Delaware Department of Education

K–12 MATHEMATICS FRAMEWORK



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Visit the K-12 Mathematics Framework section of Digital DE for associated resources or email the Delaware Department of Education with questions at delaware.delivers@doe.k12.de.us.

LETTER FROM DR. HOLODICK



Our vision in Delaware is that *every student will leave school ready for college, career, and life*. This vision guides our work as a state and the Delaware Department of Education's (DDOE) investments in innovative practices that better equip Delaware educators to provide every student with high-quality instruction every day.

The Delaware K–12 Mathematics Framework is another investment we are making as a state to ensure we achieve our academic vision and that Delaware students leave our schools ready to engage successfully as adults. This framework defines what effective and equitable mathematics systems in Delaware should look like and will guide our decision-making, resource allocation and development, and guidance over the next several years. I would like to thank the steering committee, the external stakeholder group, and our staff within the DDOE for their leadership and invaluable feedback throughout this process.

The DDOE is committed to supporting school and school system leaders in implementing this framework. I look forward to meeting with leaders across the state to hear about their efforts to examine and revise their mathematics systems and structures to learn more about how the DDOE can further support all teachers in providing effective mathematics instruction and learn more about how the DDOE can further support them in achieving their mathematics instructional visions.

Sincerely,

Dr. Mark Holodick
Delaware Secretary of Education

DELAWARE'S MATHEMATICS VISION AND STAKEHOLDERS

Our instructional vision for students in Delaware is that *every student will leave school ready for success in college, career, and life*. For mathematics, the vision is that *all students can competently and flexibly use mathematical ideas to think critically and solve problems through various life experiences*.

For this vision to be achieved, school and system leaders must create effective and equitable mathematics systems in which:

- Students are curious and confident learners in all K–12 mathematics classrooms.
- Teachers provide students with daily opportunities to successfully engage with grade-level mathematical content in environments that invite, value, and respect the ideas of every learner.
- Educators have regular opportunities to collaborate with colleagues to learn about their content and students, build their capacity to use high-quality instructional materials and assessments with skill, and deliver effective grade-level instruction confidently.
- Educators, families, and communities leverage shared leadership and intentional collaboration to ensure that systems are effective, accessible, and equitable for every student.

This is hard work, and no individual educator, no matter how talented and committed, can single-handedly create and maintain these conditions. Establishing and sustaining effective mathematics systems is a joint effort by:

- **Teachers** who deliver or support Tier 1 mathematics instruction, including those who enable students' access to Tier 1 content through Tier 2 or 3 or other contexts such as multilingual supports.
- **School-based instructional leaders**, including coaches who ensure that teachers have the necessary tools, resources, and support to provide high-quality, Tier 1 mathematics instruction to all students.
- **School administrators** who are responsible for their school's governance and the execution of its academic vision.
- **School system instructional leaders** including content specialists, who execute their school system's academic vision and support school administrators and instructional leaders to meet teachers' needs.
- **School system administrators** who are responsible for the overall academic direction and governance of their school system.
- **Families and caregivers** who support student learning outside of school.
- **State education leaders** who are responsible for the overall academic direction and governance of the state system.
- **Governing entities** that create policies and statutes that govern schools and school systems.

MATHEMATICS FRAMEWORK AUDIENCE AND PURPOSE

Though realizing our vision for mathematics education in Delaware requires commitment from a wide variety of stakeholders, **this mathematics framework is meant for school and school system leaders responsible for the definition and execution of local instructional visions and governance**. These local leaders include school-based lead teachers and coaches; principals and assistant principals; school system directors, supervisors, and specialists; and superintendents and assistant superintendents.

The mathematics framework is designed to support school and school system leaders to:

- Articulate a clear, shared vision for mathematics instruction in their communities.
- Set expectations and establish efficient and equitable structures aligned with that vision.
- Cultivate growth in students, teachers, and other leaders.
- Facilitate communication, collaboration, and engagement among internal and external stakeholders.
- Strategically allocate support and resources to achieve the vision.

The mathematics framework is also designed as a touchstone for DDOE work to support mathematics instruction. Guided by the framework's priorities and components, the DDOE will:

- Review current policies and statutes affecting mathematics instruction in Delaware and strengthen alignment where needed, engaging the State Board of Education or legislation as appropriate.
- Cultivate communication and collaboration between the colleges and universities that prepare educators and the schools and districts that employ them, strengthening coherence and mitigating recruitment and retention challenges.
- Seek opportunities to ensure that Delaware schools and school systems have the support they need to implement the framework's components.
- Create additional guidance, tools, and opportunities to support the statewide implementation of the framework's components.

Finally, in the long term and the broadest sense, this framework can:

- Strengthen the mathematical identities and knowledge of adults and students, cultivating mathematical curiosity and confidence among Delaware's many educators and communities.
- Tighten alignment and establish shared languages across regions of Delaware's educational landscape, such as educator preparation, community advocacy, and professional learning.
- Eliminate historical patterns of inequality in mathematics education such that Delaware students of all backgrounds and identities can excel within and beyond their K–12 experiences.

MATHEMATICS FRAMEWORK LEADERSHIP

DELAWARE DEPARTMENT OF EDUCATION

The development of the Delaware K–12 Mathematics Framework was led by the Delaware Department of Education (DDOE) Office of Curriculum, Instruction, and Professional Development (CIPD). The Office of CIPD engaged other offices within the DDOE to ensure that all those whose work the mathematics framework would affect had the opportunity to contribute and provide feedback on its content.

DDOE Workgroup

Name	Office	Title
Dr. Monica Gant	Academic Support	Associate Secretary: Academic Support Team
Katia Foret	Assessment	Education Associate: Office of Assessment
Kathy Kelly	Curriculum, Instruction, and Professional Development	Director: Curriculum, Instruction, and Professional Development
Cary Knight	Curriculum, Instruction, and Professional Development	Education Specialist: Multilingual Learners
Nicole Marshall	Curriculum, Instruction, and Professional Development	Education Associate: Secondary Mathematics
Renee Parsley	Curriculum, Instruction, and Professional Development	Education Associate: Elementary/Middle Level Mathematics
Maria Rodriguez	Curriculum, Instruction, and Professional Development	Education Associate: Multilingual Learners
Angela Socorso	Educator Effectiveness	Education Associate: Educator Excellence
Deanne Wimbish	Equity and Innovation	Education Associate: School Improvement
Lauren Irwin	Exceptional Children Resources	Education Associate: Academics & General Supervision IDEA
Joyce Leatherbury	Exceptional Children Resources	Education Associate: General Supervision IDEA
Jalee Pernol	Exceptional Children Resources	Education Associate: General Supervision IDEA & SPDG

MATHEMATICS FRAMEWORK STEERING COMMITTEE

To ensure that the Delaware K–12 Mathematics Framework reflected the needs of schools and school systems across the state, the DDOE enlisted the support of a steering committee of Delaware educators and community members invested in the state's mathematics vision. Members of the steering committee were carefully selected to ensure a balanced representation of regions, organizations, roles, backgrounds, and perspectives. The steering committee met virtually six times over the span of eight months in 2022. It was tasked with identifying:

- The mathematical needs of Delaware's students, specific student populations, educators, families, and school system staff.
- The actions required to create equitable and effective instructional systems capable of meeting the identified mathematical needs.

Steering Committee Members

Organization	Name	Role
Appoquinimink School District: Cedar Lane Elementary School	Jerod Phillips	Principal
Appoquinimink School District: Townsend Elementary School	Brandi Luloff	Instructional Coach
Brandywine School District	Michelle Hawley	Supervisor of Mathematics, Science and Gifted Education Services
Caesar Rodney School District	Sarah Potter	Mathematics Instructional Resource Teacher
Cape Henlopen School District	Jill Wittman	PK-6 District Mathematics Specialist
Capital School District	Kiana Gray[1]	School-based Instructional Coach
Capital School District	Gene Montano	Director of Secondary Education
Christina School District	Leslee Love	School-based Mathematics Coach
Colonial School District	Crystal Lancour	Supervisor of Curriculum and Instruction (Mathematics), District Equity Team
Colonial School District	Katrina Lindo[2]	Secondary Mathematics Instructional Coach
Delaware Department of Education	Katia Foret	Assessment
Delaware Department of Education	Joyce Leatherbury	Exceptional Children Resources
Delaware Department of Education	Maria Rodriguez	Multilingual Learners
Delaware Department of Education	Angela Socorso	Educator Excellence
Delaware Math Coalition	Jamila Riser	Executive Director
Indian River School District	Jilian Whaley	District Mathematics Specialist

1 At the time of publication: Associate Principal, Capital School District
2 At the time of publication: Mathematics Teacher, Newark Charter Senior High School

Steering Committee Members

Organization	Name	Role
Indian River School District: East Millsboro Elementary School	Jason Orlen	Mathematics Interventionist
Las Américas ASPIRA Academy	Michael Reitemeyer	Supervisor of Mathematics
Laurel School District	Ashley Giska	Superintendent of Teaching and Learning
Laurel School District	Becky Peterson	Middle School Mathematics Teacher
Milford School District: Milford Central Academy	Brandy Cooper[3]	Associate Principal
Red Clay Consolidated School District	Michelle Northshield	Secondary Mathematics Specialist
Seaford School District	Kelly Carvajal Hageman	Director of Curriculum and Instruction
Sussex Technical High School	Jean Johnson	High School Mathematics Teacher
University of Delaware	Faith Muirhead[4]	Senior Associate Director, Professional Development Center for Educators

MATHEMATICS FRAMEWORK STAKEHOLDER GROUP

The DDOE also obtained feedback from additional stakeholders at key points in the framework's development process. These stakeholders represented:

- The Governor's office
- State House and Senate education committees
- Delaware State Board of Education
- Delaware School Boards Association
- Delaware State Education Association
- Delaware Association of School Administrators
- Delaware Academy of School Leadership
- Delaware Foundation for Science and Mathematics Education
- Educator preparation programs at institutions of higher education
- Rodel

3 At the time of publication: Principal, Lake Forest School District
4 At the time of publication: Director, School Success Center, University of Delaware

HOW TO USE THE MATHEMATICS FRAMEWORK

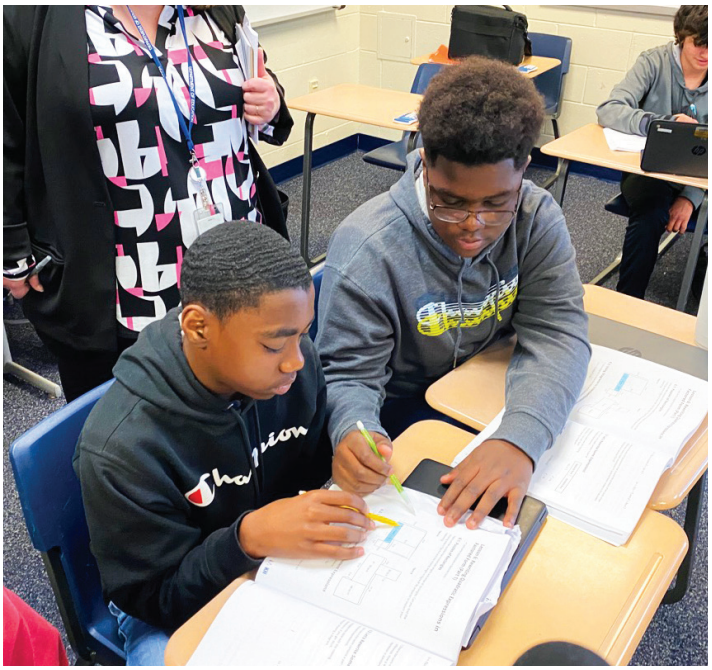
This framework identifies five key—and interconnected—components of effective mathematics systems. For each of the five components, the framework provides:

- **An overview** briefly describing the component and its role in an effective system.
- **Core actions** school and system leaders must take to implement the component.
- **Planning considerations** to guide leaders in assessing and strengthening their systems.
- **Aligned resources** to support leaders in executing core actions
- **Critical connections** to core actions in the framework's other components

The resources and critical connections included within each component are not meant to be an all-inclusive list but rather serve as an initial set of resources for school and school system leaders to consider and illuminate important connections to other components within the framework. Full development of each component will require an ongoing commitment to collaboration and learning about mathematics systems and teaching, including

- Creating intentional structures and communications to support internal planning and collaboration;
- Capitalizing on internal and external mathematics content and curriculum experts; and
- Engaging with state, regional, and national mathematics organizations and communities to continue the learning process.

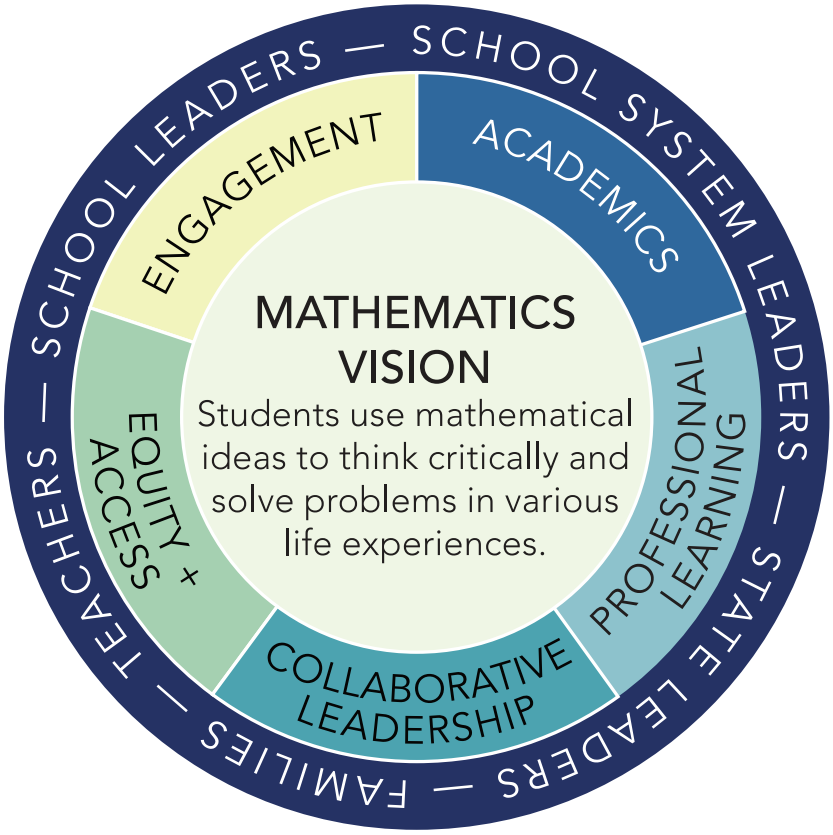
To understand and most effectively implement the framework, users should begin by reading through all five components in full. School and school system leaders and their teams can use the framework in its entirety to reflect on current strengths and opportunities for improvement in their systems, facilitate discussion among internal and external stakeholders, identify priorities for further inquiry and problem-solving, and create strategic plans to achieve their vision for mathematics instruction.



After reading the framework and understanding its "big picture," users may identify certain components or core actions as local priorities for implementation. A separate workbook presents the framework's content in an expanded, downloadable format with space for notes to facilitate more in-depth planning. Like the framework, the workbook highlights critical connections between components and core actions to encourage a coherent, integrated approach.

COMPONENTS OF AN EFFECTIVE MATHEMATICS SYSTEM

1. **Academics:** In an effective mathematics system, all teachers make skillful use of high-quality materials to ensure that all students have meaningful access to grade-appropriate, culturally responsive Tier 1 mathematics instruction.
2. **High-Quality Professional Learning:** In an effective mathematics system, all educators engage in high-quality professional learning that directly builds their capacities to ensure excellent, equitable mathematics instruction within their roles and contexts.
3. **Collaborative Leadership:** In an effective mathematics system, a shared vision and sense of responsibility bring educators together in service of student success, while effective communication and collaboration ensure collective efficacy.
4. **Culture of Access and Equity:** In an effective mathematics system, all resources–including time, knowledge, materials, talent, expectations, and learning opportunities are equitably allocated to ensure that every adult and student can succeed.
5. **Community and Family Engagement:** In an effective mathematics system, families and other stakeholders, including educator preparation programs, are active and equitable partners in executing the state's mathematics vision.



ACADEMICS

Consistent and effective mathematics teaching and learning is only possible when schools and school systems have:

- A strong commitment to ensuring equitable outcomes for all students.
- High-quality instructional materials and a strong implementation plan.
- Appropriate tools and technology.
- Meaningful and aligned assessments.
- A culture of professionalism[5].

Delaware defines high-quality instructional materials as those EdReports has designated as meeting its expectations (green). EdReports reviews materials for alignment to college- and career-ready standards, instructional shifts, and usability, including quality of support for teachers and students. Not all high-quality options are the same, and system leaders are responsible for choosing the materials that best suit their local context and mathematics vision. They are also responsible for providing initial training and ongoing support for educators as they implement those materials and remain responsive to students' unique needs, strengths, experiences, and identities. Thus, high-quality materials are necessary but insufficient to enact this framework fully.

Additionally, this framework requires education leaders to view academics through a multi-tiered system of support (MTSS) and culturally responsive education (CRE) and recognize that mathematics programs have historically only benefited some groups of students. Combining high-quality instructional materials, content and curriculum-specific professional learning, appropriate assessment[6], and equitable course access is foundational to a successful mathematics program.



5 National Council of Teachers of Mathematics's (NCTM) Principles to Action

6 Defined by NCTM in Assessment Standards for School Mathematics as "the process of gathering evidence about a student's knowledge of, ability to use, and disposition toward mathematics and of making inferences from that evidence for a variety of purposes."

ACADEMICS

Core Actions	Planning Considerations	Resources and Connections
A1. Materials Adopt high-quality mathematics materials that every educator can use as a foundation for realizing a system-wide mathematics instructional vision.	a. Do we have high-quality Tier 1 mathematics materials at all grade levels and courses aligned to our system-wide mathematics instructional vision? Are there locally documented processes in place to ensure the quality of instructional materials for all courses? b. Do courses following Algebra II/Integrated Mathematics 3 address content beyond the DE Mathematics Standards (CCSS) and progress mathematical learning toward success in post-secondary mathematics and career mathematics needs? Do we have instructional materials for these courses that support educators' efforts to realize our instructional vision? c. How can we facilitate an efficient and inclusive process to select new materials aligned with state guidance, local needs, and priorities?	• Phase I of Instruction Partners' Curriculum Support Guide focuses on materials selection. Use it with EdReports reviews and resources, the EQuIP rubric, and/or Delaware's Materials Indicators for Multilingual Learners to choose the right materials to serve your local vision and community. • For more on developing a mathematics vision to guide your materials selection process, see core action C1 under Collaborative Leadership.
A2. Access Provide all students, including students with exceptionalities and multilingual students, with high-quality, standards-aligned, Tier 1 instruction with appropriate scaffolds and support.	a. How are we ensuring teachers are using "just-in-time" scaffolds only as needed to access grade-appropriate learning so that students with unfinished learning have access to grade-level content and rigor within the Tier 1 setting? Are we fully utilizing the supports and resources from our adopted instructional materials?	• Deeply understand the intentional design of your adopted instructional materials, including its structures, strategies, and resources to support all learners. Consult their publisher when needed. • Find information on your materials' strengths and areas requiring additional support for teachers in the Usability (Gateway 3) section of EdReports reviews.

ACADEMICS

Core Actions	Planning Considerations	Resources and Connections
A2. Access *(continued)* Provide all students, including students with exceptionalities and multilingual students, with high-quality, standards-aligned, Tier 1 instruction with appropriate scaffolds and support.	b. How are we ensuring that students with exceptionalities have full access to Tier 1 mathematics content and rigor with curriculum-embedded supports provided in consultation with exceptional education experts? c. How are we ensuring that multilingual students have full access to Tier 1 mathematics content and rigor with curriculum-embedded supports provided in consultation with language acquisition experts? d. How are our teachers ensuring that all students have frequent opportunities to draw upon their strengths, knowledge, and skills to access and demonstrate learning of grade-appropriate Tier 1 mathematics content? e. How are we ensuring that teachers use the supports embedded in the instructional materials to ensure our students master grade-level content within Tier 1 before considering additional support? How are Tier 2 and Tier 3 supports intentionally planned to coordinate with and provide success in Tier 1 learning?	• Use Delaware's MTSS Framework and Implementation Tools to guide decision-making related to tiered supports. • Use the English Learner Success Forum's How-to Guide for School Instructional Leaders and Administrators to assess and supplement your Tier 1 materials' support for multilingual learners. • Use the position paper Positioning Multilingual Learners for Success in Mathematics to guide discussions and decisions related to this core action.

ACADEMICS

Core Actions	Planning Considerations	Resources and Connections
A3. Environment Create safe learning environments that affirm all students' mathematical and cultural identities and connect clearly to all students' daily lives.	a. Does every student have regular opportunities to engage in an environment where they feel safe to ask questions, make mistakes, and share their mathematical ideas, which supports their feelings of competence and enjoyment in learning mathematics? b. How are we ensuring that teachers provide opportunities for students' cultural identities to be affirmed in their mathematical learning? Are teachers providing students with opportunities to develop an understanding of and respect for each other's cultures, including how a person's culture impacts both individual and collective understanding and application of mathematics? c. How are students regularly experiencing mathematical inquiries to consider and address societal or social challenges? Do these inquiries invite all students to share their perspectives?	• Use narrative evidence from several unscored indicators in EdReports reviews to assess your materials' diversity of representation (3r) and connections to students' home languages (3s) and cultures (3t). • Use Delaware's culturally responsive education implementation resources to support productive and healthy classroom environments for student learning. • Use Delaware's Social and Emotional Learning (SEL) Competencies and Toolkit for SEL in the Mathematics Classroom to support social and emotional learning through mathematical content and student mathematics practices. • Use the Charles T. Dana Center's evaluation tool to assess and use your mathematics materials' supports for social and emotional learning through mathematical content. • Ground reflection, discussion, and decision-making in the text Believing Our Students Can Do Mathematics: Identity, Agency, and Authority.

Core Actions	Planning Considerations	Resources and Connections
A4. Assessment Implement a balanced assessment system that includes curriculum-based assessment measures, screeners, and diagnostics, and leverage the data to support teachers in recognizing student knowledge and understanding, diagnosing student needs and unfinished learning, and providing the necessary scaffolds to ensure all students have access to grade-level mathematics instruction.	a. How do we ensure that the assessments included in our adopted instructional materials are key components of our system's overall assessment plan in addition to the assessment practices required within MTSS? b. How are we ensuring that every assessment administered at the school or system level has a clear and specific purpose and that we are eliminating assessment redundancies? i. Are the data from the assessment used in meaningful ways to impact instruction and aligned with the assessment's purpose and design? ii. Can the assessment be eliminated or more effectively utilized to support student learning and instruction? c. How are we supporting teachers in using formal and informal assessment measures, strategies, tools, and data (including student work) to make instructional decisions and interpret information from each source in valid and equitable ways? d. Can teachers use student work and assessment data analysis to identify student understandings, misconceptions, and gaps and use their findings to make evidence-based decisions about the scaffolds they use with each student?	• Use Key Action II.2 in Instruction Partners' Curriculum Support Guide to facilitate conversation and planning related to assessment systems. • Customize and use National Center for Intensive Intervention tools for designing effective MTSS data and assessment systems.

Core Actions	Planning Considerations	Resources and Connections
A4. Assessment *(continued)* Implement a balanced assessment system that includes curriculum-based assessment measures, screeners, and diagnostics, and leverage the data to support teachers in recognizing student knowledge and understanding, diagnosing student needs and unfinished learning, and providing the necessary scaffolds to ensure all students have access to grade-level mathematics instruction.	e. What system do we have in place to screen students and monitor their progress to establish and maintain a trajectory for success in grade-level mathematics? f. How are we analyzing and acting on our assessment data in ways that disrupt historical patterns of inequitable opportunity and success in mathematics?	



HIGH-QUALITY PROFESSIONAL LEARNING

Professional learning for all educators, including teachers and administrators, is necessary to create effective and equitable mathematics systems. Effective professional learning consists of coaching, workshops, collaboration, and consultation and requires the commitment and collaboration of school system administrators, specialists, building administrators, coaches, other school leaders, and teachers. Leadership teams must build a culture of learning and growth and create and implement one cohesive professional learning plan to build teachers' content knowledge and pedagogy within the context of their instructional materials and administrators' capacities to support the skillful implementation of the mathematics curriculum. Effective professional learning plans should also consist of dedicated time for collaborative planning that allows educators to digest and practice lessons and units, review student data and work samples, and engage in coaching and inquiry cycles to support every teacher in their own professional growth goals.

The DDOE defines high-quality professional learning (HQPL) as:



SPECIFIC:

It deepens educators' understanding of what to teach and how to teach it.



RELEVANT:

It's connected to the instructional materials teachers are expected to use in their classrooms rather than isolated teaching strategies that are unrelated to what students are learning. HQPL should also be relevant to a teacher's subject area and grade-level as much as possible.



EQUITABLE:

It helps teachers make smart, deliberate adaptations to their instructional materials so that all students have the appropriate support they need and also takes into consideration educators' own learning needs and provides them with the appropriate support.



ONGOING:

It's provided regularly and often throughout the year to ensure educators receive the support they deserve.



ENGAGING:

It creates an engaging space in which educators can ask questions, collaboratively develop and discuss ideas, practice new skills, receive feedback from others, and reflect on their learning.

HIGH-QUALITY PROFESSIONAL LEARNING

Core Actions	Planning Considerations	Resources and Connections
B1. Plan Develop a system-level plan for high-quality professional learning to address the varying needs and experience levels of teachers, coaches, specialists, and administrators and to support a culture of learning and growth that is expected and essential for all educators.	a. Which staff have the leadership, content, and curricular expertise to lead a representative group of educators in building our high-quality professional learning plan? How will we acquire the missing expertise to support the plan's development if internal staff lack the planning, leadership, and content skills to build the plan? b. Are the intended outcomes for all professional learning opportunities (e.g., workshops, PLCs, coaching, etc.) addressing educators' needs and in alignment with our instructional materials? c. Is our professional learning tailored by role (e.g., teacher, interventionist, principal) and by individual needs while cultivating a common vision, language, and set of expectations for adults and students throughout the system? d. How can we ensure that teachers and leaders receive regular professional learning through various formats (e.g., workshops, collaboration, coaching, PLCs, and consultation) that are responsive to their ongoing instructional needs? e. Are all professional learning opportunities for educators aligned to the system-level professional learning plan and mathematics vision and continually monitored for effectiveness?	• Use the Reimagining Professional Learning Grants application as a resource to build out your professional learning plan. (Note: this application is updated annually.) • Use the Standards for Professional Learning to design, implement, and sustain high-quality professional learning. • Consult Building Better PL: How to Strengthen Teacher Learning for evidence on what features, formats, and content make professional learning most effective. • Explore how professional learning anchored in high-quality curriculum materials can allow teachers to experience instruction as their students will, change instructional practices, and lead to better student outcomes with The Elements: Transforming Teaching through Curriculum-Based Professional Learning. • Use Phase II of Instruction Partners' Curriculum Support Guide to make a plan for ensuring that all educators have the ongoing support they need. • See Core Action 2 under Collaborative Leadership for more on establishing clear roles and responsibilities in an instructional system. • Find high-quality partners to support each step of your plan with the Delaware Vendor Guide.

Core Actions	Planning Considerations	Resources and Connections
B1. Plan *(continued)* Develop a system-level plan for high-quality professional learning to address the varying needs and experience levels of teachers, coaches, specialists, and administrators and to support a culture of learning and growth that is expected and essential for all educators.	f. Do we have coaches or content specialists capable of engaging in curriculum-focused inquiry cycles with teachers?	
B2. Materials Implementation Provide system and school administrators, teachers, coaches, and specialists with the initial and ongoing professional learning needed to understand how their high-quality materials, including their embedded supports and strategies, are designed to provide Tier 1 mathematics instruction to all students and to identify and address individual students' learning needs.	a. Have we created and communicated a year-long scope and sequence for training and coaching all educators across the system, with a plan for annual revision? b. How are we ensuring that all educators, including school leaders, coaches, content specialists, and teachers of students with disabilities and multilingual learners, have initial training on new mathematics materials that help them understand their approach, design, and logistical components?	• Filter by curriculum in the Delaware Vendor Guide to find a partner with expertise in your instructional materials. • Use Key Action II.5 in Instruction Partners' Curriculum Support Guide to make a plan for initial training of all educators and leaders. • For more on addressing the needs of incoming and novice teachers, see core action 5 under Culture of Access and Equity and core action 4 under Community and Family Engagement. • For more on developing effective professional learning plans, confirm the roles and responsibilities of the mathematics professional learning team and capitalize on the content leaders see core actions 2 and 3 under Collaborative Leadership.

Core Actions	Planning Considerations	Resources and Connections
B2. Materials Implementation *(continued)* Provide system and school administrators, teachers, coaches, and specialists with the initial and ongoing professional learning needed to understand how their high-quality materials, including their embedded supports and strategies, are designed to provide Tier 1 mathematics instruction to all students and to identify and address individual students' learning needs.	c. How are we ensuring that all educators, including school leaders, coaches, and content specialists, have frequent and ongoing learning opportunities focused on the skillful implementation of the system's mathematics materials in alignment with its instructional vision and students' needs? d. Do we have the internal capacity and content and curricular expertise to provide teachers, coaches, specialists, and school leaders with the initial training and ongoing professional learning needed to effectively support the ongoing implementation of mathematics materials? e. How are we ensuring that teachers and coaches are provided with the curriculum-based training needed to use the embedded supports and strategies in the mathematics materials to provide all students with access to Tier 1 instruction?	
B3. School Leader Supports Provide school leaders with the professional learning needed to understand and create structures that effectively support the use of high-quality mathematics materials and the delivery of Tier 1 instruction.	a. Do building administrators understand how the design, approach, and structure of their mathematics materials will help their schools achieve their instructional vision and how to effectively observe instruction and give teachers specific and actionable feedback on their practice in alignment with their instructional materials?	• Explore Instruction Partners' Professional Learning Conditions and Practices for guidance on effective observation and feedback. • Leverage local content expertise, as described in core action 3 under Collaborative Leadership, to help leaders understand and support mathematics instruction.

HIGH-QUALITY PROFESSIONAL LEARNING

Core Actions	Planning Considerations	Resources and Connections
B3. School Leader Supports *(continued)* Provide school leaders with the professional learning needed to understand and create structures that effectively support the use of high-quality mathematics materials and the delivery of Tier 1 instruction.	b. Are building administrators equipped to assess and amend current structures and policies that support instruction (e.g., school schedules, PLC schedules, collaborative planning time, professional learning plans, staffing models) in consultation with their content and curriculum experts to determine what they should start, stop, or keep to support mathematics materials? c. Do we have structures in place that regularly require school leaders, including content and curriculum experts, to collaboratively solve problems and share best practices on curriculum implementation and the delivery of Tier 1 mathematics instruction? d. Do we have the internal capacity and expertise to provide school leaders with the initial training and ongoing coaching to effectively support the implementation of mathematics materials?	• Find high-quality external partners to supplement and build local capacity using the Delaware Vendor Guide.
B4. Teacher Collaboration Provide all teachers responsible for teaching or supporting mathematics with time for collaborative planning and data analysis.	a. Do content teachers, multilingual learner teachers, and exceptional education teachers collaborate and regularly practice cycles of inquiry grounded in high-quality materials and focused on preparing and delivering instruction, analyzing diverse student experiences and outcomes, and making improvements to instruction based on findings?	• Explore Instruction Partners' Professional Learning Conditions and Practices for guidance on supporting and shaping teacher collaboration. • Find high-quality external partners to facilitate collaboration centered on your instructional materials using the Delaware Vendor Guide.

HIGH-QUALITY PROFESSIONAL LEARNING

Core Actions	Planning Considerations	Resources and Connections
B4. Teacher Collaboration *(continued)* Provide all teachers responsible for teaching or supporting mathematics with time for collaborative planning and data analysis.	b. Do content teachers, multilingual learner teachers, and exceptional education teachers collaborate to annotate and understand the provided lessons and their expectations for students, rather than designing their own lessons? c. How are we ensuring that coaches and/or specialists participate in cycles of inquiry alongside teachers so that they can appropriately tailor individualized coaching support?	• See core actions 2 and 3 under Collaborative Leadership for more on defining roles and responsibilities for coaches and other key collaborators. • See core action 2 under Culture of Access and Equity for more on ensuring that systems and structures align to priorities for educator learning and collaboration.
B5. Leader Collaboration Provide all leaders responsible for supporting mathematics instruction with time for collaboration and data analysis.	a. Do system administrators, building administrators, specialists, and coaches regularly collaborate to support teachers with high-quality mathematics materials? b. Do system administrators, building administrators, specialists, and coaches collaborate and regularly practice cycles of inquiry grounded in supporting teachers with high-quality mathematics materials?	• See core action 2 under Collaborative Leadership for more on defining leadership roles and responsibilities. • See core action 4 under Collaborative Leadership for more on facilitating collaboration among leaders throughout a system. • See the Resources section of Instruction Partners' Curriculum Support Guide for many practical tools, such as sample meeting agendas and communication templates, to support collaboration.

COLLABORATIVE LEADERSHIP

Effective mathematics programs work toward one mathematics instructional vision and develop and maintain a strong culture of learning, professionalism, and collaboration. For this culture to exist, schools and school systems must identify the roles and responsibilities of mathematics leaders, recognize who serves in these necessary roles, and communicate them to all stakeholders. Additionally, there must be intentional communication and collaboration plans to ensure cohesion across work streams in alignment with the system's instructional vision for mathematics. Within a school system and a building, establishing this culture of learning, professionalism, and collaboration will serve as essential support for school leaders, new and veteran teachers, students, and families.

COLLABORATIVE LEADERSHIP

Core Actions	Planning Considerations	Resources and Connections
C1. Shared Vision Regularly communicate to all internal stakeholders the school system's vision for mathematics and the role each stakeholder plays in achieving that vision.	a. Do we have a clear vision for what students should know and experience in mathematics? b. Who are our stakeholders? Who is impacted by our vision and how? c. Were stakeholders, including students, included in developing the vision? Are they bought into the vision, and can they articulate the vision to others? d. How do we communicate our vision to all stakeholders and explicate their roles in achieving it?	• Use the resources in Step I.2.B of Instruction Partners' Curriculum Support Guide to establish a clear, shared, content-specific vision. • See the Introduction to the Mathematics Framework for a list of stakeholders to consider.



COLLABORATIVE LEADERSHIP

Core Actions	Planning Considerations	Resources and Connections
C2. Roles and Responsibilities Establish clear roles and responsibilities for everyone responsible for mathematics programs, professional learning, and instruction, including administrators, content specialists, coaches, mathematics teachers, teachers and leaders focused on students with disabilities, and teachers and leaders focused on multilingual learners.	a. How are we communicating clear definitions for everyone responsible for delivering or supporting mathematics instruction at the school and system levels? b. How are we utilizing content experts such as content specialists and coaches in leadership planning at both the school and system levels? c. How are we communicating to teachers and leaders how and by whom curricular and instructional decisions are made? d. How do mathematics leaders and teachers know whom to go to for support?	• Consult Step II.1.A of Instruction Partners' Curriculum Support Guide for guidance on roles and responsibilities specific to curriculum implementation. Find communications tools such as adaptable templates for staff emails, slide decks, meeting agendas, and more in the Resources section. • Find foundational elements and guiding principles for mathematics leadership in Essential Actions for Leadership in Mathematics Education.
C3. Content Leadership Ensure that the district and its schools have a content/curriculum expert or mathematics coach who regularly collaborates and plans with system and school leaders to lead teacher teams and coach and support teachers in the skillful use of their mathematics materials.	a. Do we have system-level and building-level content and curriculum experts who are regularly consulted when making system/school decisions that impact mathematics teaching and learning within the MTSS framework? b. Do we have system-level and building-level mathematics content and curriculum experts to support teachers across all grade bands? c. Do we have resources and plans for building content/curriculum expertise at the system level? At the school level?	• Use the Delaware Vendor Guide to find high-quality partners who can help build your educators' content and curriculum expertise. • Use Key Action II.4 in Instruction Partners' Curriculum Support Guide to develop an effective coaching strategy.

COLLABORATIVE LEADERSHIP

Core Actions	Planning Considerations	Resources and Connections
C3. Content Leadership *(continued)* Ensure that the district and its schools have a content/curriculum expert or mathematics coach who regularly collaborates and plans with system and school leaders to lead teacher teams and coach and support teachers in the skillful use of their mathematics materials.	d. How are we leveraging the influence of the teachers in our buildings who demonstrate curriculum and content expertise? How are we supporting them in their leadership growth? e. Are there supportive structures (e.g., staffing models, class schedules, planning time) in place that allow our school-level coaches to spend their time coaching and supporting mathematics teachers? f. Do our system- and building-level mathematics content/curriculum experts and coaches have access to decision-makers and/or the autonomy to make instructional and planning decisions based on their expertise and the needs of teachers?	
C4. Culture and Structures Establish a culture and structures that support productive communication and collaboration within the school system and between school leadership teams and staff.	a. Is the expertise of each educator valued and utilized in planning instruction for all students? b. How do we normalize and communicate expectations for students and educators in our buildings? c. What structures exist to support communication and collaborative planning between teachers within and across grade levels, content areas, and schools? d. What structures exist to support regular communication and collaborative planning between administrative and instructional leaders to ensure effective mathematics instruction in every classroom?	• Use Instruction Partners' Professional Learning Conditions and Practices to evaluate and strengthen your system's structures for collaboration. • See core action 2 under Culture of Access and Equity for more on aligning structures to priorities for student and adult learning.

COLLABORATIVE LEADERSHIP

Core Actions	Planning Considerations	Resources and Connections
C4. Culture and Structures *(continued)* Establish a culture and structures that support productive communication and collaboration within the school system and between school leadership teams and staff.	e. How do we ensure that the culture in our schools and system facilitates open and honest collaboration, feedback, and improvement? f. How do we ensure that general education/mathematics teachers, exceptional education teachers, and language acquisition teachers regularly collaborate to ensure that multilingual students have meaningful access to the core mathematics curriculum in Tier 1 instruction? g. How do we ensure that general education/mathematics, exceptional education, and mathematics intervention teachers meet regularly to ensure that students with exceptionalities have meaningful access to the core mathematics curriculum?	



CULTURE OF ACCESS AND EQUITY

High-quality instructional materials and professional learning ensure that teachers can deliver effective instruction and students can successfully access grade level content. However, schools and school systems must also have a culture that prioritizes equitable access for all to ensure that all teachers and students have the resources they need and deserve. This requires examinations of school and school system policies, schedules, practices, and support structures to ensure that obstacles are removed for educators' continued growth and success and for students to promote their academic growth and career success. More fundamentally, it requires a culture rooted in the belief that everyone, adults and students alike, can and should be learning and growing every day.

CULTURE OF ACCESS AND EQUITY

Core Actions	Planning Considerations	Resources and Connections
D1. Growth Mindset Establish a culture that values asset-based learning and affirms the power of every individual to grow and improve through strategic and sustained effort.	a. Do all students consistently receive the clear message—directly from adults and indirectly from policies and structures—that everyone can succeed in grade-level mathematics? b. How do educator actions in the classroom and outside of the classroom consistently communicate their belief that all students can be successful in mathematics? c. Do all adults consistently receive the clear message—directly from leaders and indirectly from policies and structures—that continual growth is supported and expected? d. How are all educators equitably informed of high-quality professional learning opportunities available both within and outside of their contractual working hours and how are they provided with equitable access to engage in those opportunities?	• Use Delaware's Social and Emotional Learning Competencies to set goals for student and adult mindsets. • Use Instruction Partners' Professional Learning Conditions and Practices to assess and improve conditions for adult learning. • Find key recommendations for improving mathematics teaching and learning across all grade bands in Catalyzing Change in School Mathematics. • Use resources from Principles to Actions to catalyze and direct continual improvement across the instructional system. • Use the TRU Framework to support teaching and learning that invites equitable access to content and nurtures student agency and identity.

CULTURE OF ACCESS AND EQUITY

Core Actions	Planning Considerations	Resources and Connections
D2. Aligned Structures Examine policies and structures (e.g., school schedules, staffing models) to ensure that they support access to high-quality materials with their intended design and the professional learning needed to provide skillful mathematics instruction.	a. Do schedules create instructional blocks that align (in duration and frequency) to the design of the high-quality mathematics materials teachers use? b. Do schedules ensure that teachers can regularly collaborate on curriculum and instruction with those who teach the same grade level, subject area, and/or students? c. Do schedules ensure that all teachers can engage in professional learning as outlined in the system's annual curriculum-based professional learning plan for mathematics instruction? d. How do we ensure that expectations for walkthroughs, observations, and performance evaluations (e.g., look-fors, rubrics, discussion protocols) align with our vision for mathematics instruction and the intentional design of our high-quality materials? e. How do we ensure that expectations for curriculum and assessment (e.g., lesson annotation, unit preparation protocols) align with our vision for mathematics instruction and the intentional design of our high-quality materials?	• Use Key Action II.3 in Instruction Partners' Curriculum Support guide to tighten alignment among schedules, expectations for instruction and collaboration, and instructional materials. • See core action 4 under Collaborative Leadership for more on structural supports for collaboration. • Explore what is required to create, support, and sustain a culture of access and equity in the teaching and learning of mathematics with Access and Equity in Mathematics Education.

CULTURE OF ACCESS AND EQUITY

Core Actions	Planning Considerations	Resources and Connections
D3. Course Pathways Create student schedules that provide all K–12 students with multiple opportunities or pathways toward mathematics courses that will prepare and position them for success at their chosen college or in their career.	a. How do we ensure that all students, including students with disabilities and multilingual learners, have access to Tier 1 instruction through grade-level content and materials? b. Do all mathematics class rosters, especially in honors, gifted, or AP courses, reflect our schools' student populations? c. How do we continually examine scheduling decisions to diminish or eliminate tracking practices that result in inequitable outcomes for students? d. Do we hear and listen equally to all students and families advocating for access to high-quality, grade-level mathematics instruction and their preferences regarding course assignments? e. Are all students provided equitable opportunities to engage in challenging mathematics coursework beyond Algebra II/Integrated Mathematics 3 for their success in college or career?	• Find recommendations, research, and talking points in this National Council of Supervisors of Mathematics position paper on eliminating tracking. • See core action 2 under Community and Family Engagement for more on inviting families into their children's mathematics education.

CULTURE OF ACCESS AND EQUITY

Core Actions	Planning Considerations	Resources and Connections
D4. Opportunity to Learn Create school/class schedules that ensure all students, including historically marginalized groups (e.g., multilingual learners, students of color, students with exceptionalities), have equitable opportunities to learn mathematics with a diverse group of peers and equitable access to effective grade-level instruction and instructional time.	a. How do we ensure that core instructional time is equally allocated or increased for students with greater needs? b. How do we ensure that students needing Tier 2 or 3 interventions fully participate in Tier 1 grade-level instruction without unnecessary disruption? How do we ensure that models for differentiation do not rely on segregating students into perceived ability groups within the Tier 1 classroom? c. How do we ensure that students' learning experiences, including Tier 2 and Tier 3 support, are cohesive and aligned with Tier 1 content? d. How do we ensure that students and classes with the highest needs are provided access to teachers with the strongest track records of ensuring student growth and achievement? e. How are we maximizing heterogeneity in all classes to reflect the overall student population and enhance students' mathematical discourse and learning?	• Find recommendations, research, and talking points in the National Council of Supervisors of Mathematics position paper on eliminating tracking. • See core action 2 under Academics for more on ensuring equitable access within Tier 1 settings.

CULTURE OF ACCESS AND EQUITY

Core Actions	Planning Considerations	Resources and Connections
D5. Teacher Supports Create onboarding plans and ongoing support structures such as mentors and curriculum coaches that ensure the long-term retention of all teachers.	a. How do we ensure that novice teachers have access to mentors with expertise in the content area(s) and mathematics materials they teach and with demonstrated strengths in mentoring? b. How do we ensure that teachers new to the mathematics materials have access to initial training on the materials they are expected to use, even if their colleagues have already received such training in previous years? c. How do we ensure that all teachers have equitable access to coaches and all other high-quality professional learning opportunities?	• Ensure that your Comprehensive Induction Program includes content- and curriculum-specific support for teachers of mathematics. • See core actions 1 and 2 under High-Quality Professional Learning for more on curriculum-focused support for teachers. See core action 3 under Collaborative Leadership for more on coaching.



COMMUNITY AND FAMILY ENGAGEMENT

Effective and equitable mathematics systems build strong, trusting relationships with members of their communities by clearly communicating roles and responsibilities for educators, students, and families. The mathematics system seeks to understand the community's and their families' priorities, strengths, and needs and affirm and amplify the power of all families to build positive mathematical identities for themselves and their children. The mathematics system must also build and maintain strong, trusting relationships within their larger school system and with external systems, including colleges and universities, to understand one another's strengths.

COMMUNITY AND FAMILY ENGAGEMENT

Core Actions	Planning Considerations	Resources and Connections
E1. Mathematics Vision Communicate the school system's vision for mathematics to families, caregivers, and the broader community.	a. How have we invested families, caregivers, and the broader community in our mathematics vision, and do we know if there is broad buy-in to the vision? b. Have we used various communication channels to communicate our vision to families, caregivers, and the broader community and described their roles in achieving it? c. How do we routinely educate our families and community about our structures and systems that provide every student equitable opportunities to engage in mathematics and diminish or eliminate tracking practices that result in inequitable outcomes for students?	• Find links to several resources supporting broad communication of vision and expectations, including key messages, conversation tips, and texts to discuss with stakeholders, in Step I.2.B of Instruction Partners' Curriculum Support Guide. • See core action 1 under Collaborative Leadership for more on establishing and communicating a shared vision for mathematics instruction.

COMMUNITY AND FAMILY ENGAGEMENT

Core Actions	Planning Considerations	Resources and Connections
E2. Family Engagement Provide opportunities for all families and caregivers to participate in various activities that build their mathematical knowledge to support mathematics learning at home with students.	a. Have we communicated the design and expectations of our mathematics materials in ways accessible to all families, caregivers, and members of the broader community (consider language, reading level, mode of communication)? i. Do families have opportunities to provide feedback on and receive information about our mathematics curriculum and instruction? ii. Do families have the opportunity to engage with our mathematics staff? iii. Do we have resources (e.g., translation services, full-time family liaisons, family-facing curriculum guides, and community partnerships) that would help us communicate about and receive feedback on our mathematics curriculum? b. What activities have we offered families to build their general mathematics knowledge and knowledge of our curriculum to support mathematics learning at home?	• Many high-quality instructional materials come with embedded family-facing resources to strengthen connections between home and school. Check your materials to see what they offer. • Use content- and grade-specific parent guides like those from Be a Learning Hero and the National PTA to partner with families in supporting learning. • Find a variety of family-facing resources at Stanford University's YouCubed site. • Use this Engaging Families in Mathematics Education toolkit from the Australian state of Victoria as inspiration for work in your own context.

COMMUNITY AND FAMILY ENGAGEMENT

Core Actions	Planning Considerations	Resources and Connections
E3. Positive Identities Cultivate a culture of learning that creates positive mathematical identities with families and the broader community and fosters curiosity, interest, and enjoyment in mathematics.	a. Are all families invited to engage as learners and explorers of mathematics alongside their children, regardless of their prior experiences with formal mathematics education? b. Are the everyday lives and work of all family and community members reflected in discussions of "real-world applications" of mathematics and mathematics tasks and assignments? c. Have we communicated our mathematics vision to institutions of higher education to support our students' progressions into postsecondary fields of study?	• Use narrative evidence from several unscored indicators in EdReports reviews to assess your materials' diversity of representation (3r) and connections to students' home languages (3s) and cultures (3t). • Find mathematics activities for elementary students and families at The Mathematics Learning Center's Math at Home. • Use 5 Essentials for Engaging Family and Community Partners in Decision Making to guide planning and assess practices.
E4. Teacher Pipeline Communicate with colleges and universities about mathematics teaching preparation and the placement of student teachers to ensure all teacher candidates have similar, high-quality preparation experiences.	a. How are we planning internally (including content experts, building administrators, human resources, and district administrators) to support mathematics teacher candidates? What are our processes and requirements for selecting cooperating teachers for placement of mathematics teacher candidates? How are we engaging in discussion with our colleges and universities on how to build a plan to support mathematics teacher candidates? b. How do we ensure that the educator preparation programs understand our expectations for the use of our state mathematics standards and high-quality, culturally responsive instructional materials to prepare mathematics teaching candidates for a cohesive pre-service teaching experience?	• Build a recruitment team that includes content experts and supervisors. Find a sample planning template on page 7 of this resource. • Use DDOE's overviews of high-quality instructional materials and high-quality professional learning to establish shared expectations across pre-service and in-service settings.

COMMUNITY AND FAMILY ENGAGEMENT

Core Actions	Planning Considerations	Resources and Connections
E4. Teacher Pipeline *(continued)* Communicate with colleges and universities about mathematics teaching preparation and the placement of student teachers to ensure all teacher candidates have similar, high-quality preparation experiences.	c. How do we ensure that the system's regional or partner preparation providers know about and can access high-quality mathematics materials for all grade levels? d. How can we work with preparation programs to ensure that our short-term and long-term staffing needs are met?	

Link to Workbook

