

School Committee Charge to the K-12 Mathematics Program Review Visiting Committee

February 2020

Curriculum

At the elementary level, students engage in comprehensive curriculum that builds along a learning progression. Our math program is standards-based and follows the Massachusetts Curriculum Framework Content and Practice Standards and the National Council of Teachers of Mathematics Process Standards. It focuses on essential areas identified in the frameworks: conceptual understanding, procedural fluency, and capacity, or application of concepts learned. Skills and understanding build within each domain from one year to the next.

The middle and high school math departments primarily use a “house-written” curriculum that has been developed by teaching teams over many years and adheres to the Massachusetts Curriculum Framework. Generating our own curriculum has a number of advantages. It encourages teachers to think about what concepts are most important and how to help students develop an understanding of these concepts. It also has enabled Weston to avoid the drill and skills based lessons that many textbooks still embrace. Instead, teachers generate lessons that encourage students to actively engage in uncovering the concept, make connections with what they have already learned, and explore real-world application.

Self Study Pages 12-13

In addition to the questions and recommendations identified in the Self-Study Report,

- Should we investigate research-based elementary math programs to ensure continuity of content and practice across and within grade levels?
- How do we better connect mathematical conceptual understanding with the real-world experiences of students, especially in the area of understanding, evaluating, and interpreting data?
- What are the strengths and weaknesses of our home-grown secondary math curriculum?
- Do the current high school course offerings support the needs of all students?
 - Given declining enrollment, should the high school weave in semester-based elective courses?
 - How does the trajectory of the math curriculum match that of the science department?
- How do we better integrate computer science content and skills into both the mathematics and overall curriculum?

Instruction

Math instruction in the primary grades typically follows a math workshop, or guided math model where students get “just right” math to meet their individual readiness level, learning style, and interest. In the intermediate grades, a mix of Math Workshop and whole group instruction is more common which lays a nice foundation for transition to the middle school. Middle school is the first time when students are placed in leveled courses. Teachers have increased lesson and instruction differentiation to account for the diversity of abilities in each classroom.

Self Study Pages 20-21

In addition to the questions and recommendations identified in the Self-Study Report,

- How can we better differentiate instruction to meet the needs of all student readiness levels, interests, and learning styles?
 - While we recognize that external enrichment programs are a valued tool to challenge interested students, are we differentiating appropriately in honors/accelerated courses to meet the needs of students who have not received external math support/training?
 - Do we appropriately challenge students who move from honors to CP level in secondary courses?
- How do other communities/private schools differentiate instruction at the elementary level, including leveling in upper elementary?
- How do we support students and at the same time develop independence, advocacy, and agency in both college prep and honors courses?

Assessment

Assessment practices in the elementary grades encompass both formative and summative views, and take on a variety of models from observations to interviews, quick writes to formal quizzes and tests. The goal is to assess for guidance in instructional practice and content, assess for understanding, and assess for multi-tiered system of supports.

At the secondary level, teachers use teacher written common assessments. This includes more traditional tests and quizzes as well as projects, problem sets and more informal formative assessments such as exit tickets, warm up problems and homework checks.

We believe that assessments should not only provide the teacher with valuable feedback into student learning, but they should also serve as a learning opportunity for students. Assessments should also be a reflection of our belief in promoting a growth mindset.

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In addition to the questions and recommendations identified in the Self-Study Report,

- Do our elementary and secondary curricula appropriately prepare students for MCAS?
- “We believe that assessments should not only provide the teacher with valuable feedback into student learning, but they should also serve as a learning opportunity for students. Assessments should also be a reflection of our belief in promoting a growth mindset.” How are we meeting this goal?

Access and Equity

Making mathematics accessible to all students is in the forefront of what good teaching and learning looks like in our schools. At the elementary level classroom teachers strive to differentiate instruction in their daily practice. Many teachers incorporate a workshop teaching model, which features targeted small-group instruction for all levels of readiness, to effectively meet the needs of their learners. At the secondary level, differentiated instruction continues to ensure that all students can access the curriculum. Teachers at both the middle and high school support a growth mindset model where students have multiple opportunities to show what they have learned and what they have not learned yet.

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In addition to the questions and recommendations identified in the Self-Study Report,

- What recommendations can be made to make a significant impact on our achievement gap?
- What structures are in place for supporting fluidity between levels at the middle and high school?

Professionalism

Teachers have ample opportunities for professional development: summer workshops incorporating team curriculum development, practice and process learning, and opportunities to collaborate with colleagues to develop rich mathematical experiences for all students; monthly grade-level meetings and professional development seminars; and workshops and graduate courses. District-wide professional development days also provide opportunities for further work as grade levels and departments.

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In addition to the questions and recommendations identified in the Self-Study Report,

- What recommendations might be made for enhancing and improving professional development opportunities?

Community Outreach

Weston is a community that is passionate about math education. There are many resources in the surrounding area as well as parents in the district that have expertise in the field of mathematics. The Math Department Chair and Curriculum Specialist meet monthly with the STEM Council to determine ways in which these resources can be used to support learning in the classroom. In addition, Weston educators host K-12 parent math forums throughout the year to inform families of our practices and learning goals.

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In addition to the questions and recommendations identified in the Self-Study Report,

- How do we better partner with all families to support student engagement in mathematics?