

STAYING THE COURSE

TOWARD STRONG HQIM IMPLEMENTATION IN DELAWARE

FEBRUARY 2023



 **CPRL** | Center for Public
Research and Leadership

 COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

About CPRL

The Center for Public Research and Leadership (CPRL) at Columbia University is a partnership of university-based professional schools that works to revitalize public education while reinventing professional education. Since its inception in 2011, CPRL has trained over 500 future leaders, all of whom have helped staff CPRL’s research and consulting projects. CPRL’s emphasis on broad community and family participation and collaborative problem-solving ensures that its recommendations, supports, and tools leverage diverse perspectives and strengths, are customizable to local communities, and promote equity and lasting change.

Acknowledgments

This project was made possible thanks to our partnership with the Delaware Department of Education (DDOE) and the Council of Chief State School Officers (CCSSO). Additionally, it could not have happened without the many stakeholders who spoke with CPRL’s research team over the course of this project, sharing their insights and experiences. Special thanks are owed to the Delaware districts and schools that welcomed the research team for site visits.

Authors

CPRL Team

Grace McCarty

Molly Gurny

Project Associates

Michelle Cao

Alison Drileck

Mahima Golani

Robert McCarthy

Krista Morales

Nathan Small

Table of Contents

Introduction	4
Background	5
Methodology	6
Overview of Delaware HQIM Adoption and Early Results	9
Findings	11
Recommendations	23
Conclusion	27
Appendices	28
References	35

Introduction

With the implementation of high-quality instructional materials (HQIM) and curriculum-based professional learning, Delaware educators, students, and families have ventured into promising, challenging new territory. HQIM ask a great deal of their users. Educators are called upon to abandon traditional approaches to instruction, allowing kids to loudly drive classroom discourse rather than passively taking notes on teacher lectures. Students are asked to grapple with rigorous, problem-based subject matter that offers no easy answers and requires deep analytical thinking and collaboration. Families are asked to support their children’s learning when the materials and resources that come home may feel unfamiliar and overwhelming. For all stakeholders, implementation can, at times, feel like an arduous journey with no clear destination.

However, for those who persist, HQIM can deliver great rewards. They equalize access to grade-level instruction, while meeting learning recovery needs of diverse learners. They foster student discourse. They make learning progress visible. They enable educator collaboration across classrooms, schools, and districts. Through genuinely interesting subject matter, they produce meaning-making and joy.

These benefits are hard-won and can take time to surface. Just to generate buy-in early on, educators need to feel their expertise has been leveraged in adoption decisions, they need to see models proving the materials work, and they need to feel supported and guided by hands-on leaders (who are often also using the materials for the first time themselves). To implement HQIM skillfully, educators need time that often feels missing from their schedules, they need professional learning to see how and when to strategically adapt the materials (i.e., how and when to implement with integrity as opposed to strict fidelity), and

they need professional learning that helps them leverage the materials to reach learners with varied needs. And, to sustain and improve these efforts, they need a consistent flow of resources and ongoing opportunities to provide candid feedback to those who design HQIM and professional learning experiences.

Through a deep dive into the experiences of on-the-ground educators, this report highlights the positive impacts of HQIM in Delaware and where improvements could be made. It explores why districts and schools may want to stay the HQIM course and outlines recommendations aimed at four key sets of HQIM leaders tasked with supporting districts and schools to effectively implement HQIM (state leaders, district leaders, school leaders, and professional learning providers).

Background

The HQIM Movement

In recent years, states and systems, particularly those participating in the Council of Chief State School Officers (CCSSO) Instructional Materials and Professional Development (IMPD) Network, have committed to promoting HQIM to strengthen the instructional core, support learning recovery, and promote equitable access to effective instruction.¹ The premise behind the HQIM movement is simple: give teachers educative, standards-aligned materials and support them in using those materials as the developers intended to increase student engagement,² deepen teachers' content knowledge and pedagogical content knowledge,³ and improve academic outcomes.⁴

HQIM Defined

HQIM have been defined in a number of ways, but scholars largely agree that to be “high-quality,” materials must be aligned to standards,⁵ content-rich,⁶ and promote the use of research-based pedagogical practices.⁷ In Delaware, HQIM are defined as EdReports-vetted materials that cover an entire academic year and support student mastery of standards-aligned, grade-level material.⁸ EdReports—a nonprofit that reviews and rates curricula⁹—relies on educators to evaluate materials for alignment to state standards and classroom usability.¹⁰

Nationwide Challenges with HQIM Implementation

That said, effective HQIM implementation is challenging.¹¹ First, recent scholarship has emphasized that HQIM alone may not enhance student achievement;¹² systems and schools must also provide teachers with collaborative, ongoing, reflective professional learning that is grounded in those HQIM and that provides educators with iterative coaching and feedback.¹³ Beyond supporting teachers with professional learning, implementing schools and systems often face broad change

management challenges with respect to other stakeholders.¹⁴ Students accustomed to passive participation in teacher-led lessons face a steep learning curve when asked to proactively engage in student-driven instruction.¹⁵ Families may worry that the materials in use are out of sync with their values.¹⁶ And on top of all this, system and school leaders must ensure that their systems and structures are adjusted to accommodate the kind of collaborative learning that HQIM require.¹⁷ Further, the rich training experiences integral to HQIM implementation can come at a high cost—particularly for smaller systems—sometimes making this crucial professional learning difficult for educators to access.¹⁸ In short, systems and schools that adopt HQIM often face an uphill battle when it comes to implementation.¹⁹

Delaware's Progress

Nevertheless, Delaware systems and schools offer reason for optimism. As of December 2022, almost 90% of Delaware's 19 school districts had adopted HQIM for at least one grade band in at least one subject. The state has seen positive outcomes in a number of these districts. For instance, Seaford School District—a southwestern Delaware community with a multilingual student population that has doubled over the past 10 years to 25%—has transformed from one of the state's lowest-performing districts to one of its highest, as measured by ELA state testing results, after adopting and implementing the Bookworms ELA curriculum.²⁰ Similarly, Cape Henlopen, a district along Delaware's coast, saw a year's worth of improvement in student reading levels in just one month after implementing the American Reading Company (ARC) curriculum and strengthening their coaches' academic leadership capacity through a tight partnership with ARC staff.²¹

There is much to learn from these districts, including how they were able to achieve these gains and how results can be replicated elsewhere. As such, in the interest of supporting learning and improvement across and beyond Delaware, this study elevates effective HQIM and professional learning practices in Delaware districts, explores the conditions and policies that support those practices—including identifying what the Delaware Department of Education (DDOE) and other leaders of HQIM implementation are doing in this regard—and seeks to understand the organizational improvements associated with effective HQIM implementation.

Methodology

This research examines the implementation of HQIM and curriculum-based professional learning across the state of Delaware to better understand when, where, how, and under what conditions systems, schools, and teachers use HQIM and professional learning effectively, and the impacts of doing so.

Between September and December 2022, we used qualitative methods to explore three primary research questions:

1. How are classrooms and schools implementing and supporting the use of HQIM and professional learning in school buildings across the state?
2. What policies, conditions, programs, and actions at the state, district, and school levels support effective implementation of HQIM and professional learning?
3. To what extent is HQIM and professional learning implementation associated with organizational improvements (school, district, state); changes in teacher practice, mindsets, and satisfaction; and student learning?

Data collection began at the state level. There, we conducted interviews with DDOE personnel who design and carry out the state’s HQIM and professional learning strategy, CCSSO coaching staff, professional learning vendors who contract with the state to deliver HQIM and professional learning to districts and schools, and others who supported DDOE’s design and implementation of the strategy.

In addition to gathering data about state-level strategy design and implementation, we also sought to understand on-the-ground HQIM and professional learning implementation through data collection in five study sites. In selecting districts (and 1-3 schools within each district) to serve as study sites, we aimed to partner with districts where state leaders had identified evidence of at least one strong implementation practice. We also sought to achieve variability across the following factors: location, urbanicity, specific HQIM in use, grade band using the HQIM, type of professional learning provider (e.g., internal to the district or third-party), and student socioeconomic and racial demographics.

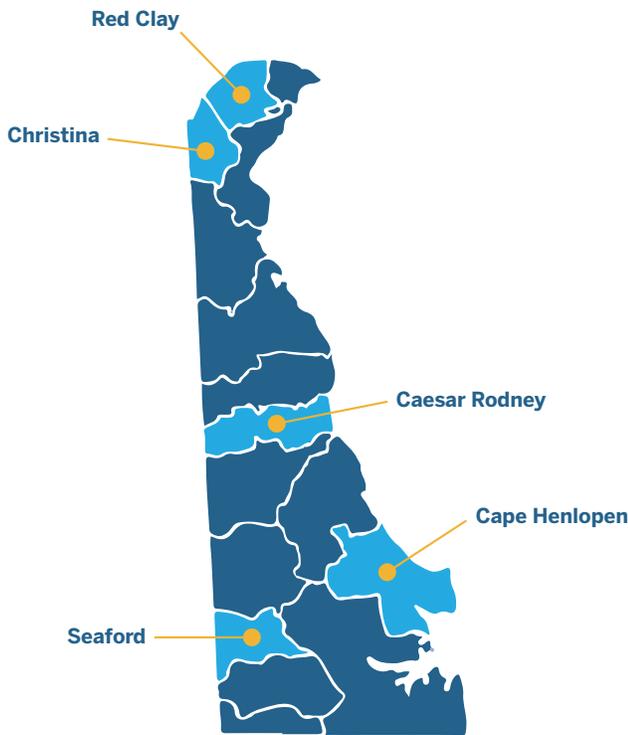
HQIM in Use in Study Sites

HQIM Name	Subject, Available for Grades
American Reading Company (ARC)	English Language Arts (ELA), K-12
Bridges to Mathematics (Bridges)	Math, PK-5
Bookworms²²	English Language Arts (ELA), K-5 (piloting for 6-8)
Illustrative Mathematics (Illustrative Math)	Math, K-12

Study Sites: HQIM Studied, Enrollment, Select Demographic Information²³

District, School, Grades Studied	HQIM Studied	Enrollment	American Indian or Alaska Native	Asian American	Black or African American	Hispanic or Latino	Multi-racial	Native Hawaiian or Other	White or Caucasian	English Learners	Low Income	Students with Disabilities
Caesar Rodney School District, Allen Frear Elementary School, 3-5	ARC	672	0.3%	4.8%	23.2%	8.2%	8.8%	0.2%	54.6%	2.4%	20.4%	7.1%
Cape Henlopen School District, Lewes Elementary School, K-5	ARC, Bridges	582	0%	1.4%	7.4%	13.6%	4%	0%	73.7%	13.9%	17.4%	12.7%
Christina School District, Shue-Medill Middle School, 6-8	ARC, Illustrative Math	808	0.1%	2.0%	37.2%	24.0%	6.6%	0.4%	29.7%	12.9%	34.3%	21.3%
Red Clay School District, H.B du Pont Middle School, 6-8	Illustrative Math	754	0.4%	6.0%	15.3%	20.6%	3.6%	0.0%	54.2%	11.3%	21.4%	16.7%
Seaford School District, Blades Elementary School, K-2	Bookworms, Illustrative Math	396	0.3%	0.3%	26.0%	36.4%	11.9%	0.0%	25.3%	38.6%	41.2%	3.5%
Seaford School District, Seaford Central Elementary School, 3-5	Bookworms, Illustrative Math	452	0.7%	1.6%	39.8%	18.1%	7.3%	0.0%	32.5%	21.5%	33.2%	18.1%
Seaford School District, Seaford Middle School, 6-8	Bookworms, Illustrative Math	828	0%	0.2%	34.7%	30.3%	6.8%	0.1%	27.9%	18.7%	39.6%	15.1%

Map of Study Sites



Within study sites, we interviewed district leaders, school leaders (principals, assistant principals, specialists, and coaches), teachers, professional learning providers, and family members to better understand how HQIM and professional learning are being implemented and where opportunities exist to further maximize the effects of the programs in place. In addition, we conducted classroom and professional learning observations to understand how and when HQIM were being implemented and to understand the training and planning that supported implementation.

To triangulate our learnings from interviews and observations, we conducted an ongoing artifact review. We analyzed internal and publicly-available materials that captured DDOE’s, districts’, and schools’ HQIM and professional learning implementation strategies and work to date. This review included a scan of the resources featured on DDOE’s Delaware Delivers website and each case study district and school’s curriculum and/or instruction pages. We also studied materials from professional learning sessions (e.g., slide decks, professional learning agendas).

In addition, we examined Delaware legislation (existing and proposed) and regulations that pertain to curriculum and professional learning. We also reviewed state-level quantitative data, including Smarter Balanced assessment student achievement data from 2015 to 2022,²⁴ 2022 National Assessment of Educational Progress (NAEP) data, and data from the 2022 RAND American Instructional Resources Survey (AIRS) of teachers on topics such as curriculum and professional learning. Last, we analyzed tweets using the hashtag #DelawareDelivers to explore the degree to which social media has supported HQIM and professional learning promotion statewide.

From there, we created a set of thematic codes and applied them across the information collected. These codes allowed us to track emerging themes and develop findings and recommendations.

Data Collection Summary

Activity	N
Interviews	101
Classroom Observations	35
Professional Learning Observations	11
Artifacts Reviewed	69
Tweets Reviewed	250

Overview of Delaware HQIM Adoption and Early Results

Since joining the CCSSO IMPD Network in 2017, DDOE has provided strategic communications, resources, and supports to encourage the state’s districts to adopt HQIM (see Appendix A). As shown in the table below, the state now boasts impressive adoption rates at the elementary, middle, and high school levels.²⁵ Crucially, many adopting districts have also placed a premium on curriculum-based professional learning to ensure educators understand and implement the rigorous instructional approaches that HQIM require (see Appendix B).

District-Level Adoptions²⁶ by Grade Band

	Number of Districts Using ELA HQIM, ELA Adoption Rate	Number of Districts Using Math HQIM, Math Adoption Rate
Elementary School (16 districts) ²⁷	12 districts (75%)	14 districts (88%)
Middle School (16 districts) ²⁸	12 districts (75%)	11 districts (69%)
High School (19 districts)	11 districts (58%)	15 districts (79%)

Many Delaware systems using HQIM have seen promising early results. As mentioned above, Seaford School District grew into one of the state’s highest-performing districts after years of struggle.²⁹ Claymont Elementary School in Brandywine School District saw student ELA scores rise 21% after three years of implementation.³⁰ Laurel School District saw an average ELA and math growth rate of 18% between 2015 and 2019 after adopting HQIM.³¹ A math specialist in Christina School District noted, “The first year we taught Bridges, our iReady scores went through the roof. [Our district was traditionally performing] below the state average. One year into Bridges, grade-three state test scores were already higher than the state average.”

However, in the midst of this HQIM implementation, districts’ efforts were interrupted by the outbreak of the COVID-19 pandemic. Like states and districts across the country, Delaware districts, whether they were using HQIM or not, saw declines in traditional measures of student success in 2021 and 2022 as compared with pre-pandemic measures.³² Nevertheless, Delaware interviewees expressed confidence that HQIM implementation was crucial for learning recovery.

“When we got our scores [this year], we saw that only 40% of our first graders are fluent. But, we were here before Bookworms. We know our kids will bounce back. It worked nine years ago.”

- Reading Specialist, Seaford School District

And, as study site districts and schools settled into a new post-pandemic normal, a descriptive look at student achievement data reveals:

- At Lewes Elementary in Cape Henlopen, third- through fifth-grade students’ Smarter Balanced math scores fell by only 10 percentage points between 2019 and 2021, while scores for peers in the same grades statewide fell by 22 percentage points.³³
- At Allen Frear Elementary in Caesar Rodney School District, between 2021 and 2022, third- through fifth-grade students’ Smarter Balanced ELA scores increased by 14 percentage points, while student scores statewide in grades three through five increased by only three percentage points.³⁴

- At Seaford Central Elementary School in Seaford School District, third- through fifth-grade students' Smarter Balanced math scores increased by 12 percentage points, while student scores in the same grades statewide increased by eight percentage points.³⁵

A coach in the Christina School District also observed that after starting with Illustrative Math for grades six through eight in the 2021-2022 school year, she saw the greatest number of her students score a three or four on the Smarter Balanced assessment that she has ever seen over the course of her career. "And that's with COVID and everything," she added.

These descriptive observations of student assessment data do not show a causal relationship between HQIM use and improved performance on statewide assessments, as this was not the task undertaken here. Rather, they provide a backdrop for this qualitative research. This research explores the ways in which skillful use of HQIM has benefited Delaware students and educators, the effective practices that drive those benefits, and challenges that stand in the way of progress.

Findings

Beyond the Numbers: Benefits of HQIM for Delaware Students and Educators

Across Delaware, the hard work involved in HQIM implementation has yielded tangible benefits for students and educators.

Consistency, along with intervention, advances equity

Because HQIM are consistent classroom to classroom, when implemented with integrity, they provide all students with access to quality, grade-level material. This includes students with diverse needs, as many HQIM contain embedded intervention strategies and supports to meet students where they are (whether they are struggling or ready for additional challenges) while ensuring that they do not miss out on grade-level instruction. At a Multi-Tiered System of Support (MTSS) meeting in Cape Henlopen, a teacher, the principal, and a math specialist demonstrated how HQIM (in this case, Bridges) supported differentiation alongside grade-level instruction. The group discussed how a student who was struggling with addition and subtraction could still engage in grade-level math with the support of a Number Chart,³⁶ a tool Bridges provides for counting and exploring number patterns. “She uses a 100s chart and does addition and subtraction within 10,” the specialist observed. Checking on the student’s progress, the group noted that the student’s assessment scores had improved and that she was completing HQIM-based, grade-level class work with increased independence.

Teacher questioning promotes student discourse

Both in ELA and math, HQIM also enhance student-to-student academic discourse. Rather than lecturing students, with HQIM, teachers act as facilitators, allowing students to drive their learning and work together. “Classrooms are becoming very student-centered,” explained a curriculum specialist in Seaford, where Bookworms and Illustrative Math are in use. “Teachers are learning to ask questions that bring student thinking forward, and [that questioning is] embedded right into the curriculum.” A first-grade teacher at Seaford’s Blades Elementary explained what this

“I see HQIM as an equity lever. It is the opportunity for students, no matter where they are coming from, to have access to quality materials.”

- Associate Secretary of Academic Support, DDOE

looks like: “[My students] got good at explaining...they can explain in another way what someone else just said. The curriculum lent itself to that; [it] allowed kids’ voices to be heard. It makes them free in their own reasoning and their own understanding.” Moreover, with HQIM, students are eager to share ideas with peers, not just with teachers, a math specialist at Lewes Elementary in Cape Henlopen noted. “Student collaboration is huge. With the [Bridges] games and math forums, students talk to each other...it teaches them to be collaborative citizens.”

Progress tracking supports data-based instruction and student ownership

Beyond driving student-to-student discourse, many HQIM also contain embedded progress-tracking platforms that enable data-based instruction and that help students to take responsibility for their learning. At Allen Frear Elementary School in Caesar Rodney School District, teachers and leaders look at students’ ELA data using ARC’s SchoolPace data-tracking platform and derive “Power Goals” grounded in students’ specific needs.³⁷ Students can articulate their own Power Goals and assume responsibility for achieving them. Similarly, at Lewes Elementary in Cape Henlopen, students engage directly with personalized progress reports generated by the Bridges progress tracking platform, Forefront.³⁸ A Lewes teacher shared, “Kids can see their ‘wheel,’ [a data visualization] which shows [how they’ve performed on] assessments. Kids will [ask], ‘Can I see my wheel?’...It’s fantastic for me [as a teacher], as well. Families love it, too.”

PEEK INSIDE A CLASSROOM

Seaford School District, Seaford Central Elementary School: Empowering Students with Mathematical Language (Illustrative Mathematics)

Asked what she noticed and wondered about an image of dozens of rows of flags projected on a classroom document camera, one student said to a classmate, “I agree with your thinking that this looks like an array [i.e., a series of rows and columns], but I noticed one flag alone at the bottom.” Another responded, “I figured out how many flags were there by creating my own multiplication sentence.” Their teacher silently listened alongside.

In this fifth-grade math classroom at Seaford Central, academic language and its power to facilitate student discourse is key.

Emphasis on language and discourse is a prominent feature of Illustrative Mathematics. Illustrative Math’s Warm Up Routines and Mathematical Language Routines are explicitly designed to develop students’ ability to engage in high-level math conversations. The Routines are short, recurring math activities that facilitate student thinking and development of precise language. In the activity with the rows of flags,

students participated in one of the most frequently used routines, the Notice and Wonder Routine, where students explore a new mathematical scenario by answering two simple, open questions: “What do you notice? What do you wonder?” Illustrative Math also encourages teachers to explicitly teach mathematical vocabulary at strategic moments. For instance, in the lesson above, the teacher defined the word “decompose,” used the term to describe student strategies that broke up the array of flags into sub-parts, and invited the students to use it in their own discussions.

This teacher explained that the transition from an “I do, we do, you do” approach to Illustrative Math’s—where students drive the lesson—has been challenging. “I’m a talker. For us educators, it’s hard to talk less.” Still, she’s thrilled that student-led math discourse has empowered her students. “This is a math group,” she said. “They definitely like to share!”

Engaging content generates joy

When it comes to student and teacher satisfaction, interviewees related that HQIM’s rich topics and problem-based approach create genuine enjoyment in the material. Rather than saying, “I can’t read,” or “I’m not a math person,” students take interest in the topics they explore. A teacher at Allen Frear explained, “[Before ARC], reading was taught [with excerpted] passages. Now, it’s about loving to read, and pushing the skills out through the enjoyment of reading.” The student joy is contagious for educators. The teacher continued, “Boy,

does it make a difference when kids are excited about reading. The amount of books they read in a year is amazing, even in fifth grade where the books are bigger. They read a chapter book or two every week. They get excited about learning, they want to learn, and it makes it more enjoyable [for us].” Another interviewee anecdotally observed that adoption of HQIM was correlated with a decrease in student removals from classrooms in some schools across her district, suggesting that, by engaging students and creating joy, HQIM might also help decrease instances of school discipline.

PEEK INSIDE A CLASSROOM

Caesar Rodney School District, Allen Frear Elementary School: Fostering Love of Reading through Personalized Instruction (ARC)

For one fourth-grade teacher at Allen Frear Elementary School, the best part of teaching is when a student holds up a book and says, ‘I love it!’ “That’s the ‘yes’ moment!” she exclaims. This fourth-grade teacher contends that love of reading begins with hyper-personalized instruction during one-on-one reading conferencing, a signature approach built into the ARC curriculum. An ELA specialist that supports fourth grade added, “[We’ve had] students in the past that have [struggled in] guided reading groups, with the teach-toward-the-middle philosophy. Now, we pinpoint exactly what [students are] missing, fill in the gaps, and keep moving. The kids I see that hate reading, it’s usually because it’s hard. Now...those students love reading more.”

During the independent reading block, students dive into the books that they’ve selected from their ARC classroom library. Though the room is calm and quiet, their teacher is at her busiest. She moves from supporting one student with decoding words with long vowels to helping another use context clues to determine whether the “Dr.” abbreviation stands for the word “doctor” or the word “drive.” She’s conducting one-on-one conferences on an equity-driven schedule—the students who need more support receive more frequent conferencing, while students who read above-grade-level work more independently. When prompted, students can easily articulate their Power Goals, individualized goals that each student receives based on an ARC-provided screener.

This fourth-grade teacher explains the value of this model for differentiation. “[ARC helps me ask], ‘What are their needs? How can I help?’ But, not with 25 students at once.”

Educators stay aligned with one another

The introduction of HQIM across multiple districts in Delaware also allows for coordination and collaboration at several levels. Educators—teachers, coaches, and leaders—both within and across schools and districts better their practice with the same materials using a common language and drawing on collective knowledge. For example, at Christina School District’s Shue-Medill Middle School, shared use of the ARC, Illustrative Math, and College Preparatory Mathematics (CPM) curricula enables teachers from across departments to support their students with ELA and math needs during “Shue Fam” time, a daily advisory and intervention period where students receive personalized academic or socioemotional support from their “Fam” teacher. At Seaford Central, one teacher emphasized the importance of her grade team’s collaborative approach to HQIM: “We’re only as good as each other.” Additionally, as detailed below, this common language and alignment enables state actors to better support large groups of educators simultaneously, and sets districts up to take advantage of economies of scale.

Effective Practices to Spread and Challenges to Tackle across Delaware

As has been emphasized, the benefits of HQIM are hard-won. They require consistent, effective practice and continuous drive to improve. The findings below illustrate effective practices that have helped Delaware districts access the benefits of HQIM, as well as some of the challenges that stakeholders are working to solve.

Launching HQIM and building buy-in

Leveraging on-the-ground expertise during HQIM adoption strengthens investment

Nationwide, curriculum decisions are made at all altitudes within school systems, but, of course, no matter who chooses the curriculum, teachers are tasked with implementation. Changes associated with new curricula, though, can be particularly challenging for teachers to carry out if they have been left out of the selection process. Across Delaware, interviewees shared that investment is stronger when school-level educators (e.g., school leaders, coaches,

and teachers) lead HQIM adoption and implementation efforts early on. For example, in the Red Clay School District, the Illustrative Mathematics adoption relied on a longstanding vision for mathematics instruction—one grounded in teachers' expertise. Red Clay's Supervisor of Mathematics explained, "While attempting to adopt HQIM, it became apparent we needed to back up and create a vision for math that we all could stand behind. A set of core beliefs—where we can all say, 'I believe this and you believe it as well.' We have a wide range of teaching philosophies, but we're a district where we want to be constructive colleagues in the end. [So,] it was about getting folks in a room and saying, 'What are our [shared] beliefs?' What are the things where we can all say, 'Yep! I believe that!' That way, when it came time to choose HQIM, it was about which set met the core beliefs. It's not me or you, it's the beliefs. This made a huge difference." In other words, grounding HQIM adoption in an educator-created vision is a crucial investment-building strategy.

Other leaders described efforts to ensure that educators' on-the-ground expertise was leveraged directly during the selection process. In order to select ARC as the ELA curriculum in Caesar Rodney,

district leadership formed a committee—including district leaders, principals, coaches, specialists, and teachers—to study various curricula that were rated "green" on EdReports. Together, the group vetted the materials, leveraging their varied perspectives, and ultimately chose ARC. Likewise, in Christina, a math specialist explained, "We started with EdReports, we took teacher surveys, parent surveys, tried the lessons, and voted it down to two, Bridges and HMH Math Connects. Then, we went to the teachers and they voted for Bridges." When teachers are engaged in such a process, they are more likely to trust the materials selected. The same specialist added that participating in a curriculum pilot builds investment as well.

Still, school-level educator involvement in the adoption process alone does not guarantee buy-in—the quality of that involvement matters as well. For instance, one teacher reported that her adoption committee was constrained by rigid protocols that required the group to spend more time than she (and her fellow teachers) felt was warranted on certain components of the process, decreasing her sense of agency and investment in the work.

CASE STUDY

RED CLAY TEACHERS TAKE THE LEAD

“Go down the hallways if you want to get better. If one of our teachers has great things going, go. Go check it out and learn from it.”

-Principal, H.B. du Pont Middle School, Red Clay School District

TEACHERS LEAD ADOPTION

In 2018, Red Clay Consolidated School District was using varied math curricula, requiring the district to “piecemeal different curricula together.” Ready for a change, the district sought HQIM that would standardize math across schools. However, instead of choosing a curriculum behind closed doors, the Teaching and Learning Department began a teacher-led process to identify a curriculum that would meet Red Clay’s needs. The committee included teachers and one administrator.

Adoption began with about 50 educators who reviewed a variety of curricula vetted using Student Achievement Partners’ Instructional Materials Evaluation Tool (IMET).³⁹ A committee of teachers then identified a subset of those materials from which participants would test a lesson with the support of a coach. From there, the committee gathered feedback, weighed the programs, and ultimately chose Illustrative Mathematics. This process leveraged teachers’ on-the-ground experience, strengthened relationships between educators across Red Clay, and built buy-in for the HQIM.

“GO DOWN THE HALLWAYS IF YOU WANT TO GET BETTER...”

When asked about early implementation and how the school built teacher investment in Illustrative Math, H.B. du Pont Middle School’s principal explained, “We follow [teachers’] lead. We have outstanding teachers.”

One such outstanding teacher led the school as an Illustrative Math advocate. After using his summer to complete “the entire [Illustrative Math] course as a student,” the teacher was convinced the materials had the rigor and structures needed to support student learning. “I started pointing those things out to other teachers,” he said.

H.B. du Pont’s culture of teacher leadership comes to life through its “Pineapple Initiative,” in which pineapple stickers on classroom doors encourage teachers to share their craft through peer observations. “Pineapples symbolize hospitality and warm welcomes,” said the principal. The Initiative began as a teacher-led enterprise that grew organically because teachers believed “to continue being the best, you learn from other[s] in the building.”

TEACHERS LEAD AND STUDENTS SCORE

Of course, the ultimate goal of teacher leadership is student learning. Four years after adopting HQIM, H.B. du Pont’s scores surpass the district average by close to 10%.⁴⁰ H.B. du Pont’s assistant principal shared, “[Without HQIM], there’s a sense of, ‘I just want you to tell me the answer.’ But [students] now know the structure and understand the expectations. They can explain why they’re studying what they are and where it’s going from here.” Thanks to the culture of teacher leadership, Red Clay students are preparing to lead their own learning too.

With HQIM, seeing is believing, and educators want to learn from models

Even when educators are brought into the visioning or curriculum adoption process, many still experience doubts. “Lots of people are anti-curriculum because they are afraid it will be scripted,” one teacher explained. Others worry about students’ ability to perform at the level of rigor that HQIM demand.

Research shows that kids can (and do) rise to meet high expectations, such as those embedded in HQIM.⁴¹ Nevertheless, mitigating educators’ doubts can prove an uphill battle for implementation leaders, particularly because results may take time to surface. Yet, after a year of Illustrative Math implementation, one teacher who doubted the curriculum at first stated that once she saw the student growth associated with HQIM, she was sold. “Do I love it? No. Do I have faith in it? Yes. Kids are hitting their goals. It works.” But, the question remains: How do districts and schools encourage teachers to hold on to HQIM, at least long enough to see results? In other words, if seeing is believing, how can leaders help educators to build their stamina for the long, challenging year (or years) before results become visible?

Interviewees articulated a few approaches. First, professional learning providers spoke to the importance of helping teachers see the “why” behind the HQIM early on, through professional learning or otherwise. Teachers also noted that trust in materials could stem from trust in school leadership—trust that, as we will explain, is enhanced when leaders participate in professional learning and are deeply involved with the materials. But, most importantly, teachers were convinced to stay the course when they saw lessons play out firsthand or when they talked with teachers who were further along in implementation. In short, when teachers saw models that proved the materials could work for all students, they forged ahead through early implementation.

Delaware districts and schools use a number of approaches to provide much-needed models. One common approach involves instructional specialists and coaches. In describing her relationship with the H.B. du Pont math coach, one teacher shared, “We have two new teachers on our team; [our coach] meets with them and models what a lesson looks like with this curriculum.” Similarly, a math specialist at Cape Henlopen’s Lewes Elementary School explained that, particularly for new teachers, she models Bridges lessons so frequently she acts nearly as a co-teacher. Another teacher added that it’s “miraculous” to see coaches model lessons, as it normalizes just how challenging the curricula can be to teach. “[When modeling a lesson, my coach] only got through

20 minutes of the lesson. She saw: you’re right, we need to slow it down. To see her deal with the day-to-day of a classroom teacher [was so helpful.]” This modeling also puts coaches directly in the shoes of teachers, which helps them give advice that comes from the classroom, rather than from a clinical distance.

In addition to recognizing coaches as models, teachers also serve as models for one another. For instance, at Red Clay’s H.B. du Pont, teachers place a pineapple sticker outside their doors to welcome peers to their classrooms to observe. Likewise, in Seaford, Learning Lab teachers receive specialized coaching with the expectation that their classrooms will be recorded and their lessons distributed as learning tools for others.

Modeling also takes place district-to-district. For example, when they began to pilot ARC, leaders from Caesar Rodney visited Cape Henlopen, which had been implementing ARC for a number of years already, to see it in action. As a teacher at Allen Frear, expressed, “We got to observe and get some samples; that was really helpful. When you see it in action, you see how you can make it work.”

When educators had fewer opportunities to watch others use the materials with real students, they expressed that this would be helpful. This need felt particularly acute for some teachers who began implementation during COVID-19. These teachers expressed that it was challenging to see all the strengths of their HQIM when implementing remotely. A number of teachers also expressed that even when operating in-person, they would benefit from seeing their coaches and other instructional leaders model lessons more frequently.

Modeling is particularly crucial for teachers serving special populations. For instance, a pair of teachers serving an inclusion classroom at Seaford Central expressed that they’d like to see more models showing how to use Bookworms in their context. “It would be nice if Bookworms could come in and model it. The plans are wonderfully written. But they’re not written for a team room. [The publisher’s] vision of what a classroom looks like and what it actually looks like are different.” Likewise, the Director of Curriculum and Instruction in Seaford discussed having previously worried about how Bookworms was supporting her district’s K-5 multilingual (or formerly multilingual) students. So, she reached out to an expert at University of Delaware to model lessons for teachers, particularly those who teach multilingual students. Broadly, Delaware teachers are calling for supports that make modeling more universal, both to build their faith in the materials and to improve their HQIM use over time.

“Roll-up-your-sleeves” leadership supports buy-in, enhances the quality of feedback for teachers, and expands students’ access to strong instruction

As one interviewee put it, “[With HQIM], everyone becomes a new teacher.” Everyone has to explore the materials and learn how they can best support students. School leaders are no exception. Yet, despite having relatively little (or no) experience with new curricula, leaders must also foster buy-in among teachers, provide guidance and feedback to their staff, and make sure students, all-the-while, have access to quality instruction.

Several standout leaders across Delaware have found a way to tackle this challenge: leading through learning. “You can’t just declare yourself an instructional leader,” the principal of Blades Elementary School in Seaford explained. Rather, leaders need to dedicate themselves to learning their curricula with staff—serving as thought partners, co-teachers, and peer learners. As the Director of Educator Excellence at DDOE explained, “If leaders aren’t in the classrooms, it’s just not going to happen.”

A first step for leaders is to join the professional learning sessions (including coaching sessions) that they ask teachers to attend. The principal of Allen Frear Elementary shared, “I make it a point to be at every [professional learning session] if I can. I’m not going to ask [teachers] to do something I wouldn’t do myself.” In addition to sending a message that professional learning is time well spent—and thus fostering buy-in—attending professional learning also gives leaders the curricular knowledge they need to provide effective feedback. Leaders who are less familiar with HQIM may rely too heavily on observation rubrics, expecting to see lockstep adherence to lesson plans and pacing guides. This, in turn, can feel like a “gotcha” for teachers, sometimes frustrating them to the point that they leave their schools or even the profession. However, when leaders attend professional learning and join in daily instruction, they are able to provide teachers with useful, nuanced feedback. “How can I give feedback if I have not participated in [professional development]?” the principal at Blades Elementary asked. “Teachers know if you’re not in [professional development] and then try to give feedback.”

In addition, when school leaders engage deeply with HQIM, they also can directly strengthen the instruction students receive through hands-on involvement. At Allen Frear, for instance, teachers explained that because their leaders regularly participated in professional learning, they were able to jump in and help to lead or model lessons when teachers struggled, ensuring students had access to strong instruction even while teachers were adjusting to the HQIM. Likewise, a coach at Blades co-taught Illustrative Math alongside teachers, jumping in with questions to prompt student thinking or supporting small groups with collaborative activities.

“It’s a support role. I don’t like the word coach. I’d rather it be, ‘collaborative partner.’ I’m here to lift you up. Make your life easier. Make you more confident.”

- Math Specialist, Lewes Elementary, Cape Henlopen

In some cases, leading through learning also means rolling up one’s sleeves and participating in the less glamorous tasks associated with curriculum implementation. For instance, leaders at Blades helped cut out and laminate the manipulatives students needed in year one of Illustrative Math, helping shoulder a burden otherwise carried by teachers. In a similar vein, an H.B. du Pont teacher commented that her math coach “comes to all of our math PLCs. She’s taking notes and volunteers to give support.” According to interviewees, this kind of ground-level leadership helps teachers feel less alone and stay the course with HQIM, especially as they scale a steep learning curve.

| Effectively implementing HQIM

As mentioned above, once HQIM are adopted and launched, effective implementation requires significant shifts in practice, systems, and structures, as well as ongoing provision of tailored professional learning opportunities.

CASE STUDY

SEAFORD

A CULTURE OF CONTINUOUS LEARNING

“Leadership has created a culture of forever learners. It just happens naturally here.”

– Assistant Principal, Seaford Central Elementary, Seaford School District

STARTING WITH STUDENTS

In a third-grade Spanish immersion class in Seaford, students puzzled over an Illustrative Math problem that prompted them to explore the area of a rectangle as a class. “Estamos contando cuadrado por cuadrado. ¿Hay una manera más fácil? [We are counting square by square. Is there an easier way?]” the teacher wondered aloud. “Contar de dos en dos! [Count by twos!]” one student exclaimed. “Podemos usar columnas y filas para multiplicar! [We can use rows and columns to multiply!]” added another.

In just a few moments, these students demonstrated an internalized commitment to continuous growth. In quick succession, students improved upon a time-consuming strategy for finding a rectangle’s area—counting square units by ones—to identify increasingly more efficient and sophisticated strategies for attacking the problem, first counting by twos, and then using an array to multiply.

A COMMUNITY OF LEARNERS

In Seaford, students aren’t the only ones expected to learn and grow as HQIM are implemented. Teachers, principals, and coaches participate in, and help to sustain, a culture of learning and continuous improvement rooted in HQIM.

TEACHERS: LEARNING ON THE JOB

Across the district, Seaford teachers use weekly grade team meetings (which include general education and special education teachers) to study and plan for HQIM use and to share the ways in which they use the materials to serve specific students’ needs. In addition to structured team time, Seaford teachers learn during student lessons. “Learning

Lab” teachers at Blades Elementary co-teach alongside an expert from University of Delaware’s Professional Development Center for Educators. This specialist provides teachers with real-time coaching, and Lab teachers respond in the moment, shifting their questioning or selecting students to share problem-solving strategies in new and intentional sequences based on live feedback.

ADMINISTRATORS: EARNING INSTRUCTIONAL LEADERSHIP STRIPES

“We are going to be part of that professional learning when it takes place. First year implementation is tough,” the principal at Seaford Central explained. In Seaford, leaders are active participants in teacher-facing professional learning (including coaching and grade team meetings)—cultivating their own curricular knowledge and signaling the importance of professional learning. Across the district, leaders also regularly come together for leader-specific professional learning.

CURRICULUM PROVIDERS AND EXPERT COACHES: RECALIBRATING IN RESPONSE TO ON-THE-GROUND FEEDBACK

Seaford educators are fortunate to work closely with those who design, revise, and improve HQIM and professional learning. Based on feedback from Seaford teachers, these providers regularly make changes to their materials and approaches. For instance, Bookworms built slides for teachers after learning that Seaford teachers were creating their own. Similarly, an Amplify coach working at Seaford Central shares on-the-ground learnings from educators with her Amplify team to help them continuously improve their mathematics materials and professional learning offerings.

HQIM can save time, but they also take significant time—both to learn and to teach

For years, researchers and practitioners have praised HQIM's ability to save time.⁴² Because HQIM provide scopes and sequences, standards-aligned lessons, and student-facing materials, Delaware teachers with access to HQIM can save hours in prep-work. "Illustrative Math takes so much work off of me in terms of planning," a teacher from H.B. du Pont Middle School explained. "I used to have to figure it all out [myself]." Another teacher noted, "I used to turn to outside resources all the time. Now—never. There's so much that [Bookworms] has that we're never even going to touch the surface of." This results in precious saved time, which educators can reallocate toward planning for differentiation, analysis of student work, supporting students' socioemotional needs, and family outreach, among other more efficient uses of time.

Still, to call HQIM a timesaver, plain-and-simple, would not be wholly accurate. Certain lessons are time-intensive to prepare, and the curricula in general take time to understand. Some interviewees worried about the time it takes to prepare materials for lessons, particularly in elementary math. Though they expressed valuing the materials and their impact on students, preparation of manipulatives—hands on materials to teach math concepts—sometimes followed teachers and leaders home. One teacher noted that even short math activities could require up to 30 minutes of manipulative preparation, which would sometimes need to be completed outside of school hours.

Beyond materials preparation, intellectual preparation takes significant time as well. A math teacher from H.B. du Pont explained his process: "I come in early in the morning, gather materials, rehearse-talk to myself for the day's lesson, think of past and future lessons and how they're going to help today's goals, think about the questions students are going to ask, misconceptions, how I might answer them. How do I ask those probing questions if students don't ask them?"

The challenge stems from the reality that traditional school schedules are not always set up to accommodate these demands on educators' time. Some educators receive only 45 minutes of planning time per day. Several teachers, leaders, and coaches worried that the state only provides one protected professional learning day. One leader envied the schedule of a peer in Maryland, who had regular early dismissal days which are used for planning. Others noted that their professional learning days tend to take place at the end of the school year, when learning feels less directly applicable: "We have a lot of [professional development] built in at the end of the year," one math specialist explained. "We want to see that sprinkled throughout."

The trouble with time extends to the classroom itself. In a 2021 report, *About Time: Master Scheduling and Equity*, a CPRL research team found that scheduling is more complex and presents greater equity challenges at the secondary level than at the elementary level "given departmentalization, the increased role of student choice in selecting courses, greater variety in academic programming, and graduation requirements."⁴³ Across Delaware, interviewees suggested that HQIM-related scheduling difficulties are also more profound at the secondary level. One middle school teacher explained: [In elementary, they] have really long reading and writing blocks. [The teacher has the same students] all day. So if you didn't get through a chapter, you can cut another subject. I have a 55-minute block. If we're not done [with the lesson], that's that. [The students] go off on their day. They have time in elementary to get to mastery. I worry I'm skimming the surface."

The principal of H.B. du Pont, on the other hand, explained that scheduling has been part of his middle schoolers' success with Illustrative Math. Even in the face of districtwide proposed schedule shifts, H.B. du Pont "continued to have 75 minutes for [both] ELA and math every day." He shared, "That's been a huge advantage for us. [Now], everyone has our schedule!"

"If [a period is] limited to 45 minutes and the curriculum [requires] 60 minutes, we have an issue. Some of those [constraints] are put into place by the district, the building, some both."

- Education Associate of Secondary Mathematics, DDOE

Even with more flexibility in their schedules, elementary schools are not without HQIM-related timing challenges. The everyday scheduling quirks facing elementary schools can interfere with lesson timing; for teachers faced with the multifaceted demands of the school day, even essential components of HQIM (such as warm up activities) are sometimes sacrificed. Over time, missed classes, assemblies, and other realities of school days mean that teachers may not be able to teach all units within a scope and sequence, ending the year behind, even when districts build in reteach days. Broadly, this suggests that those responsible for setting district and school schedules need to bear in mind the timing demands of HQIM.

Stakeholders agree that HQIM should be implemented with integrity, not blind fidelity, but some adaptations do not align with the intent of the materials

As mentioned above, proponents of HQIM often worry that educators will reject the materials out of a belief that they will be expected to adhere to inflexible lesson plans. However, across Delaware study sites, there was shared understanding that HQIM use need not involve reading from a script. Teachers, coaches, and leaders noted that modifications are inevitable, as every student brings unique needs to the classroom and the materials are designed to respond to those needs. Nevertheless, the nature of these modifications, the mechanisms for making them, and the degree to which they maintain the rigor of the curricula, vary.

To tackle this challenge, one math coach leads her teams through professional learning community (PLC) discussions about how and when to adjust HQIM to ensure changes do not disrupt the curriculum's rigor. In other instances, schools relied on professional learning providers with deep curricular expertise to partner with teachers in tailoring lessons for their specific students. Often, this expert partnership led teachers to uncover resources already embedded in their HQIM that could be used to support varied classroom needs, as opposed to making alterations.

However, not all changes are made in ways that preserve the intent of the materials. For example, for some, health protocols stemming from the COVID-19 pandemic interfered with the collaborative nature of Illustrative Math lessons. In extraordinary instances like these, teachers need support from leaders, coaches, and professional learning providers to ensure they maintain the rigor of the materials.

Similarly, some educators feel pressure to help students perform well on standardized exams, particularly the Smarter Balanced assessment, in ways that go beyond the scope of HQIM. Though HQIM and the state exams are aligned to the same standards, some educators expressed that the exams present questions and directions in ways that require explicit instruction not included in their HQIM. As a result, some schools provide students with instruction focused on test preparation. While this approach is intended to help students feel prepared, it reduces the amount of instructional time in which HQIM are deployed. Notably, other educators disagree with the reasoning behind this approach. One Christina instructional coach explained that Illustrative Math's questions, for instance, are precisely what students need to prepare for state exams.

In addition, interviewees shared that there are moments when teachers, with the best of intentions, make adaptations that decrease the rigor of the materials, often in the interest of making the materials more accessible or to build student engagement. For instance, one coach working with Illustrative Math explained that teachers sometimes make modifications that alter the rigor or intent of the lessons, believing that they are implementing with integrity: "Let's say the first fraction is $1/2$, and [the next problem uses] $1/8$. A teacher might think, $1/8$ isn't as common, so I'll switch it to $1/3$. [But] when you look at the whole [lesson], you can see [why $1/8$ is included]. They don't realize the implication of a tweak." Similarly, one professional learning provider described, "I saw some worksheets [that were not part of the curriculum and that were not standards-aligned]. It's for Valentine's Day, for example." She acknowledged that the worksheets were intended to be fun and festive for the students, but explained that HQIM can be adapted to meet those goals without losing rigor. In another instance, this professional learning provider saw a video used to try to engage students around the use of protractors, rather than having the students work with the tools themselves. "I don't want a video. I want kids talking," she said.

HQIM can enhance differentiation, but educators want more expert professional learning on how to use HQIM with special populations

HQIM are designed to be used flexibly with students of varying needs and skills. Some Delaware interviewees found this benefit to be particularly pronounced with the ARC and Bridges curricula, given ARC's inclusion of a one-on-one conferencing structure and Bridges' use of Work Places—standards-based games that allow students to explore the same skills and concepts, but with varying levels of complexity—and Intervention Kits—sets of research-backed activities designed to promote learning recovery.⁴⁴

"[We're] no longer teaching to the average learner," the principal at Cape Helopen's Lewes Elementary explained. "[Bridges and ARC] give you that differentiated piece along with the grade-level [instruction]." A teacher at Frear echoed this strength, "I love the one-on-one [conferences]. Other [curricula] push students to the side. Conferencing pulls everyone and teaches to everyone." In another teacher's words, this allows teachers to "pinpoint exactly what a kid needs" and to "see the kids [they] need to see the most."

“There are so many little activities that Bridges provides; if I need to do [some] intervention, it’s there for me.”

- Teacher, Lewes Elementary, Cape Henlopen

However, interviewees also reported challenges in using HQIM with special populations. One district leader shared that she did not feel her district was supporting students with Individualized Education Programs (IEPs) and multilingual learners as effectively as they could using HQIM. Moreover, teachers from a number of sites shared that, particularly for students with the most intensive needs, such as students working on IEP goals related to life skills, HQIM were not used at all. Some reported that students in gifted programs were not using HQIM either.

Part of what can make differentiation challenging is the sheer volume of resources that HQIM make available to teachers. “With Bridges, it’s all there! But you need to be trained,” one professional learning provider explained. As an example, an educator who knows Bridges well might recognize that a fourth-grade student who is just learning to count could participate in a full-group Bridges lesson if placed with a positive peer for support. But, during another Bridges activity, the same student might need an individualized Work Place that comes from the second- or third-grade Bridges curriculum. Similarly, Illustrative Math provides “Ready for More?” activities for many lessons, designed to engage students in need of additional challenges.⁴⁵ But, knowing when and how to leverage these personalization opportunities requires deep knowledge of the materials, which must be developed over time with expert support.

Relatedly, traditional IEP design structures can contribute to differentiation challenges. Interviewees shared that IEP goals are often drafted without explicit connection to the HQIM in place. As a result, special education teachers and service providers feel they are not able to use HQIM because students’ IEP goals are too far afield from what the materials address. As one professional learning provider explained, “IEP goals are often written to say ‘work on multiplication tables for 15 minutes a day’...that’s a legal document. Teachers think, ‘how do I do that?’ That’s when they’re pulling from Teachers Pay Teachers.” These conflicts can further burden students whom HQIM and IEPs are meant to help. Those with IEPs who are pulled out for services, under these circumstances, can be asked to learn twice as much as their peers, as they have to learn with HQIM in their home classroom, and, when

pulled out, practice with different concepts and materials. Some districts are working to address this challenge by providing support in designing standards-based IEP goals, and by equipping special education providers with expert training on HQIM.

| Sustaining HQIM implementation

As shown above, a number of effective practices are in place across Delaware to support HQIM delivery. Still, interviewees emphasized that there are also key moves needed to sustain the work if it is to continue over time.

Expert professional learning is expensive and requires sustained resources, but Delaware districts are pursuing economies of scale

While many HQIM are similar in cost to other, lower-quality materials, the expert, curriculum-based professional learning required to ensure that educators can implement those materials effectively can be expensive.⁴⁶ And, it is far from a one-and-done expense. As one professional learning provider put it, “You need short bursts of [professional learning], not all at once. You need years of professional development.”

“It wouldn’t be possible without the grants.”

- Instructional Coach, Seaford School District

Across Delaware, district leaders, school leaders, and professional learning providers reported that state-funded Reimagining Professional Learning (RPL) grants have been an essential resource for accessing that professional learning. They have unlocked access to curriculum experts who work directly with teachers as coaches. The Supervisor of Instruction at Caesar Rodney, for example, explained, “We used our RPL grant to purchase [professional learning]...[and] elbow-to-elbow coaching for all our schools...[it’s] revolutionary.” A coach in Christina explained that the RPL grant enabled her team to partner with a specialist focused on differentiation for students with disabilities, helping Shue educators better serve special populations with HQIM. A coach from H.B. du Pont, similarly praised the RPL grants’ impact: “I am blown away by the amount of state and district support. I’ve gotten more professional learning in the last year and a half than I have in a decade in [another state].”

At the same time, leaders worry that they will lose their coaches if funding dries up. “We hope they don’t take what we have,” one district leader said. “Don’t stop [the RPL grants]...If that funding goes away, we no longer have access to that extra coaching. Even after nine years, coaches always bring something new.” Another district leader noted that the length of the grant (a year) feels inconsistent with the amount of time that is needed to see change using HQIM: “We can’t make changes in a year. Make it a multi-year program if you want to see the success. The best is yet to come.”

A number of districts are responding to the sustainability concern by sharing resources. As one specialist from Christina shared, “[Delaware is] like a small town. We don’t have six degrees of separation, it’s more like four or three.” But, some interviewees suggested that resources haven’t always been shared as readily across districts as they might be. The Bridges Professional Learning Network, a district-founded and state-supported professional development network that connects district leaders implementing the Bridges program, has broken down barriers and encouraged resource sharing. “It removed this sense of... competition,” the specialist from Christina explained. In a number of cases, relationships grounded in the Bridges Network have led districts to join professional learning resources, with some offering or planning shared training across district lines. This kind of sharing offers exciting opportunities for growth and cost-sharing.

HQIM are continuously improving educators’ instruction, and educators’ on-the-ground feedback is needed to continuously enhance HQIM’s usability

Across study sites, teachers and leaders expressed gratitude for the opportunity to work closely with expert curriculum developers and professional learning providers. And while school-level educators benefited from outside expertise—improving their capacity to deliver research-based instruction—the reverse was also true.

“With Bridges, we have close relationships. Where else do you find the president of a [curriculum publisher] taking feedback or being able to really connect with [educators]? The support is something I’ve never seen.”

- Math Specialist, Christina School District

On-the-ground educators’ feedback is needed to continuously enhance the usability of HQIM. A specialist in Cape Henlopen explained, “If we told ARC we didn’t have enough nonfiction books about [a given topic], they’d come up with those materials. With HQIM, they have to listen to the people on the ground floor.”⁴⁷ This helps bridge the gap between real-world classrooms and the curriculum-development environment. When publishers listen to and act upon frequent and candid educator feedback, usability improves. These mutually-beneficial cycles of improvement need to continue as the state’s HQIM efforts expand.

Recommendations

As HQIM play an increasingly significant role in Delaware in the coming years, provided below are four sets of recommendations for state leaders, district leaders, school leaders, and professional learning providers, respectively.⁴⁸

RECOMMENDATIONS

State Leaders

Continue to facilitate state- and district-initiated interdistrict collaboration, grounded in specific HQIM.

District-level leaders across study sites shared that partnerships with other districts who use the same HQIM have been essential to implementation successes. Some of this partnering takes place via formal professional learning networks facilitated and/or funded by DDOE, such as the Bridges Professional Learning Network. However, other partnerships grow bottom-up. For instance, some district leaders who connected via the formal networks extended their partnerships independently (e.g., by sharing resources for professional learning) and others forged connections without state support (e.g., Caesar Rodney partnered independently with Cape Henlopen to observe their ARC work, knowing Cape had been implementing it for a number of years). The state might consider publishing a list showing which districts are using which HQIM, and in which grades, such that these partnerships might continue to emerge organically. Increased awareness of specific HQIM use statewide might benefit secondary educators in particular, whom interviewees reported have had less access to interdistrict sharing thus far.⁴⁹ More awareness of district-specific curriculum use might also advance conversations that take place during the subject-specific, but curriculum agnostic, Math and Literacy Cadre meetings (e.g., Cadre participants might even be asked to “rename” themselves on Zoom, adding their districts and curricula).

Continue RPL grantmaking in ways that support collaborative, long-term professional learning.

When reflecting on their RPL grants, several district leaders expressed a desire to collaborate with other districts that use the same HQIM. They recognized the value of collaborating with each other at DDOE’s annual Professional Learning Summit, but some also want to write grants together to enhance the quality of their work, develop deeper collaborative learning relationships, and ultimately, share the costs of professional learning. DDOE should consider making explicit space for cross-district grant proposals. In addition, effective and sustainable professional learning structures require years to build. When discussing the benefits of RPL grants, district leaders voiced that the change the RPL grants ask recipients to accomplish requires more than a single year and wondered whether DDOE might extend the terms of the RPL grants.

Develop and share a vision for how HQIM interact with standardized assessments.

Some interviewees explained that in order to support their students to succeed on standardized assessments, they feel they must deviate from the lessons laid out in their HQIM. In particular, teachers can feel pressured to resort to procedural instructional approaches when faced with high-stakes exams. Moreover, per RAND’s 2022 teacher-facing AIRS, in Delaware—where HQIM are more widely-used than in the nation as a whole—teachers report that their instructional materials are less aligned to benchmark exams than their peers nationwide.⁵⁰ Together, our data and RAND’s suggest that Delaware educators want more clarity on the ways in which HQIM interact with standardized assessments and what educators need to do to thread the needle between the two. To that end, the state should develop and share a perspective on this point. Should teachers provide test-specific preparation, even if outside of the realm of their HQIM, or let their HQIM carry the full weight of equipping students with the knowledge and skills they will need for standardized assessments?

Communicate the benefits of HQIM from educators’ perspectives via the online platforms educators use most.

Our analysis of DDOE’s HQIM social media efforts⁵¹ suggested limited educator engagement with DDOE’s posts. For instance, an analysis of the first 250 tweets posted using the hashtag #DelawareDelivers reveals that over 140 were issued by the same three users (DDOE, Curriculum Matters, and Knowledge Matters). Nevertheless, a survey on teachers’ social media use conducted by education marketing specialists at MDR found that teachers are more active on social media than the general population, and that they are most likely to engage with Facebook, followed by Pinterest, Instagram, and then Twitter.⁵² And, while our data suggest that teachers are most interested in learning about HQIM from other educators, we heard that frequently-used platforms, like Facebook, can be hubs for misinformation about HQIM and professional learning. DDOE should consider whether their social media strategy can bring teacher perspectives on what makes HQIM work for them to the platforms that teachers use most (i.e., Facebook and Pinterest).⁵³ Teachers enlisted to champion HQIM online could potentially serve as advocates offline as well.⁵⁴

RECOMMENDATIONS

District Leaders**Partner with educators, families, and students throughout adoption and early implementation.**

Study sites approached adoption and early implementation from a number of angles. Some efforts were top-down with adoption decisions made by district-level officials alone, while others deeply involved educators, families, and students, ultimately generating stronger stakeholder buy-in when implementation launched. However, stakeholder involvement alone is not always sufficient; two-way partnership is key. And, while stakeholder feedback was commonly solicited during piloting and curriculum selection, we saw less evidence that districts and schools continued to collect feedback once implementation was underway. As such, districts that are adopting HQIM need systems that allow them to authentically partner with and deeply listen to educators, families, and students throughout adoption and implementation. This could look like soliciting feedback on the processes used for adoption, conducting listening tours in the first years of implementation, inviting families to visit classrooms and experience HQIM-based instruction, and the like.

Invest early in HQIM manipulatives (and other supplies) to ease preparatory burdens on educators.

While HQIM can save teachers time in the long run, there is an upfront lift when it comes to implementation, particularly for elementary school math. Teachers need extensive manipulatives sets to facilitate hands-on learning. Generally, these can be made by hand or purchased. Investing in physical materials to accompany HQIM allows teachers to dive into curricular content, rather than spending time laminating copies and cutting out shapes. While manipulative sets can be costly, they may lead to smoother transitions with higher morale.⁵⁶ Where these materials are not available or where the costs cannot be met, districts might consider compensating a select group of educators to prepare manipulative kits over the summer, as one study district did.

Partner with other districts implementing the same HQIM to model effective practices and share costs.

Partnering with other districts utilizing the same HQIM can reap a host of benefits. First, it can provide real-world models that allow teachers and administrators to see firsthand what instruction with HQIM looks like. These models, particularly when seen in districts with similar contexts, can help build educators' faith that HQIM can serve all students. They can also help surface common roadblocks that districts may encounter throughout implementation, as well as solutions that districts have used to overcome those barriers. Given the challenges associated with obtaining substitute teachers and classroom coverage, this modeling might take place via video. Moreover, partnerships may enable districts to engage in shared professional learning opportunities, reducing costs and freeing up funds for individualized coaching, supplies and the like.

Set schedules that provide sufficient instructional time, teacher preparation time, and professional learning time.

To be taught with integrity, HQIM lessons need to follow a regular cadence: generally one lesson per day. But, Delaware interviewees reported that scheduling constraints—like a 45-minute block designated for a 60-minute lesson—can hamper teachers' ability to implement all lesson components and to keep up with pacing guides. District leaders (and school leaders, as noted below) should work to minimize these scheduling constraints.⁵⁶ Districts also need to allow enough time for teachers to engage in the professional learning required to learn the HQIM and to conduct the daily and weekly intellectual preparation necessary to thoughtfully implement lessons. For this reason, some district and school leaders have built weekly 90-minute professional learning blocks into all teachers' workweeks. Several interviewees also expressed that additional half-days that could be used for professional learning or preparation would be helpful, which interviewees have noted would be best if scattered throughout the school year (as opposed to being lumped together at the year's start or end).⁵⁷

RECOMMENDATIONS

School Leaders**Attend teacher-facing professional learning and spend non-evaluative time in classrooms.**

When HQIM are adopted, school leaders are often building their curricular knowledge alongside their teachers. Though their schedules are packed, leaders who actively participate in teacher-facing professional learning, including coaching sessions, report feeling empowered to offer tangible instructional support (e.g., they are able to model lessons and offer nuanced feedback). Moreover, teachers whose leaders were present during professional learning reported feeling supported and assured that their time was being effectively used. Additionally, interviewees shared that when leaders enter classrooms to formally observe or evaluate, teachers can feel intimidated as they try to use the materials, decreasing confidence and morale. When leaders are present in classrooms often and without evaluative intentions (whether they are observing, playing an instructional role, or lending a hand), it signals to teachers that they are not alone on the HQIM journey. As such, school leaders should spend non-evaluative time in classrooms, rolling up their sleeves, modeling, co-teaching, and conferencing with students. Presence in the classroom can also help leaders identify strong HQIM implementers, who may be able to model for struggling or new teachers.

Create structures that allow teachers to learn about HQIM-based instruction from one another, particularly across general education and special education boundaries.

Across sites, educators expressed that they wanted additional support to ensure that they could meet the needs of special populations using HQIM. And while many HQIM provide resources to help educators reach a variety of learners, some teachers feel overwhelmed when planning to use them (either due to the sheer number of resources or due to their complexity). Bringing teachers together to plan instruction, particularly general education teachers and special education teachers and/or providers, could allow teachers to draw on their collective expertise to better utilize these resources for all students. Moreover, for special education teachers and providers expected to generate IEP goals, additional time planning with Tier 1 instructors would help them to design IEP goals that align with the materials used in most classrooms. Still, simply bringing all teachers together will not necessarily result in collaborative, HQIM-based learning. In fact, when teachers come together from across departments, it sometimes means that professional learning time is used to cover nonacademic topics. Thus, if teachers gather for professional learning from across departments (as can be important for community building, planning cross-subject projects, discussing specific student needs, etc.), teachers should spend some of the time in small groups based on the curricula they use.

Set school schedules that allow for sufficient instructional time, teacher preparation time, and professional learning time, and where scheduling shifts are not possible, communicate transparently about time-related adjustments to HQIM use.

Like district leaders, school leaders should work to create school schedules that allow for the instructional time, preparation time, and professional learning time that HQIM require. However, school leaders are not always able to freely adjust, as schedules are subject to constraints related to collective bargaining agreements, district policies, and the many idiosyncrasies of daily life in school buildings. Thus, when school leaders are unable to make the scheduling changes they feel necessary, they should transparently communicate with their staff members and district leadership about what HQIM lesson components or preparatory practices are being altered to help ensure changes are made intentionally. For instance, if teachers have insufficient time to prepare for lessons due to the volume of manipulatives that need to be created, a leader might provide direct support, or reallocate other staff members' time to help out. Similarly, if a leader learns that a certain component of a math lesson is often cut for time (e.g., a warm up), the leader could help facilitate planning support to protect that component or collaborate with teachers, coaches, district leadership, and professional learning providers to develop an effective workaround.

Partner with families around HQIM.

Across the HQIM space, it is recognized that when educators collaborate to plan and deliver instruction, instruction is strengthened. However, a set of key members of the instructional core, who harbor robust knowledge about what kids need, are often left out of these collaborations: families.⁵⁸ School leaders should work to facilitate two-way communication with families with respect to HQIM. First, schools should utilize existing communication structures, such as school websites, learning management systems, parent newsletters, and curriculum nights to share the reasoning behind new HQIM. Additionally, many HQIM provide supporting resources for families (e.g., take-home components, online resources), and teachers should be encouraged to take advantage of these. Moreover, schools should develop systems by which families can provide feedback on the ways in which the curricula serve or do not serve their children and their ideas for how implementation can be improved.

RECOMMENDATIONS

Professional Learning Providers

Model effective instruction and effective coaching with HQIM.

Teachers and leaders need visual and interactive opportunities to learn new information. Providers should explicitly demonstrate how to deliver lessons or use materials when asking teachers to engage with new HQIM. This type of guidance enables teachers to see the thought processes and subtle “teacher moves” that lead to effective implementation. Additionally, this modeling can help educators who have difficulty imagining their own students using HQIM and help providers identify areas where teachers might struggle based on their own difficulties implementing. Beyond modeling instruction directly, professional learning providers should also consider how they can support leaders and in-house coaches to develop their own coaching practices around HQIM. In some instances, providers deliver leader-specific training, and in others, leaders sit in on provider-led coaching sessions and other professional learning to grow their instructional leadership capacity through observation.

Guide teachers to take advantage of the differentiation supports built into HQIM.

Across sites, educators emphasized the resources that are built right into the HQIM for supporting students with diverse needs. Teachers need guidance, however, on the full range of materials offered to them if they are to employ them strategically during instruction. Due to the complex nature of the materials and the volume of differentiation resources built into HQIM, expert professional learning providers need to equip teachers with this guidance. Moreover, where feasible, professional learning providers might also guide educators who design IEP goals to do so based on the HQIM those students experience in their classrooms.

With educators, cocreate approaches to partnering with families around HQIM.

While a number of HQIM publishers provide family-facing resources, true academic partnership with families involves more than sending home student assignments and one-pagers on the topics students have explored in class. Yet, when asked whether they receive support regarding how to academically partner with families around HQIM, educators frequently share that they do not. Rather, academic partnership occurs ad-hoc, such as when parents call teachers with questions about homework and end up in deep discussion about conceptual math. Educators know the families they serve best, so professional learning providers should consider setting time aside during professional learning sessions to work with educators to cocreate approaches and structures for growing these crucial academic partnerships and rooting them in HQIM.

Solicit educator feedback and adjust curriculum and professional learning approaches accordingly.

Designing research-backed curricula and professional learning from a distance can mean that developers and providers have blind spots. They may under- or overestimate the power of particular services or practices, or miss logistical problems that arise with lessons on the ground. Data from this study suggest that important changes can be made to HQIM and to professional learning strategies when educators' honest feedback is continuously collected, heard, and acted upon. To refine HQIM and professional learning over time, providers must continuously solicit and incorporate feedback from teachers about what is and is not working so the materials can best serve kids.

Conclusion

As this research makes clear, the HQIM and professional learning efforts in Delaware have made enormous strides since DDOE joined the CCSSO IMPD Network in 2017. Still, the on-the-ground experiences of leaders, educators, professional learning providers, and families suggest that there is intensive work to be done to help all students realize the benefits associated with these materials. Nevertheless, the instructional growth among teachers, the district collaboration growing across the state, the skyrocketing student discourse, and above all, the potential for greater educational equity, project clearly that Delaware would be wise to **stay the course**.



Appendices

Appendix A. State-Level Strategies, Resources, and Supports to Advance Delivery of HQIM and Professional Learning

Online Informational Resources	Date of Delivery / Launch Date	Description
Delaware Math Framework	2023	Aimed at district leaders, school leaders, coaches, content specialists, and teacher leaders, the framework lays out a vision for equitable, rigorous, mathematics instruction across the state.
DE Delivers Platform	2021	DE Delivers is an online hub of resources embedded within DDOE's Digital DE platform that aims to spread knowledge about HQIM and the ways in which they are driving learning statewide. ⁵⁹ The hub includes planning guidance for leaders, district case studies, and promotional videos and webinars (via the DDOE YouTube channel).
Online Links to Select HQIM	2021	Within the HQIM subpage of the DE Delivers platform, DDOE provides public links to select HQIM (e.g., Bookworms, Core Knowledge (CKLA), Eureka Math, Illustrative Math). ⁶⁰
Social Media Communication	2021	Delaware has used social media to highlight successful implementation strategies as well as benefits associated with HQIM use. DDOE, alongside Knowledge Matters and Curriculum Matters, distributed over 140 tweets using the hashtag #DelawareDelivers. ⁶¹ DDOE also distributed a series of HQIM-focused webinars and clips showing instruction with HQIM via YouTube with the same hashtag. ⁶²
Professional Learning Partners Guide	2020	Built in partnership with Rivet Education, this guide provides professional learning decision makers with a vetted list of vendors that deliver high-quality professional learning and coaching. ⁶³ A condensed online vendor guide is located on the professional learning subpage of the DE Delivers platform. ⁶⁴
Delaware Literacy Plan	2019	The Literacy Plan was created by a committee with representatives from the State Board of Education, DDOE, district leaders, and university partners. Focused on grades PK-3, it identifies strategies to align core instruction to standards and HQIM. ⁶⁵

Financial Supports	Date of Delivery / Launch Date	Description
Reimagining Professional Learning Grants	Launched 2016; redesigned in 2019	DDOE provides funds for school districts to invest in curriculum-based professional learning. RPL grants aim to improve teacher practice by creating professional learning conditions that schools can sustain and build upon over time. Grants are awarded to districts and schools with clear visions for skillful implementation of HQIM, capacity-building, and continuous improvement cycles. DDOE helps grantees plan and implement through webinars, consultations, and site visits. According to CCSSO, DDOE has awarded almost \$13 million to 24 districts/charters over six year-long grant cycles.

Select Legislation / Regulations	Date of Delivery / Launch Date	Description
Delaware General Assembly Senate Bill 4	2022	This bill requires DDOE to publish a list of vetted, science of reading-based curricula for grades K-3. ⁶⁶ It also requires all district and charter schools serving K-3 students to adopt a curriculum from this list and demonstrate that all educators using the curricula receive state-vetted professional learning by academic year 2027-2028. ⁶⁷
Delaware General Assembly House Bill 304	2022	Passed in 2022, this bill requires that all K-3 students be screened three times a year for “potential reading deficiencies” (including dyslexia). The aim is that educators will be able to recognize reading challenges and quickly provide interventions. The bill requires DDOE to identify screeners as well as science of reading-based interventions to address challenges. ⁶⁸
Delaware General Assembly Senate Bill 133	2021	This bill requires Delaware’s elementary teacher preparation programs to provide teacher candidates with coursework on science of reading-based literacy instruction. ⁶⁹ Programs must comply by the end of academic year 2022-2023. ⁷⁰
Delaware General Assembly House Bill 198	2021	This bill states that all K-12 schools must provide instruction on Black History. ⁷¹ The bill does not mandate use of a particular curriculum, but notes that curricula used must cover, among other topics, examples of Black achievement and information about the relationship between racism, white supremacy, slavery, segregation, and ongoing racial inequality. ⁷²

Select Legislation / Regulations	Date of Delivery / Launch Date	Description
Delaware Administrative Code Regulation 508	2020	In addition to laying out the parameters of the state’s Multi-Tiered System of Support (MTSS), this regulation requires use of high-quality instructional resources for Tier 1, Tier 2 and Tier 3. ⁷³
Delaware Administrative Code Regulation 502	2014	This regulation lays out the requirement that local school districts align their curricula to the state’s content standards. ⁷⁴ It also provides a process by which the state certifies districts’ compliance annually. ⁷⁵
Delaware Administrative Code Regulation 1598	2012	This regulation codifies the Learning Forward Standards for Professional Learning ⁷⁶ as the grounding document for all implementation and evaluation of professional learning in Delaware. ⁷⁷

Professional Learning Networks and Opportunities	Date of Delivery / Launch Date	Description
Eureka, Zearn, and Engage (EZE) Professional Learning Network	2021	The EZE network brings together district and charter leaders, school leaders, and teachers who use Eureka, Zearn, and Engage math curricula from across Delaware. Supported by SchoolKit, a professional learning provider featured on the Partner Guide mentioned above, the network meets monthly to discuss how these curricula support students to meet grade-level standards and how they can support learning recovery.
Professional Learning Summit	2020	DDOE runs an annual summit to help district and charter leaders to explore HQIM, professional learning, and effective practices and common pitfalls involved in adoption and implementation. ⁷⁸ The summit has been run in partnership with TNTP and is required for districts soliciting RPL Grants.
Bridges Professional Learning Network	2017	The Bridges Professional Learning Network brings together district-level instructional leaders for professional learning focused on the Bridges to Mathematics. This network began via informal information sharing among districts using Bridges, and has grown into a state-sponsored and -run network.

Professional Learning Networks and Opportunities	Date of Delivery / Launch Date	Description
Literacy and Math Cadres	2015	The Cadres consist of district-level instructional leaders who meet monthly for professional learning focused on reading and math. Leaders turnkey learning to educators across their districts. As of 2022, Teaching Lab leads the Literacy Cadre meetings.
Delaware Literacy Coalition	2012	The Coalition is a group of primarily district-level literacy supervisors that support statewide initiatives to ensure that students graduate high school with the literacy skills needed for postsecondary success. ⁷⁹
Math Coaching	(n.d)	DDOE funds 18 coaches who support middle school math in a set of districts statewide. ⁸⁰

Appendix B. Select HQIM-Specific Professional Learning Structures across Sites

Site	Select HQIM-Specific Professional Learning Structures
<p>Allen Frear Elementary School, Caesar Rodney (Study focused on American Reading Company)</p>	<ul style="list-style-type: none"> • Learning Leadership Series (LLS): ARC provides a once-per-month workshop geared toward school leaders. Leaders study student data and use improvement science to identify and address areas of strength and areas for growth.⁸¹ • One-on-one teacher coaching: ARC coaches provide differentiated coaching for teachers. Teachers also work directly with internal Frear subject matter specialists, who regularly conduct classroom walkthroughs. Frear leadership worked to ensure that internal subject matter specialists learned from ARC coaches, so that they too could provide coaching for teachers. • ARC on-site workshops: Teachers participate in once-per-month workshops with an ARC coach. Among other activities, this time is used for unit unpacking.⁸² • Faculty meetings: About once a month, either on an in-service day or a student half day, teachers receive time for school-level grading, planning, or to engage in district workshops on topics such as socioemotional learning. • Student Support Block (SSB): Teachers and leaders participate in weekly, 45-minute, professional learning sessions for teachers within grade teams, led by internal specialists and leaders. Subject matter alternates every other week between ELA and math.
<p>Blades Elementary School, Seaford (Study focused on Bookworms and Illustrative Math)</p>	<ul style="list-style-type: none"> • District-wide leader professional learning meetings: Seaford leaders meet once a month to deepen their understanding of the why behind HQIM and to explore approaches to strong instructional leadership. • Grade team PLCs: Teachers and coaches participate in a weekly planning PLC with their grade teams and school leaders for 90 minutes. Subject matter alternates between ELA and math. Time is used flexibly depending on needs and may be devoted to sharing resources or discussing how to guide instruction based on student work. • Illustrative Math “Preparation” professional learning: Before the school year started, teachers had three days of “Preparation” professional learning.⁸³ • Learning Lab coaching: The Learning Lab coach from University of Delaware’s Professional Development Center for Educators provides a select set of teachers with twice-per-week in-class coaching. The coach co-teaches lessons and reviews student data with teachers to guide instruction. The goal is that other teachers will observe those Learning Lab classrooms for professional learning purposes.

Site	Select HQIM-Specific Professional Learning Structures
<p>H.B. du Pont Middle School, Red Clay (Study focused on Illustrative Math)</p>	<ul style="list-style-type: none"> • District-wide professional learning days: Red Clay provides several professional learning opportunities for all its schools. At district-provided professional learning, teachers are grouped by grade level and collaborate on specific instructional initiatives. • Grade-level team PLCs: Teachers lead 45-minute grade team meetings attended by building-specific coaches. The PLCs focus on issues relevant to all teachers on a given grade team. Teachers who teach students at the same level (e.g., honors sixth-grade math) often collaborate on their own time outside of PLCs. • One-on-one teacher coaching: A building-specific math coach works one-on-one with teachers and tailors supports to match teachers' needs. • Pineapple Initiative: This teacher-led initiative encourages peer observations. Teachers invite peers to visit their classrooms by placing pineapple stickers outside their doors. • Teacher-leader cohorts: Red Clay facilitates teacher-leader cohorts that consist of one teacher, one math coach, and one administrator from each school. The cohorts explore Illustrative Math materials as students and share learnings with their schools. The district is also planning to disseminate videos of participating teachers' classrooms as models of effective teaching.
<p>Lewes Elementary School, Cape Henlopen (Study focused on American Reading Company and Bridges to Mathematics)</p>	<ul style="list-style-type: none"> • Data Days: Four times a year, school administrators, special education providers, and teachers study ARC and Bridges data to monitor the progress of all students receiving Tier 2 or Tier 3 support. They determine if any interventions need to change to ensure students are supported. • District-wide professional learning days: These ~15 professional learning days are structured around topics determined by the district. District leaders participating in the Bridges Professional Learning Network sometimes turnkey their learnings at this time. • Grade-level team PLCs: Grade teams meet twice a week to engage in planning, once with their administration and once with their in-building coaches for math and ELA. • One-on-one teacher coaching: Teachers have ongoing access to building-specific ELA and math coaches. These coaches tailor supports to match teachers' needs.
<p>Seaford Central Elementary School, Seaford (Study focused on Bookworms and Illustrative Math)</p>	<ul style="list-style-type: none"> • District-wide leader professional learning meetings: Seaford leaders meet once a month to deepen their understanding of the why behind HQIM and to explore approaches to strong instructional leadership. • Grade team common planning time: Grade teams meet twice a week for 45 minutes to engage in shared planning. • Grade-level team PLCs: Grade teams meet in formalized PLCs once a week for 90 minutes. These meetings have multiple goals and may focus on assessment, review of student work, or breaking down math conceptually. • Learning Lab coaching: A Learning Lab coach from Amplify provides an opportunity for a select set of teachers who receive twice a week in-class coaching and support. The coach co-teaches lessons and reviews student data with teachers to guide instruction. The goal is that other teachers will observe those Learning Lab classrooms for professional learning purposes. • One-on-one teacher coaching: Teachers receive math coaching two days a week from a math-focused consultant and regular ELA coaching from a Bookworms coach. The coaches tailor supports to match teachers' needs.

Site	Select HQIM-Specific Professional Learning Structures
<p>Seaford Middle School, Seaford (Study focused on Bookworms and Illustrative Math)</p>	<ul style="list-style-type: none"> • District-wide leader professional learning meetings: Seaford leaders meet once a month to deepen their understanding of the why behind HQIM and to explore approaches to strong instructional leadership. • Grade-level team PLCs: Grade teams meet in formalized PLCs across departments once a week. • One-on-one teacher coaching: Teachers have ongoing access to building-specific coaches. The coaches tailor supports to match teachers’ needs. • Peer observation: Teachers are encouraged to observe peers using Bookworms and Illustrative Math.
<p>Shue-Medill Middle School, Christina (Study focused on American Reading Company and Illustrative Math)</p>	<ul style="list-style-type: none"> • ARC coaching and workshops: About once a month, ARC professional learning providers visit Shue to walk through classrooms, provide planning support, and deliver other training. • District-wide leader professional learning meetings: Christina secondary leaders meet once a month with ARC coaches to deepen their understanding of the ARC framework, assessments, online data portal, and instructional strategies/resources, and to complete on-site walkthroughs in teams followed by calibration and rich discussion. Each secondary school also engages in a cycle of inquiry and identifies measures of success. Data is shared by each school at the start of each session to enhance the importance of the process and instructional leadership. • District-wide professional learning days: Christina has three professional learning days focused specifically on math, where HQIM-specific topics are explored. There are ~16 additional professional learning days provided across the district. About four of these are building-based. • Grade-level team PLCs: Grade teams meet in formalized PLCs across departments once a week. These PLCs are led by coaches, teachers, and outside partners depending on the subject focus. For instance, Shue works with an outside specialist who guides teachers to differentiate instruction for students with disabilities. • One-on-one teacher coaching: Teachers have ongoing access to building-specific coaches for ELA and math. The coaches tailor supports to match teachers’ needs.

References

- 1 Blazar, D., Heller, B., Kane, T. J., et al. (2019). Learning by the book: Comparing math achievement growth by textbook in six Common Core states. Center for Education Policy Research, Harvard University. http://cepr.harvard.edu/files/cepr/files/cepr-curriculum-report_learning-by-the-book.pdf; Steiner, D., Magee, J., & Jensen, B. (2018). What we teach matters: How quality curriculum improves student outcomes. Learning First. <https://learningfirst.com/wp-content/uploads/2018/11/What-we-teach-matters-FINAL-for-publication-15-Nov.pdf>; Tepe, L. (2017). States, not publishers, driving innovation in the curriculum marketplace. New America. <https://www.newamerica.org/education-policy/edcentral/states-driving-curriculum-innovation/>; Kane, T., Owens, A., Marinell, W., et al. (2016). Teaching higher: Educators' perspectives on Common Core implementation. Center for Education Policy Research, Harvard University. <http://cepr.harvard.edu/files/cepr/files/teaching-higher-report.pdf?m=1454988762>; Chingos, M., & Whitehurst, G. (2012). Choosing blindly: Instructional materials, teacher effectiveness, and the Common Core. Brown Center on Education Policy at Brookings. https://www.brookings.edu/wp-content/uploads/2016/06/0410_curriculum_chingos_whitehurst.pdf.
- 2 National Research Council. (2007). Taking science to school: Learning and teaching science in grades K-8. The National Academies Press. <https://doi.org/10.17226/11625>.
- 3 Davis, E. A., & Krajcik, J. S. (2005). Designing educative curriculum materials to promote teacher learning. *Educational Researcher*, 34(3), 3–14. <https://doi.org/10.3102/0013189X034003003>; Schneider, R. M., & Krajcik, J. (2002). Supporting science teacher learning: The role of educative curriculum materials. *Journal of Science Teacher Education*, 13(3), 221–245. <https://www.jstor.org/stable/43156297>.
- 4 Blazar, D., Heller, B., Kane, T. J., et al. (2019). Learning by the book: Comparing math achievement growth by textbook in six Common Core states. Center for Education Policy Research, Harvard University. http://cepr.harvard.edu/files/cepr/files/cepr-curriculum-report_learning-by-the-book.pdf; Koedel, C., & Polikoff, M. (2017). Big bang for just a few bucks: The impact of math textbooks in California. *Economic Studies at Brookings*. <https://www.brookings.edu/research/big-bang-for-just-a-few-bucks-the-impact-of-math-textbooks-in-california/>; Jackson, K., & Makarin, A. (2018). Can online off-the-shelf lessons improve student outcomes? Evidence from a field experiment. *American Economic Journal: Economic Policy*, 10(3), 226–254. <https://doi.org/10.1257/pol.20170211>; Kane, T., Owens, A., Marinell, W., et al. (2016). Teaching higher: Educators' perspectives on Common Core implementation (p. 56). Center for Education Policy Research, Harvard University. <http://cepr.harvard.edu/files/cepr/files/teaching-higher-report.pdf?m=1454988762>.
- 5 Kaufman, J.H., Tosh, K., & Mattox, T. (2020). Are U.S. teachers using high-quality instructional materials? RAND Corporation. https://www.rand.org/pubs/research_reports/RR2575z11-1.html; Steiner, D., Magee, J., & Jensen, B. (2018). What we teach matters: How quality curriculum improves student outcomes. Learning First. <https://learningfirst.com/wp-content/uploads/2018/11/What-we-teach-matters-FINAL-for-publication-15-Nov.pdf>.
- 6 Steiner, D. (2017). Curriculum research: What we know and where we need to go. *Standards Work*. <https://standardswork.org/wp-content/uploads/2017/03/sw-curriculum-research-report-fnl.pdf>.
- 7 Steiner, D., Magee, J., & Jensen, B. (2018). What we teach matters: How quality curriculum improves student outcomes. Learning First. <https://learningfirst.com/wp-content/uploads/2018/11/What-we-teach-matters-FINAL-for-publication-15-Nov.pdf>.
- 8 Delaware Department of Education. (2021). DE Delivers overview of high-quality instructional materials. https://education.delaware.gov/wp-content/uploads/digital_de/de-delivers-hqim-overview.pdf.
- 9 Delaware Department of Education. (2021). DE Delivers overview of high-quality instructional materials. https://education.delaware.gov/wp-content/uploads/digital_de/de-delivers-hqim-overview.pdf.
- 10 EdReports. (n.d.). How the EdReports review process works. Retrieved December 12, 2022, from <https://www.edreports.org/process/review-tools>.
- 11 Short, J. B., & Hirsh, S. (2023). Transforming teaching through curriculum-based professional learning: The elements. Corwin; Fuchs Miller, A., & Partelow, L. (2019). Successful implementation of high-quality instructional materials. Center for American Progress. <https://www.americanprogress.org/article/successful-implementation-high-quality-instructional-materials/>.
- 12 Blazar, D., Heller, B., Kane, T. J., et al. (2019). Learning by the book: Comparing math achievement growth by textbook in six Common Core states. Center for Education Policy Research, Harvard University. http://cepr.harvard.edu/files/cepr/files/cepr-curriculum-report_learning-by-the-book.pdf.

- 13 Short, J. B., & Hirsh, S. (2023). Transforming teaching through curriculum-based professional learning: The elements. Corwin; Gonzalez, K., Lynch, K., & Hill, H.C. (2022). A meta-analysis of the experimental evidence linking STEM classroom interventions to teacher knowledge, classroom instruction, and student achievement. Annenberg Institute at Brown University. <https://doi.org/10.26300/d9kc-4264>; Booker, L. N., & Russell, J. L. (2022). Improving teaching practice with instructional coaching. EdResearch for Recovery. annenberg.brown.edu/sites/default/files/EdResearch_for_Recovery_Design_Principles_3.pdf; Jackson, K., & Makarin, A. (2018). Can online off-the-shelf lessons improve student outcomes? Evidence from a field experiment. *American Economic Journal: Economic Policy*, 10(3), 226-254. <https://doi.org/10.1257/pol.20170211>; Basma, B., & Savage, R. (2018). Teacher professional development and student literacy growth: A systematic review and meta-analysis. *Educational Psychology Review*, 30, 457-481. <https://doi.org/10.1007/s10648-017-9416-4>; Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). Effective teacher professional development. Learning Policy Institute. https://learningpolicyinstitute.org/sites/default/files/product-files/Effective_Teacher_Professional_Development_REPORT.pdf; Kennedy, M. M. (2016). How does professional development improve teaching? *Review of Educational Research*, 86(4), 945-980. <https://doi.org/10.3102/0034654315626800>; Taylor, J. A., Getty, S. R., Kowalski, S., et al. (2015). An efficacy trial of research-based curriculum materials with curriculum-based professional development. *American Educational Research Journal*, 52(5), 984-1017. <https://doi.org/10.3102/0002831215585962>; Desimone, L. M. (2011). A primer on effective professional development. *Phi Delta Kappan*, 92(6), 68-71. <https://doi.org/10.1177/003172171109200616>; Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, 38(3), 181-199. <https://doi.org/10.3102/0013189X08331140>; Blank, R.K., & de las Alas, N. (2009). The effects of teacher professional development on gains in student achievement: How meta analysis provides scientific evidence useful to education leaders. Council of Chief State School Officers. <https://eric.ed.gov/?id=ED544700>; Yoon, K. S., Duncan, T., Wen-Yu Lee, S., et al. (2007). Reviewing the evidence on how teacher professional development affects student achievement (Issues & Answers Report, REL 2007-No. 033). U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southwest. <https://eric.ed.gov/?id=ED498548>; Heller, J. I., Daehler, K. R., Shinohara, M., et al. (2004). Fostering pedagogical content knowledge about electric circuits through case-based professional development [Paper presentation]. National Association for Research on Science Teaching 2009 Annual Meeting, Vancouver, B.C.; Schneider, R. M., & Krajcik, J. (2002). Supporting science teacher learning: The role of educative curriculum materials. *Journal of Science Teacher Education*, 13(3), 221-245. <https://jstor.org/stable/43156297>; Desimone, L. M., Porter, A. C., Garet, M. S., et al. (2002). Effects of professional development on teachers' instruction: Results from a three-year longitudinal study. *Educational Evaluation and Policy Analysis*, 24(2), 81-112. <https://doi.org/10.3102/01623737024002081>.
- 14 Short, J. B. and Hirsh, S. (2023). Transforming teaching through curriculum-based professional learning: The elements. Corwin; TNTP & State Collaborative on Reforming Education. (2019). Instructional materials implementation guidebook. <https://lifteduca-tiontn.com/wp-content/uploads/2019/11/LIFT-Guidebook-2019-FINAL.pdf>.
- 15 Short, J. B. and Hirsh, S. (2023). Transforming teaching through curriculum-based professional learning: The elements. Corwin.
- 16 Ray, R. & Gibbons, A. (2021). Why are states banning critical race theory? Brookings. <https://www.brookings.edu/blog/fix-gov/2021/07/02/why-are-states-banning-critical-race-theory/>.
- 17 Instruction Partners. (n.d.). Curriculum support guide. <https://curriculum-support.org/>.
- 18 Chu, E., Gurny, M., McCarty, G., et al. (2022). Curriculum-based professional learning: The state of the field. Center for Public Research and Leadership, Columbia University. <https://cprl.law.columbia.edu/content/curriculum-based-professional-learning-state-field>.
- 19 Miller, A., & Partelow, L. (2019). Successful implementation of high-quality instructional materials. Center for American Progress. <https://www.americanprogress.org/article/successful-implementation-high-quality-instructional-materials/>.
- 20 Carvajal Hageman, K. (2021). Curriculum case study: How one school district in the 'Nylon Capital of the World' once faced state takeover for poor performance, then became among the best in Delaware. The 74. <https://www.the74million.org/article/curriculum-case-study-how-one-school-district-in-the-nylon-capital-of-the-world-once-faced-state-takeover-for-poor-performance-then-became-among-the-best-in-delaware/>.
- 21 Corbidge, K., & Shaeffer, A. (2021). Curriculum case study: How implementing a new language arts program accelerated English learners' reading by a year — In just one month's time. The 74. <https://www.the74million.org/article/curriculum-case-study-delaware-ell-year-reading-growth-in-month/>.
- 22 In response to shifts in Delaware's legislative and policy landscape, DDOE is currently evaluating early literacy curricula to meet legislative requirements. As a result, the quality classifications of the curricula included in the study are subject to change.

- 23 Delaware Department of Education. (2022). Delaware state snapshot. <https://reportcard.doe.k12.de.us/detail.html#aboutpage?scope=state&district=0&school=0>.
- 24 Excluding 2020, as scores were not collected as a result of the pandemic.
- 25 Districts participating in this study varied in their approaches to HQIM adoption. Most used a combination of leveraging the HQIM research base (using EdReports and university research partners), creating committees of educators to collaborate on selection and adoption, and gathering insights from students themselves on the proposed curricula.
- 26 Districts piloting HQIM are not counted as having adopted HQIM for purposes of this table.
- 27 Three of Delaware's 19 districts serve high school only.
- 28 Three of Delaware's 19 districts serve high school only.
- 29 Carvajal Hageman, K. (2021). Curriculum case study: How one school district in the 'Nylon Capital of the World' once faced state takeover for poor performance, then became among the best in Delaware. *The 74*. <https://www.the74million.org/article/curriculum-case-study-how-one-school-district-in-the-nylon-capital-of-the-world-once-faced-state-takeover-for-poor-performance-then-became-among-the-best-in-delaware/>.
- 30 Grimes Stewart, T. (2021). Curriculum case study: From 'focus' to 'exceptional,' how a Delaware school transformed student literacy in just 3 years. *The 74*. <https://www.the74million.org/article/curriculum-case-study-from-focus-to-exceptional-how-a-delaware-school-transformed-student-literacy-in-just-3-years/>.
- 31 Giska, A. (2021). Teachers are convinced by results: The Laurel curriculum journey. *Curriculum Matters*. <https://curriculummatters.org/2021/08/05/teachers-are-convinced-by-results-the-laurel-school-district-curriculum-journey/>.
- 32 U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. National Assessment of Educational Progress (NAEP), 2022 mathematics assessment. <https://www.nationsreportcard.gov/highlights/mathematics/2022/>; U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. National Assessment of Educational Progress (NAEP), 2022 reading assessment. <https://www.nationsreportcard.gov/highlights/reading/2022/>; U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. National Assessment of Educational Progress (NAEP), 2019 mathematics assessment. <https://nces.ed.gov/nationsreportcard/subject/publications/stt2019/pdf/2020013DE8.pdf>.
- 33 These figures were determined by comparing average proficiency levels for the relevant grades at the named schools to average proficiency levels for the relevant grades across the state of Delaware. Proficiency levels were accessed using the Delaware Open Data platform. Delaware Open Data. (2022). Student assessment performance (Updated October 6, 2022) [Data set]. <https://data.delaware.gov/Education/Student-Assessment-Performance/ms6b-mt82>.
- 34 Delaware Open Data. (2022). Student assessment performance (Updated October 6, 2022) [Data set]. <https://data.delaware.gov/Education/Student-Assessment-Performance/ms6b-mt82>.
- 35 Delaware Open Data. (2022). Student assessment performance (Updated October 6, 2022) [Data set]. <https://data.delaware.gov/Education/Student-Assessment-Performance/ms6b-mt82>.
- 36 Math Learning Center. (2022). Number chart. <https://www.mathlearningcenter.org/apps/number-chart>.
- 37 American Reading Company. (2022). SchoolPace. <https://schoolpace.americanreading.com/>.
- 38 Forefront Education. Visualize Bridges® in Mathematics results. (2022). <https://forefront.education/bridges-math-data/>.
- 39 Student Achievement Partners. (2021). Instructional Materials Evaluation Tool. Achieve the Core. <https://achievethecore.org/page/1946/instructional-materials-evaluation-tool>.
- 40 Delaware Open Data. (2022). Student assessment performance (Updated October 6, 2022) [Data set]. <https://data.delaware.gov/Education/Student-Assessment-Performance/ms6b-mt82>.
- 41 Gershenson, S., & Papageorge, N. (2018). The power of teacher expectations: How racial bias hinders student attainment. *Education Next*, 18(1), 64-70. <https://www.educationnext.org/power-of-teacher-expectations-racial-bias-hinders-student-attainment/>; McKown, C., & Weinstein, R.S. (2008). Teacher expectations, classroom context, and the achievement gap. *Journal of School Psychology*, 46(3), 235-261. <https://doi.org/10.1016/j.jsp.2007.05.001>.
- 42 Goldberg, M. (2016). Classroom trends: Teachers as buyers of instructional materials and users of technology. MDR, K-12 Market Advisors. <https://mdreducation.com/reports/classroom-trends-teachers-buyers-instructional-materials-users-technology/>.

- 43 Clay, A., Chu, E., Altieri, A., et al. (2021). About time: Master scheduling and equity. Center for Public Research and Leadership, Columbia University. <https://cpri.law.columbia.edu/content/about-time-master-scheduling-and-equity>.
- 44 Math Learning Center. (2022). Bridges components. <https://www.mathlearningcenter.org/curriculum/bridges/components>; Nelson, C. (2016). Bridges intervention kits now available. Math Learning Center. <https://www.mathlearningcenter.org/blog/bridges-intervention-kits-now-available-0>.
- 45 Illustrative Mathematics. (n.d.). How to use the materials. https://curriculum.illustrativemathematics.org/MS/teachers/how_to.html.
- 46 Chu, E., Gurny, M., McCarty, G. (2022). Curriculum-based professional learning: The state of the field. <https://cpri.law.columbia.edu/content/curriculum-based-professional-learning-state-field>.
- 47 As noted above, our providers (like Bookworms and Amplify) take a similar approach, adjusting resources in response to teacher feedback gathered on the ground.
- 48 Delaware General Assembly’s Senate Bill 4 requires that all districts and charter schools serving K-3 students in Delaware adopt evidence-based reading curricula by the start of the 2027-2028 school year.
- 49 Interviewees also expressed interest in more state-sponsored Illustrative Math professional learning opportunities. Since Illustrative Math is used in a significant number of Delaware middle schools and high schools, these opportunities might also facilitate greater interdistrict collaboration at the secondary level.
- 50 Nationwide, 64% of teachers find their instructional materials are “mostly aligned” or “totally aligned” to benchmark exams, while in Delaware, that figure is only 56%. RAND Corporation. (2022). American Instructional Resources Survey (AIRS) school leader survey [Survey data set and toolbox]. <https://bentobento.info/surveys/203>.
- 51 DDOE’s social media content currently includes webinars, teacher testimonials, and short examples of strong teaching in video form, posted on YouTube.
- 52 MDR. (2019). We asked teachers about their social media use. Some of their answers surprised us. <https://mdrededucation.com/2019/01/17/teachers-social-media-use/#:~:text=Not%20surprisingly%2C%20teachers%20report%20heavy,and%2048%25%20who%20use%20Twitter>.
- 53 It may be particularly powerful to showcase how HQIM can support differentiated instruction for students with varied needs, as many teachers worry that HQIM are too challenging for their students. Likewise, messaging that using HQIM does not involve reading from a script could be powerful.
- 54 Mississippi and Louisiana enlisted teacher advocates to help their peers build HQIM buy-in within school buildings. Doan, S., Kaufman, J., Woo, A., et al. (2022). How states are creating conditions for use of high-quality instructional materials in K-12 classrooms: Findings from the 2021 American Instructional Resources Survey. RAND Corporation. https://www.rand.org/pubs/research_reports/RRA134-13.html.
- 55 Workbooks for a class of 30 generally cost between \$250-\$400. Additionally, manipulatives and other consumables cost around \$300 per class. However, many of these programs do offer lower rates for districts purchasing larger quantities. Kendall Hunt. (2022). Product listings. https://k12.kendallhunt.com/product-listing?f%5B0%5D=field_program_term%3A1724&f%5B1%5D=field_program_term%3A1731&f%5B2%5D=field_program_term%3A1726; American Reading Company. (2022). Products and pricing guide 2022-2023. <https://assets.ctfassets.net/xo7k5gkhtsb4/38MOxvMwTpXALKrKqY1JRY/8ab52dbe5c5ed76e0e2bbd5b3b-2138de/pricing-guide.pdf>; Math Learning Center. Bridges in Mathematics 2nd Edition. The Math Learning Store. https://store.mathlearningcenter.org/s/category/bridges-in-mathematics-2nd-edition/0ZG5d000000TN1K?c__results_layout_state=%7B%7D; Open Up Resources. (2022). Shop. <https://openupresources.org/shop/>.
- 56 Some leaders, like those in Red Clay, have approached this challenge by preserving 75-minute blocks for ELA and math.
- 57 Ideally, school schedules should be set with teacher input to maximize efficiency while ensuring that it is not placing additional burdens on teacher schedules.
- 58 Chu, E., Clay, A., McCarty, G. (2021). Fundamental 4: Pandemic learning reveals the value of high-quality instructional materials to educator-family-student partnerships. Center for Public Research and Leadership, Columbia University. <https://cpri.law.columbia.edu/content/fundamental-4-pandemic-learning-reveals-value-high-quality-instructional-materials-educator>.
- 59 Delaware Department of Education. (2022). Delaware delivers. Digital DE. <https://education.delaware.gov/educators/academic-support/standards-and-instruction/digital-de/high-quality-instructional-materials/delaware-delivers/>.

- 60 Delaware Department of Education. (2022). Access to HQIMs. Digital DE. <https://education.delaware.gov/educators/academic-support/standards-and-instruction/digital-de/high-quality-instructional-materials/access-to-hqims/>.
- 61 #DelawareDelivers [Hashtag]. https://twitter.com/search?q=%23delawaredelivers&src=typed_query&f=top.
- 62 Delaware Department of Education. (2021). Delaware delivers [YouTube playlist]. YouTube. https://www.youtube.com/watch?v=OqrAxQ8DK9g&list=PLExhIcAmE_Fvb7QnJvMSq5GAeK_v1XIU_.
- 63 Delaware Department of Education. (2020). Professional learning partners guide. https://www.doe.k12.de.us/cms/lib/DE01922744/Centricity/Domain/433/DDOE_Professional_Learning_Partners%20Guide_May2020.pdf.
- 64 Delaware Department of Education. (2022). Online vendor guide. Digital DE. <https://education.delaware.gov/educators/academic-support/standards-and-instruction/digital-de/professional-learning/find-a-vendor/>.
- 65 Delaware Department of Education. (2019). Literacy plan prekindergarten to grade 3: Continuous improvement for students in Delaware public schools. https://www.doe.k12.de.us/cms/lib/DE01922744/Centricity/Domain/167/literacy-5c-20s_6_24_19_final.pdf.
- 66 Senate Substitute 1 for S.B. 4, 151st Gen. Assemb., 2022 Reg. Sess. (Del. 2022). <https://legis.delaware.gov/BillDetail/99317>.
- 67 Senate Substitute 1 for S.B. 4, 151st Gen. Assemb., 2022 Reg. Sess. (Del. 2022). <https://legis.delaware.gov/BillDetail/99317>.
- 68 H.B. 304, 151st Gen. Assemb., 2022 Reg. Sess. (Del. 2022). <https://legis.delaware.gov/BillDetail/89280>.
- 69 S.B. 133, 151st Gen. Assemb., 2021 Reg. Sess. (Del. 2021). <https://legis.delaware.gov/BillDetail/68682>.
- 70 S.B. 133, 151st Gen. Assemb., 2021 Reg. Sess. (Del. 2021). <https://legis.delaware.gov/BillDetail/68682>.
- 71 H.B. 198, 151st Gen. Assemb., 2021 Reg. Sess. (Del. 2021). <https://legis.delaware.gov/BillDetail/48487>.
- 72 H.B. 198, 151st Gen. Assemb., 2021 Reg. Sess. (Del. 2021). <https://legis.delaware.gov/BillDetail/48487>.
- 73 Multi-Tiered System of Support (MTSS). 14 Del. C. § 508. <https://regulations.delaware.gov/AdminCode/title14/500/508.shtml>.
- 74 Alignment of Local School District Curricula to the State Content Standards. 14 Del. C. § 508. <https://regulations.delaware.gov/AdminCode/title14/500/502.shtml>.
- 75 Alignment of Local School District Curricula to the State Content Standards. 14 Del. C. § 508. <https://regulations.delaware.gov/AdminCode/title14/500/502.shtml>.
- 76 Learning Forward. (2022). Standards for professional learning. <https://standards.learningforward.org/>.
- 77 Delaware Professional Learning Standards. 14 Del. C. § 1598. <https://regulations.delaware.gov/AdminCode/title14/1500/1598.shtml>.
- 78 Kelly, K., Marshall, N., & Baker-Sheridan, A. (2022). Delaware sets a vision for professional learning. *The Learning Professional*, 43(3), 44-47.
- 79 There is also a Delaware Math Coalition, which is a coalition of districts and charters, that provides math support statewide, with some guidance from the DDOE. However, it is not state-managed, and thus not included in this list.
- 80 University of Delaware Center for Research in Education and Social Policy. (2018). Middle school mathematics coaching. <https://www.cresp.udel.edu/research-project/middle-school-mathematics-coaching/>.
- 81 American Reading Company. (2021). ARC leadership learning series. <https://www.youtube.com/watch?v=l7FBjDhdfnc>.
- 82 American Reading Company. (n.d). Job-embedded professional learning. <https://www.americanreading.com/documents/PD-TEKS.pdf>.
- 83 Illustrative Mathematics. (2022). IM professional learning. <https://illustrativemathematics.org/professional-learning/>.

