades K–6*](#)
- [*Taking Action: Implementing Effective Mathematics Teaching Practices in K–Grade 5*](#)
- [*Taking Action: Implementing Effective Mathematics Teaching Practices in Grades 6–8*](#)
- [*Taking Action: Implementing Effective Mathematics Teaching Practices in Grades 9–12*](#)

Formative Assessment

- [*The Formative Five: Everyday Assessment Techniques for Every Math Classroom, Grades K–8*](#)
- [*Mathematics Formative Assessment: 75 Practical Strategies for Linking Assessment, Instruction, and Learning*](#)
- [*A Fresh Look at Formative Assessment in Mathematics Teaching*](#)

Webinars from 100 Days of Professional Learning

The 5 Practices Series

- April 8: “Orchestrating Productive Mathematics Discussions: Overcoming the Challenges (Grades 6–8)”
- April 9: “*The 5 Practices in Practice: Successfully Orchestrating Productive Mathematics Discussions in Your High School Classroom*”
- April 29: “*The 5 Practices in Practice: Taking on Classroom Challenges (Grades 3–5)*”

Catalyzing Change Series

- April 7: “Discover and Leverage Your Students’ Strengths through Powerful Asset-Based Instructional Design”
- April 23: “How We Move from Equality to Equity and Justice in Mathematics Teaching”
- May 4: “See It, Move It, Grasp It: Math with Virtual Manipulatives”
- May 26: “*Catalyzing Change* across All Grade Levels: Opportunities and Challenges”

- May 27: “*Catalyzing Change: An Overview of the 4 Key Recommendations for Early Childhood and Elementary Mathematics*”
- May 28: “*Catalyzing Change in Middle School Mathematics: Initiating Critical Conversations Centered on the 4 Key Recommendations*”
- June 9: “Building Agency, Fostering Identities, and Promoting Social Change via Social Justice Contexts”
- June 18: “Promote Equitable Teaching Practices AND Focus on Content and Connections—Don’t Settle for Only One!”
- June 22: “Supporting Students’ Voice in the F2F and Virtual Mathematics Classroom”
- July 27: “What Should Math Learning Look Like When We Get Back to School?”
- July 28: “Understanding the Mental Toll: Signals and Strategies for Supporting Our Teachers and Students”

Online Teaching

- “Making the Shift to Online Math Instruction: Supporting PreK–16 Educators in Online Pedagogy”
- “Taking Your Online Instruction to the Next Level: Exploring How Effective Instructional Strategies Work in Online Environments”