



CURRICULUM COMMITTEE MEETING

Wednesday, September 27, 2023 10:00 AM

COMMITTEE MEETING ONLINE-ZOOM Please use the link below to join the webinar:

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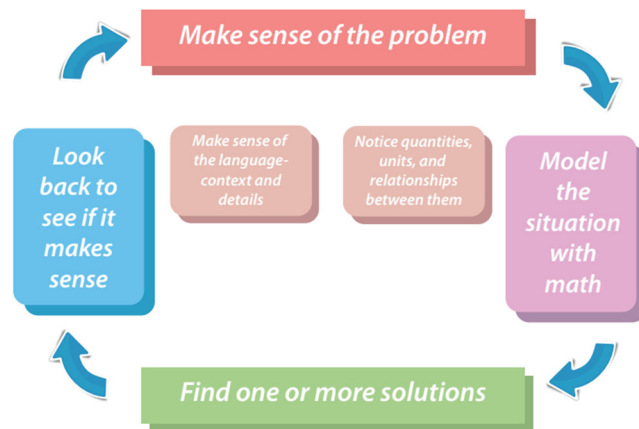
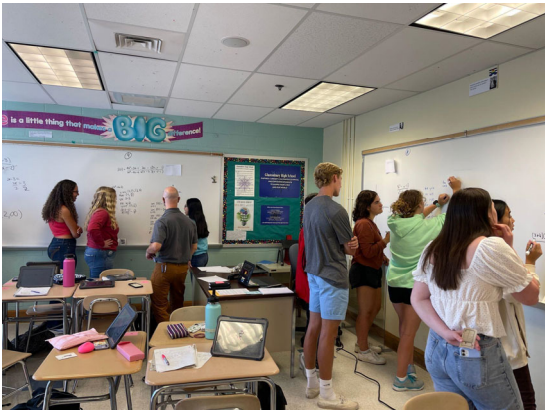
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1. Mathematics Curriculum Review Report

Glastonbury Public Schools

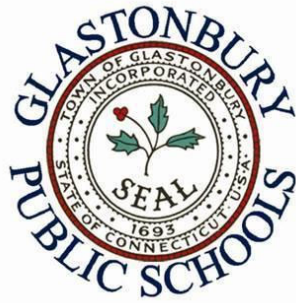
Glastonbury, CT

Mathematics Department Curriculum Review Report 2023



Presented to the Board of Education

October 2, 2023



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Executive Summary

Thank you

I would like to take this opportunity to thank the entire Glastonbury Public Schools Mathematics Department and the Curriculum Review Committee for their work and collaboration on the Curriculum Review process. I am grateful for the many hours that were voluntarily offered by this team and department, whose voices were shared in some way during the process. This was a great time to reflect, examine current practices and make decisions regarding the future for our students and the continued growth and expansion of our mathematics curriculum and department.

I would also like to thank the Central Office and the Board of Education for their continued support of our expanding mathematics department and curriculum, especially as we have continued to grow not only as a mathematics program but also as the foundation and language of STEAM.

I appreciate the thoughtful reflection and willingness to share insight with the department as we begin to lay the path for future work in mathematics and learning in Glastonbury.

Brenda M. Gugowski

Director of Mathematics

Summary of the Process

The Curriculum Review Committee consisted of 28 members including teachers and administrators. The committee met formally three times, twice via Zoom with the final meeting being in person at the Central Office. The Zoom platform worked well because it allowed us to maximize the time for the entire group to collaborate, given the different ending times of schools. Members of the Mathematics Department also met and worked on the working documents in small groups during department meetings throughout the year.

Sub-committees were created by domains in order to facilitate conversations and learning between constituent groups and grade levels. A Mathematics Curriculum Review website allowed for easy access to relevant information and resources. Google documents were used to communicate process, progress, and feedback between the members of the committee and the director. Guiding questions and direction offered a flexible structure, and sub-committees conducted appropriate research from district and department documents and personnel.

During our last meeting, each subcommittee worked to review the comments that the director had made, as well as other members of different committees to finalize ideas for final goals. The director then reviewed the comments and ideas that were presented in each of the working documents to come up with broad goals for each domain. These broad goals, as well as other findings, are embedded within this review.

Rationale

As scientific research reveals more regarding how students learn math, and as the need for problem solving, creativity and critical thinking increases, instruction and learning in mathematics is evolving. Although mathematical content has not changed a great deal, the emphasis on understanding and application to other areas, as well as strategic thinking and problem solving, have impacted the way students learn, the way we teach, and therefore, the resources and practices required. Glastonbury Public Schools continues to make significant progress in this evolution, and with thoughtful planning for the future, we are sure to continue to improve our ability to meet the needs of our learners.

The review of the mathematics curriculum is a continuous and ongoing process. Teachers are offered many opportunities to reflect and offer feedback regarding adjustments and improvements each school year. In the last seven years, significant changes have been made based upon new pedagogical research, learning expectations, and new initiatives within the district. Curriculum documents for new courses have been written and implemented, as well as a new resource and lesson guide for the K-5 grades. As a result of the pandemic and the launch of the STEAM initiative, it is the appropriate time to pause and evaluate the work and changes we have made in recent years, and collaboratively decide upon a flexible plan for the next five years.

Purpose

The purposes of the GPS Curriculum Review process are to:

- Examine and assess the direction, actions, and outcomes of the current curriculum against relevant standards and research.
- Determine broad goals and action plans that drive strategic planning for the next five years.
- Develop shared understanding and collective ownership of the curriculum by the Glastonbury community to ensure ongoing support of practices and resources.

Summary of the Findings

The growth of the department since the last curriculum review has been astounding. The curriculum is aligned with best practices, and is aligned with the vision of both mathematics and STEAM within Glastonbury Public Schools. The mathematics curriculum is purposefully created, using the strength of the resources we have in this district. While Common Core State Math Standards offer a pathway of learning expectations, best practice, students' interests, mathematics application, and teachers' collaborative expertise determine instructional and curricular decisions.

This is an exciting time in mathematics education as we are able to see and apply mathematical learning more and more to STEAM education and students see how math shapes their future in many different ways. Math, being the foundation of STEAM, has helped to develop and shape our current and new curriculum to meet the changing needs of our students in our dynamic world. The implementation of a K – 5 resource and the continued increased collaboration by teachers has helped create a common vision and belief to ensure common learning experiences for all of our students.

But, this bright pathway is still being paved, as we work to continue to create instructional environments where active learning and thinking is at the forefront, where students apply their mathematical logic to computer programming, data sciences and coding at all levels, and where students continue to preserve to learn and build their foundational understandings of mathematics. This curriculum review process revealed how much we have grown since 2016 and inspires us for what lies ahead.

The department has many strengths; therefore, many commendations are cited in this report. Most often the recommendations of the review reflect the next steps necessary to continue the progress we have been making in math instruction as it relates to both mathematics and STEAM in Glastonbury.

Priority Recommendations

Below is a summary of the Mathematics Department priority recommendations.

- Continue to support growth in meeting the intervention needs of all students. Add in full-time staff support in Grades 7 and 8 to work with students in small groups to accelerate learning and build confidence in the math classroom.
- Continue to promote and expand our Data Science, STEAM and Computer Science offerings to provide courses, especially in Grades 6 - 8, that meet the needs of all of our students. Consider more interdisciplinary offerings as well.
- Examine the use of tutor support in each elementary building during math blocks and SGI/ Flex time to ensure equity for students K - 5.
- Continue to use common assessment data to inform curriculum and instruction at all levels and develop diagnostic assessments as well.
- Allocate more funds and time for teachers to attend outside Professional Development conferences.
- Continue to provide more tutor support for our students at all grade levels to aid in implementation of best instructional practices.

Mathematics: Units of Study and Overview

All students receive mathematics instruction that is grade level appropriate and aligned with Common Core Mathematics Standards.

Grade K	Playing with Shapes	Numbers to Ten	Compose/Decompose Numbers to 10	Addition Situations	Subtraction Situations	Describe/Compose 3-D Shapes	Numbers to 20	Compose/Decompose Numbers to 20	Length, Weight and Capacity	Numbers to 100	Mastering Addition and Subtraction
Grade 1	Ten as a Unit	Attributes of 2-D Shapes	Addition within 20	Subtraction within 20	Measuring Length and Time	Problems with Unknowns	Attributes of 3-D shapes	Challenging Problems	Numbers Greater than 20	Organizing Data	Picture Book Project
Grade 2	Grouping Objects	Measuring Length	Addition within 100	Measuring Time	Subtraction within 100	Problems with Unknowns	Numbers Greater than 100	Calculating 3-Digit Numbers	Working with Figures	Two Step Problems	Data and Graphs
Grade 3	Mastering Basic Numbers & Calculations	Time	Exploring Multiplication	Figures	Expanding Multiplication	Extending Multiplication	Division	Fractions	Area Measurement & Data and Graphs	Volume and Length	Word Problems with Unknowns
Grade 4	Structure of Whole Numbers	Whole Number Multiplication		Whole Number Division		Decimal Notation	Fractions	Factors and Multiples	Measurement	Polygons	Number and Shape Patterns
Grade 5	Whole Number Multiplication and Division	Decimal Number System	Addition and Subtraction of Fractions and Decimals	Multiplying and Dividing Decimals by Whole Numbers		Multiplying and Dividing Decimals by Decimals	Multiplying Fractions	Dividing Fractions	Units and Volume	Number Patterns and the Coordinate Plane	Classifying 2-D Figures
Grade 6 (4 teachers) Levels 1 & 2	Area and Surface Area	Introducing Ratios	Unit Rates and Percentages	Dividing Fractions	Arithmetic in Base Ten	Expressions and Equations		Rational Numbers		Data Sets and Distributions	Pulling it All Together
Grade 7 (4 teachers) Levels 1 & 2	Operations with Rational Numbers		Expressions	Equations and Inequalities		Proportional Relationships		Percent and Scaling		Statistics	Probability
Grade 8 (4 teachers) Levels 1 & 2	Volume and Irrational Numbers	Pythagorean Theorem	Using Angle Measures (one-variable equations)	Functions and Linear Equations		Systems of Linear Equations		Scientific Notation and Properties of Exponents		Transformations	Bivariate Data
9 – 12 (20 teachers)	<p>Three credits of mathematics is expected for graduation and adds to the nine-credit STEAM requirement. A variety of courses are offered to meet the career and college readiness goals of each student.</p> <ul style="list-style-type: none"> • The expected Algebra 1, Geometry, Algebra 2 sequence is offered at different levels to meet varying student needs. • Higher-level mathematics courses such as PreCalculus, AP Calculus, AP Computer Science, and AP Statistics are also offered. • Other elective courses are offered: Trigonometry, Discrete Mathematics, Introduction to Data Science, Computer Programming, Cybersecurity 										

Additional enrichment for recommended students in Grades 3 through 6 is provided weekly by a PACE Resource Teacher. (6 FTE)

Glastonbury Public Schools: Enduring Understandings

Kindergarten

Number

Numbers are symbolic representations that help us see and describe attributes.

Grade 1

Flexibility with Numbers - Equality

The composition of numbers facilitates flexibility with numbers.

Grade 2

Place Value

Understanding of place value facilitates flexibility and fluency with numbers.

Grade 3

Decomposition

Decomposition of numbers and shapes builds number sense and fluency.

Grade 4

Structure

Relationships between operations can be modeled through grouping.

Grade 5

Part/whole

Numerical representations of parts of a whole reveal meaning and relationships between numbers.

Grade 6

Unknowns

Variables represent unknowns in relationships

Grade 7

Proportional Relationships

Many real world situations can be identified and solved using proportional reasoning.

Grade 8

Algebra

Algebra describes relationships that have patterns.

Algebra I

Functions

Families of functions behave in predictable ways.

Geometry

Reasoning

Reasoning furthers knowledge and understanding.

Algebra II

Features of Functions

Transformations affect functions and their features in the same way.

PreCalculus

Motion

Functions model dynamic phenomena.

Findings: Strengths, Recommendations, Broad Goals, and Actions

Domain 1: Alignment with District Goals

Guiding Question: How strong is the alignment between department and district curricular goals?

The vision, mission, and goals of the department should offer clarity and support to move the department forward in the best interest of mathematical learning.

Commendations:

- There is a desire for strong alignment between the department and district curricular goals to
 - Promote active learning and high expectations for all students.
 - Provide safe, supportive, and inclusive learning environments.
 - Prioritize the health and well-being of students and staff.
- The current mathematics mission and goals have guided the GPS math department to become the strong department that it is.

Areas for Growth:

- There is a need to revise the math mission and goals to reflect the growth the department has made over the last seven years.

Recommendation:

- Continue to make decisions based upon our beliefs about learning, research-based instructional practices, and our vision and goals for our students as mathematicians and as citizens.
- Adapt our revised vision and mission statements and goals to reflect the findings of this curriculum review and align with our districts 6th Strategic Plan Below is the proposed revision.

We Believe...

- Students are all capable mathematicians.
- Math is about problem-solving.
- Understanding takes time.
- Math is relevant, inspirational, and universally connected to our world.

Our Mission...

- Students will learn and apply strategies for problem-solving while developing mathematical literacy.
- Students will use a range of numerical, algebraic, geometrical and statistical concepts and skills to formulate and solve authentic problems and communicate their reasoning.
- Students will be active learners and engage in learning experiences that empower them to become confident problem solvers.

Domain 2: Students

Guiding Question: Are all student needs addressed through the curricular offerings?

Rationale: Students have a wide range of interests, abilities, affinities, and learning needs. We address these needs with comprehensive standards-based curriculum, appropriate and effective instruction, a variety of learning resources, and at the high school, through electives and leveling.

The goal of the department is that all students will have access to and be appropriately challenged by the mathematics curriculum in order to apply their mathematical learning in a variety of ways.

Commendations:

K-5

- Enrichment and reteaching resources are a consistent component in Kindergarten through Grade 5 math instruction. The San Francisco (SF) resource currently being used in K-5 also offers versions in both Chinese and Spanish.
- The SF resource allows for a common experience for all of our K-5 students to experience Math Workshop. Diverse language is used consistently throughout the program as well as hands on activities, inquiry based instruction, and projects to build strong understandings of concepts.
- Students are able to apply their mathematical learning to coding experiences. Library Media Specialists lead lessons for all our K-5 students using different programs, languages, and robots.
- Enrichment and re-teaching is provided through the Small Group Instruction (SGI) blocks in the majority of our schools.
- The formal intervention process (SRBI) is well established in grades K-5.

6-12

- Course placement has become much more flexible to meet students' needs at the time of their growth.
- Enrichment in Grade 6 has opened up to include opportunities for more students to apply mathematical learning to advanced problem solving situations.
- Students can apply their mathematical skills and content knowledge to the new and diverse course offerings beyond the traditional mathematical sequence (Computer Programming, Data Science, Cybersecurity, STEAM).
- Teachers and two tutors are available in The Math Center at the high school to assist any students who are willing during school and after school. GHS Math Peer Tutors are available after school two times per week at the middle school.
- Working collaboratively with the Special Education department, Math by Design is co-taught to help accelerate student learning, so students are more independent and successful in their math classes.
- A video library of tutorials has been created to help students with unfinished learning and to strengthen their content knowledge before a course or during the course for re-teaching purposes.
- A variety of courses, including AP courses as well as ECE courses, are available at varying difficulty levels at the high school to meet student needs and interests. Teachers also lead independent study programs for students who have completed our Calculus courses.
- There is a wide variety of after school clubs at the secondary level for students to enrich mathematical learning.

Areas for Growth:

K-5

- Consistency of programs to support student's math fact practice across the district.
- Students need more consistent opportunities and resources for rigorous challenge and differentiated support, especially in Grades K - 2.
- Consistent "push-in" support across all buildings for students to help with differentiation and re-teaching.

6-12

- Examine staff support of students in Grades 7 and 8 with the SRBI process and differentiation needed for accelerated learning.
- A common reference for mathematics content and scope and sequence of curricular offerings and vertical progressions is needed.
- The consistency and need of the leveling process in Grade 6 to ensure we are keeping students mathematically challenged and confident as they move into middle school.
- All students need guaranteed opportunities to be proficient with statistics/ data science and computer science.

Recommendations:

- Continue to research programs and ways to help students with fact practice, fluency and number sense.
- Create a bank of enrichment and supplemental activities that all teachers can use to meet the mathematical needs of their students. Continue to research different ways of using the SGI model to meet all students' needs.
- Examine the use of tutor support in each elementary building during math blocks and SGI/ Flex time to ensure equity for students K - 5.
- Continue to support growth in meeting the instructional needs of all students, especially in the SRBI process by adding in full-time staff support in Grades 7 and 8.
- Continue to develop At-A-Glance guides for families to understand the scope and sequence of our mathematics curriculum, both in courses and vertical alignment. Also, create a suggested repository of reference materials to support all of our learners.
- Research and revisit leveling practices in grades 6 – 12.
- Continue to promote and expand our Data Science, STEAM and Computer Science offerings to provide courses, especially in Grades 6 - 8, that meet the needs of all of our students. Consider more interdisciplinary offerings as well.

Domain 3: Curriculum Design

Guiding Questions:	Curriculum	Is the Mathematics curriculum comprehensive, rigorous, and aligned with Common Core State Standards?
	Instruction	How engaging and effective are instructional experiences that support student learning?
	Assessment	Do assessments provide valid and reliable information on student learning that is used to drive ongoing instructional decisions?

Rationale: A clearly articulated math curriculum guides consistent and guaranteed instruction and assessment opportunities.

The goal of the department is that math curriculum, instruction, and assessment are cyclical and integrated. The curriculum is standards-based; instruction is determined by student need and best practice; and assessment offers opportunities to measure the effectiveness of curriculum and instruction.

Commendations:

K-5

- Math curriculum is reflective of the Common Core State Standards, with each specific standard noted in the curriculum document for each course. Essential questions and enduring understandings are designed around the Common Core standards and guide instruction. Lesson guides are provided to teachers with suggested lessons and resources to use.
- The common SF resource we now use in Grade K - 5 guarantees a common learning environment and experience for all of our students, including the use of Math workshop and Math Talks.
- The common summative assessments (Milestone Tasks) that are used in all grade levels ensure consistency in the curriculum for students. Formative tasks inform instruction on a day-to-day basis.
- More problem-solving collaborative tasks are being used in all classrooms across all grades to replace the sole use of direct instruction. New learning is introduced using application and rigorous problems that involve critical thinking and creativity.

6-12

- The course offerings have exploded over the past few years to meet a variety of mathematics needs and application of mathematics in our changing world.
- Math curriculum is reflective of the Common Core State Standards, with each specific standard noted in the curriculum document for each course. Essential questions and enduring understandings are designed around the Common Core standards and guide instruction.
- Common assessments and tasks are aligned in our courses to provide a guaranteed and viable curriculum.
- Instructional goals are aligned with best practices (Building Thinking Classrooms) to go beyond the curriculum.
- More project based learning activities and interdisciplinary experiences (STEAM) have been implemented across many courses/ grade levels.

Areas for Growth:*K-5*

- Teachers need more opportunities to communicate across schools and grades about what instructional practices and lessons have worked well for students to learn the curriculum.
- The mathematics curriculum needs to provide more opportunities for students to transfer the math practices and strategies to other disciplines and tasks need to be diverse and relevant.
- Tasks are utilized for students to show understanding of concepts but a need to develop diagnostic district assessments to help understand exact standard mastery is needed.
- Teachers need more experience, practice, and time to compare assessment data as a means to adjust curriculum and instruction.

6-12

- Common Assessments are utilized for students to show understanding of concepts but development of diagnostic district assessments to help understand exact standard mastery is needed.
- Common tasks need to be diverse and relevant to the student population.
- Teachers need more experience, practice, and time to compare assessment data as a means to adjust curriculum and instruction.

Recommendations:

- Continue collaborative curriculum writing based upon alignment with appropriate learning standards and instruction practices, using the reflection and feedback of teachers.
- Improve the articulation of intervention, enrichment, and differentiation strategies as part of the math curriculum documents and instruction.
- Continue to write and implement a curriculum that is focused on the student discovery of enduring understandings for transfer to new, diverse problems and interdisciplinary connections.
- Continue to use common assessment data to inform curriculum and instruction at all levels and develop diagnostic assessments as well.
- Find teams and time for teachers to get together to analyze appropriate data to drive instructional and curricular decisions.
- Increase opportunities for students to engage in mathematical problems that are relevant to diverse experiences.

Domain # 4: Professional Development

Guiding Question: How relevant and effective are professional development opportunities?

Rationale: Teachers must have the knowledge, skills, and resources necessary to effectively teach our math curriculum. In order to meet the needs of teachers, the quality and impact of the professional development opportunities must be assessed.

The goal of the department is that math professional development will increase educator knowledge and skills and therefore impact corresponding improvements in student learning outcomes.

Commendations:

K-5

- Director is responsive to teacher needs, time, and requests.
- Technology professional development (PD) offerings during COVID allowed teachers to quickly adjust and provide meaningful instruction and assessment which has extended post-pandemic.
- PD has become more collaborative and less presentation-based. As a result, teachers have successfully implemented the many resources and skills that have been delivered in the workshops.
- PD is relevant to instructional practices and supports the implementation of the SF resource that aligns with the Common Core State Standards for Mathematics.

6-12

- Common theme of Building Thinking Classrooms for instruction across the 6 - 12 math teachers allow for collaboration and conversation.
- Outside presenters and authors delivering PD is motivating and allows fresh perspectives.
- PD over the past few years has become purposeful and relevant to the changing instructional practices and the times.

Areas for Growth:

K-5

- PD to monitor the implementation and adjustments for the SF resource.
- PD is often limited to teachers within their own buildings.
- PD is sometimes too broadband among the grade levels.
- Culturally responsive practices still need to be developed and implemented.

6-12

- PD is only offered during the PD days allotted.
- Time to plan and analyze data to help drive instructional decisions is limited.
- Funding and time for teachers to attend outside conferences is minimal.
- Staggered start/stop time of early release days makes vertical alignment and data teaming difficult across grades 6 - 12.
- Culturally responsive practices still need to be developed and implemented.

Recommendations:

- Provide opportunities for teachers in the district to meet as grade level teams as well as vertical teams to share ideas and collaborate.
- Narrow PD focuses on specific grade level needs, when appropriate.

- Use more department meeting time to continue to grow as professionals to make learning and conversations more consistent throughout the year, including data review.
- Provide release time and opportunities for teachers to observe each other for lesson studies and feedback on Building Thinking Classrooms and differentiation strategies within this model.
- Deliver PD on data decision-making and create time for data review throughout the year, monitoring targets and allowing for future instruction.
- Allocate more funds and time for teachers to attend outside Professional Development conferences.
- Rethink how PD time and days are used and structured to allow more time for vertical teams to get together.
- Deliver PD on culturally responsive and sustaining practices.

Domain # 5: Communication

Guiding Question: How effective is department communication with both the school and the Glastonbury community?

Rationale: Strong communication about the math curriculum between teachers, administration, students, families and other interested community members broadens the circle of support for students and their mathematical learning and offers guidance for continuous improvement.

Commendations:

K-5

- Communication with families with the SF resource has become very strong and includes Family Letters which include explanations, visual models and Spanish/ Chinese translations.
- The Math Department website includes an overview of units in each grade level as well as extra practice resources and supplemental websites to help students and families.
- Each elementary newsletter includes a section by the PACE teachers about curriculum happenings and how to enjoy mathematics at home.
- Teachers participate in annual Parent Nights as well as student-teacher conferences throughout the year to help communicate curricular expectations.
- Padlet was created as a home base for teachers to access curricular resources.
- PACE teachers meet with building administration and grade level teams to update them on curriculum and coaching happenings discussed at weekly district PACE meetings.

6-12

- The Mathematics Department has a website that has detailed information about all the units for each course and the Common Core Math Standards for each course as well as placement FAQs to help with course placement decisions.
- Parent Nights allow for teachers to connect with parents about curriculum overview and timeline in the beginning of the year.
- The Program of Studies at each level provides information to families about the curriculum, sequence, and courses.

Areas for Growth:

K-5

- Ensure consistent communication with Special Education teachers, paras and tutors across the district about updates to the mathematics curriculum.
- Expectations of purposeful use of the SF resource and district initiatives.
- Consistency of grade-level meetings at all schools need to happen so that all teachers are receiving updates and communication on a timely basis, including immediate feedback and tweaks.
- Meetings with school administrators need to be commonly implemented so all are aware of changes and updates happening to the math curriculum.
- Teachers need more opportunities for conversations among and between grade levels to ensure continuity and consistency of instruction and learning.
- The community could benefit from an increase in resources that communicate the curriculum and instruction clearly.

6-12

- Hard to find consistency with communication to families among all grades/ courses in 6 - 12.
- School administrators are often unaware of curricular and instructional changes and initiatives.
- Curriculum updates are left for the teachers to explore on their own time.

Recommendations:

- Find time to include Special Education teachers, paras and tutors into meetings and updates to understand how and why curriculum assessments and resources are changing and updating.
- Develop messaging for teachers on the purposeful use of the SF resource and changes that are made.
- Continue to promote the need for more timely and consistent grade-level meetings across all schools so that teachers receive timely updates.
- Continue the use of the current vehicles of communication between the math department, teachers, administration and parents (meeting agendas and minutes, professional development materials, staff math sites, public sites, parent meetings) as well as establish timely meetings with building administration for curricular and instructional practice updates.
- Find time and methods for teachers to communicate with each other across schools more throughout the year.
- Continue to add to and develop a repository of activities that teachers and parents can use to help support learners with unfinished learning.
- Develop “At-a-Glance” guides for public facing purposes so that parents can have a better look at curricular expectations.
- Develop a way and time for teachers to explore the curricular changes more formally at the beginning of the year.

Domain # 6: Technology

Guiding Question: What is the impact of technology integration on the curriculum?

Rationale: Proficient use of instructional technology is an essential component of powerful educational practices, student learning, and building capacity of students in the 21st century. Technology is a valuable tool to increase efficiency of teaching and assessing, and it motivates students and helps enhance understanding of concepts and related skills.

Commendations:

K-5

- The understanding and use of technology exploded over the past few years. Students can easily access virtual manipulatives, assessments, and online resources and apps to practice math content.
- Padlets with lesson guides, resources, and updated report card information are easily available and easy to access for all teachers.
- Implementation of Reflex helps students practice and apply their fact family knowledge to problem-solving situations.

6-12

- GoFormative has been used for the past few years and continues to improve formative assessments and instruction as well as summative assessments, especially with the implementation of the lockdown browser.
- Communication between and among students, parents, and teachers is easily done through Google Classroom and PowerSchool.
- The video library for grades 6 - 12 helps students to reinforce content and clear up unfinished learning when needed.
- Apps and online platforms are easily accessible and used to help students visualize learning.
- GHS courses now offer Microsoft Excel certification and Computer Programming skills, where students apply their knowledge learned to compete in national competitions.

Areas for Growth:

K-5

- Sometimes teachers trying to use technology have slow connectivity issues.
- Clear communication of technology expectations for all grade levels.

6-12

- Monitoring students on track when using the iPad for an activity and keeping the activity up and running with some connectivity issues.
- Use of the GHS technology coach across schools to help teachers use more appropriate technology, keep updated on platforms and help streamline technology apps appropriately.

Recommendations:

- Find ways to better and more effectively and efficiently communicate and work with the technology department for clearing connectivity issues.
- Continue to develop videos for students and parents to access on the district website as well as technology expectations for all grade levels.
- Continue to create and implement more coding lessons guaranteed for all grade levels as well as clear expectations and reasoning of using certain apps on the iPad.
- Find easy ways to lock students into apps or provide additional PD on current platforms to limit distractions.
- Find ways technology coaches can collaborate more with each other and administration to keep technology platforms and updates streamlined.

Domain # 7: Operational Considerations

Guiding Question: What operational considerations and challenges impact the continued development of the Mathematics curriculum?

Rationale: Adequate resources and logistical capacity are an essential component of growth and implementation of a guaranteed and effective mathematics curriculum.

Commendations:

K-5

- A one hour block is sufficient for implementation of Math Workshop and all of its components; flexibility with schedule is strongly encouraged and supported.
- Resources for collaborative curriculum reflection and writing support strong instruction and learning.
- Professional development resources and schedule around coaching and implementation of math workshop support strong math instruction and learning.
- Use of the SGI block in most schools allows for enrichment and re-teaching to meet all student's mathematical needs.

6-12

- There is exceptional resources at the high school, including collaboration time, tutors, and technology.
- The shared math workroom space at Glastonbury High School offers opportunities for collaboration.
- Professional development afternoons and days that bring together multiple grade levels and schools provide essential collaborative opportunities between teachers.

Areas for Growth:

K-5

- Elementary and middle school teacher's desire more time for planning and collaboration with other teachers, building administrators and other curriculum specialists.
- Current class sizes make it difficult in the younger grades for differentiation of instruction.

6-12

- Scheduling in the schools does not allow for or prioritize common planning time for course teams/ grade levels.
- Current class sizes make it difficult at the middle and high school level to implement best practices for instruction and differentiation practices.
- As expectations for student experiences increase, online learning opportunities for high school students may need to be explored.

Recommendations:

Discuss scheduling with building administrators and other curriculum directors to examine collaboration time, length of class time, intervention blocks and class sizes.

- Continue to provide more tutor support for our students at all grade levels to aid in implementation of best instructional practices.
- Continue to monitor how schedules at different buildings affect student success in the mathematics curriculum.
- Continue to explore embedded opportunities for collaborative inquiry and professional development as part of the school day.
- Examine the online opportunities currently being utilized at the high school and determine a plan for the future of appropriate online math classes.