Montgomery County Public Schools
Mathematics - 2.5 Year Mitigation of Learning Disruptions - Recovery Plan

Mathematics - 2.5 Year Mitigation of Learning Disruptions - Recovery Plan provides a general overview of this comprehensive document.

Introduction

The following document outlines how MCPS plans to address the impact of the global pandemic on mathematics curriculum, instruction and assessments. As a part of the 2.5 Year Mitigation of Learning Disruptions Recovery Plan, the actions outlined in this plan may be periodically adjusted.

Overarching MCPS Mathematics Goals

The Montgomery County Public Schools (MCPS) Mathematics Program is designed to challenge students of all levels. The goal is for students to successfully complete Algebra 1 in Grades 7, 8 or 9, as appropriate, and be prepared for higher level mathematics in high school, including Advanced Placement (AP) and International Baccalaureate (IB) classes. Adjustments are being made to allow for learning disruption due to the pandemic that will keep students moving forward as planned. Not only is Algebra I a requirement for high school graduation, successful completion is an indicator of success for college and careers. Those standards that were foundational to algebraic concepts were deemed critical and considered major standards, while other standards were subject to more adjustments.

What are the Guiding Principles of the Mathematics Recovery Plan?

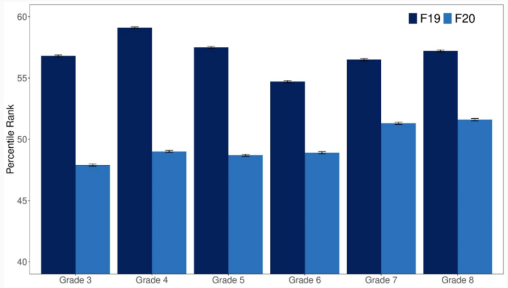
- Math instruction begins on day one of the school year.
- Five days of math instruction is delivered each week.
- Grade level students engage in grade level content.
- Learning focuses on the major work of the grade & adds back supporting/additional work.

What information was considered while developing the MCPS Mathematics Plan?

Impact of the Global Pandemic on Mathematics in the US

The global pandemic has had the greatest impact on mathematics performance than any other content area K-12 education. According to the NWEA, the math achievement of students in 2020 was about 5-10 percentile points lower compared to same-grade students the prior year.

Figure 1: MAP Growth Percentiles in Math by Grade Level in Fall 2019 and Fall 2020



Source: *Author calculations with MAP Growth data.*
Notes: *Each bar represents the median percentile rank in a given grade/term.*

Impact of Global Pandemic on Curriculum and Pacing of Instruction

In addition to national trends, additional factors influenced the development of the MCPS Mathematics Plan.

School Year 2019-2020- Continuity of Learning

From March-June of the 2020 school year, schools were closed due to the pandemic. As a result, supplemental instructional materials were provided to schools and families.

- Elementary Mathematics: Continuity of Learning
- Continuity of Learning Spring 2020 Secondary Math Instructional Gaps by Course

2020 - 2021- Recovery of Education

During the 2021 school year, curriculum was adjusted to accommodate the online learning environment. Lessons were compacted or eliminated in order to fit into the instructional schedule. Additionally, local and external assessments were adjusted to align with the curriculum adjustments. Finally, to support teachers, instructional pacing guides were created for teachers PreK-12 to ensure consistency across the district.

- Elementary Math 2020-2021: Compressed & Omitted Content
- Secondary Math Virtual Learning 2020-2021
- Unfinished Learning: Math 6 to Pre-calculus 2020-2021

Fall 2020 Stakeholder Feedback

In addition to the initial adjustments, public testimonies during the Board of Education meetings (September and October), along with feedback from students, parents, teachers and administrators indicated that the pacing of the adjusted lessons was too fast and that students, particularly those in middle and high school, were unable to complete all of their lessons, particularly in mathematics. Stakeholders asked that we make the social emotional well-being of students a priority. As a result, additional adjustments were made to the overall number of days of instruction for the remainder of the school year.

How are decisions made about curriculum adjustments?

National and state guidance inform the local district decisions in terms of prioritizing content to teach. In Maryland, we follow the Maryland College and Career-Ready Standards, based on the Common Core State Standards. The structure and organization of the Common Core math standards is outlined below to help understand the bulleted statements about reduced mathematical content in MCPS for the 2020-2021 school year. (More information about the Common Core State Standards can be found here.) A domain is the largest group of related standards spanning multiple grade levels. Here are the domains by level:

Elementary Domains:	Secondary Domains:
• Counting and Cardinality • Operations & Algebraic Thinking • Number & Operations in Base Ten • Number & Operations - Fractions • Measurement & Data • Geometry	• Ratios & Proportional Relationships • The Number System • Expressions & Equations • Functions • Statistics & Probability • Geometry

Domains break down into groups of standards called Clusters. Clusters are groups of individual standards that are related to each other by topic. At the individual standard level, there are three different types of standards: major, supporting, and additional. Major standards are the most important work of the grade, and most instruction in a school year focuses on the major standards. When modifying the instructional program, major standards were prioritized.

Expert Guidance and Study

The mathematics team looked closely at expert guidance from resources such as Student Achievement Partners and the Council of the Great City schools when creating the instructional pacing guidance for mathematics teachers for the 2020-2021 school year. This guidance was integrated to remain consistent with the MD College and Career Ready Standards. This guidance elevated the need to focus on major clusters of the grade. Curricular adjustments for elementary can be found here. Curricular adjustments for secondary can be found here.

• Guidance from Student Achievement Partners and the Council of the Great City Schools • Consultation with Maryland State Department of Education • Consultation with Curriculum Vendors • Study of the Maryland College and Career Readiness Standards • Consideration of MCPS Overarching Goals and Spring Continuity of Learning Adjustments	• The majority of domains were included in the suggested scope and sequence. • Rarely was a cluster of standards omitted altogether. • Standards were addressed with fewer curriculum lessons and activities than traditionally, so the depth of content was reduced.

This document includes how courses are being adjusted over time to fill any gaps from condensed or omitted content during Continuity of Learning in spring 2020 and Virtual Learning during the 2020-2021 school year.

Long Range Mathematics Recovery Plan

Why Not Begin the School Year with Remediation?

"Remediation, or giving students simpler, previous grade-level materials, had been found to result only in students falling further behind the grade-level material."
Ed Research for Recovery Design Principles Series Carly D. Robinson, Matthew A. Kraft, & Susanna Loeb | Annenberg Institute at Brown University Beth E. Schueler | University of Virginia

What are the Components of the Mathematics Plan?

- Two year content recovery mathematics plan
- Built-In foundational support days to address unlearned content
- Strategic Support for Students in Need of Intervention, Review, Enrichment/Acceleration
- English language development
- Social Emotional Learning
    - NWEA - SEL and math: A perfect partnership during COVID-19 school closures and beyond
- Professional Learning
    - All elementary administrators and math leaders will participate in *Pandemic Recovery: Teacher Leader Learning*
    - All elementary teachers will participate in *Pandemic Recovery: Teacher Learning*
    - All secondary math department leaders will participate in the new Illustrative Mathematics curriculum Facilitator Certification training this summer to enhance school-based instructional supports
- Elementary Course Offerings and Articulation Recommendations
- Secondary Course Offerings and Articulation Recommendations
- Summer Program focused on unlearned content
    - Middle School Summer Programs