

Mathematics Targets and Acceleration—this research team examined the current acceleration practices within MCPS and identified findings from research that support best practices for appropriate and rigorous learning for all children.

Acceleration Research Question 1: What are the benefits and ramifications of accelerating students into above grade-level courses?

Acceleration Research Question 2: How do students who are accelerated quickly through the mathematics sequence compare on final measures to students who follow the built-in acceleration available at each grade level? For example how do students taking Grade 6 math in Grade 5 compare to students taking Grade 5 (with built in acceleration) in terms of preparedness for Algebra 1 in Grade 8?

Acceleration Research Question 3: What are the most essential math curriculum strands or topics to consider in determining whether or not a student is ready for acceleration? Specifically, what data points (qualitative and quantitative) should be considered in determining the most appropriate and challenging math course for a student?

The Assessed Curriculum—this research group explored findings about national, state, and local assessment practices. It also investigated the role and importance of formative assessment.

Assessments and Targets Research Question 1: What is the purpose of the national, state, and local assessments given in MCPS? Do they overlap? How are end of unit assessments and end of course assessments aligned with the curriculum?

Assessments and Targets Research Question 2: What are state by state alternatives to high stakes assessment in Math?

Assessments and Targets Research Question 3: What are best practices in using formative and summative data to inform instruction? Assessments and Targets Research Question 4: What is the relationship between summative and formative assessment that best supports instruction and student learning?

Assessments and Targets Research Question 5: What is it about SAT at 1650 and ACT at 24 that make them predictive of college readiness?

Assessments and Targets Research Question 6: What is assessed on national and international mathematics assessments such as NAEP, TIMSS and PISA? What data are available on Maryland and/or U.S. student performance?

Assessments and Targets Research Question 7: What is the balance between assessment and instruction to facilitate learning and increase student achievement?

The Implemented Curriculum—this team investigated best practices for supporting and fostering all students’ learning and engagement. This included exploring best teaching practices as well as identifying recommendations about instructional materials.

Implemented Curriculum Research Question 1: What instructional strategies/practices are effective in supporting different types of students (race/ethnicity, mobility, limited English, special education)?

Implemented Curriculum Research Question 2: What is the impact of 21st century technology, calculators, and instructional materials on student learning?

Implemented Curriculum Research Question 3: What school structures and organization support consistent implementation?

Implemented Curriculum Research Question 4: How do children and adolescents learn mathematics?

Teacher Preparation and Development: Teaching for Mathematical Proficiency—the focus of this team is to research and identify best practices related to professional development structure and substance.

Teacher Preparation and Development Research Question 1: What factors about teacher preparation programs and/or certification should be considered in recruiting teachers of mathematics?

Teacher Preparation and Development Research Question 2: What features of professional development are most effective to help teachers improve their content knowledge and content-specific pedagogy?

Teacher Preparation and Development Research Question 3: What does research say about the impact of school-based math content support (e.g., math content coaches, algebra lead teachers, resource teachers) in building teacher capacity and increasing student achievement?

The Written Curriculum—this team has been charged with examining national, state, and local standards, the Voluntary State Curriculum, and the MCPS curriculum and comparing the structure and content of the MCPS curriculum with these documents and other research findings related to curriculum.

Written Curriculum Research Question 1: What is the ultimate outcome of the written curriculum for all students? Milestones? What does it mean to be mathematically literate? Proficient? How do we define curriculum and effectiveness?

Written Curriculum Research Question 2: What does the research say about international, national, and state curricula?

Written Curriculum Research Question 3: What does research say about aspects of curricula that support equity in student learning for all students, including ELL and special education students?

Written Curriculum Research Question 4: What key elements need to be embedded in the written curriculum? Problem solving? Communication? Technology?