MONTGOMERY COUNTY PUBLIC SCHOOLS
K–12 Mathematics Work Group

Deputy's Minority Achievement Advisory Council

Focus Group

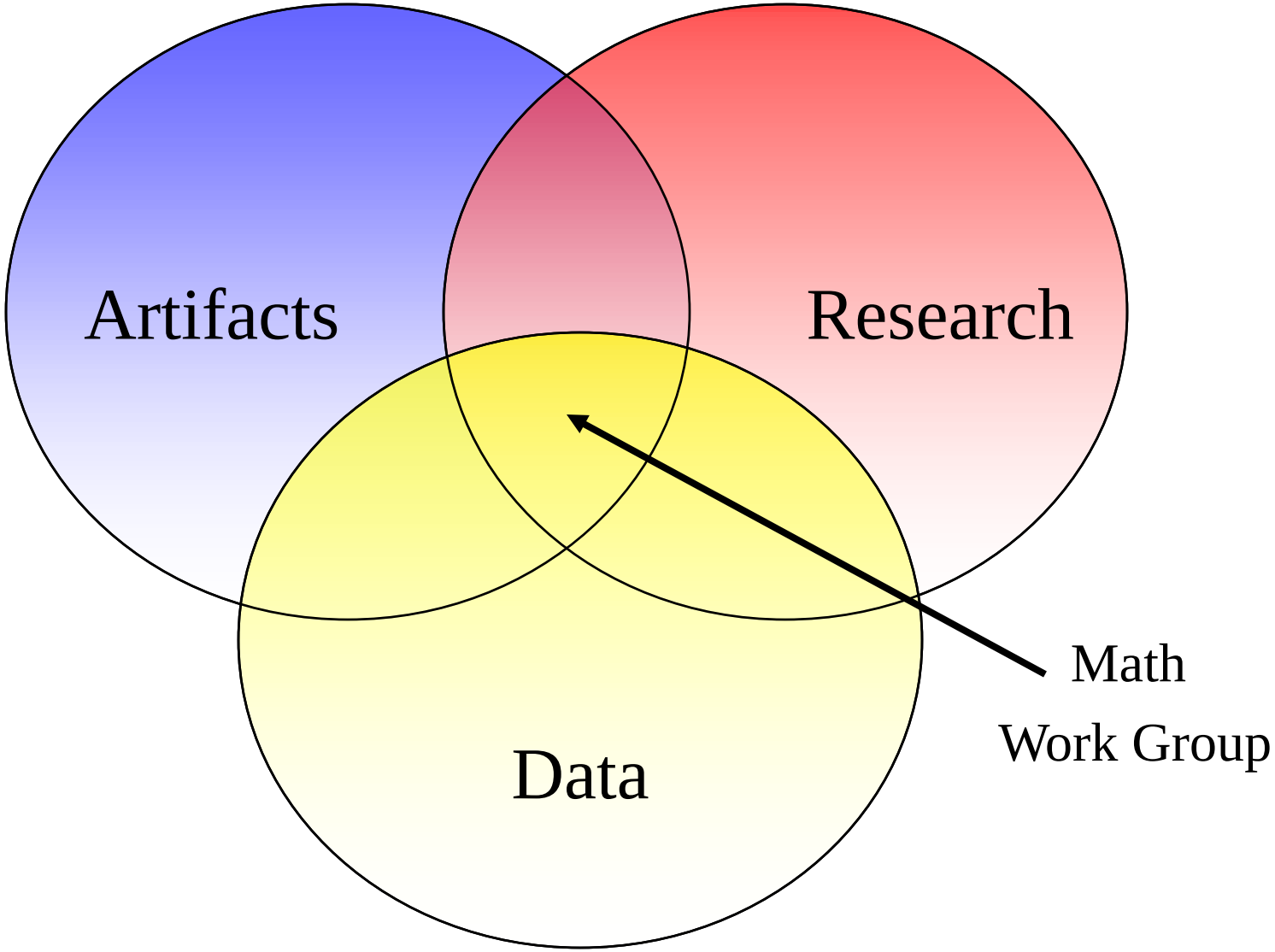
October 22, 2009

Building a shared vision for high-quality mathematics teaching and learning

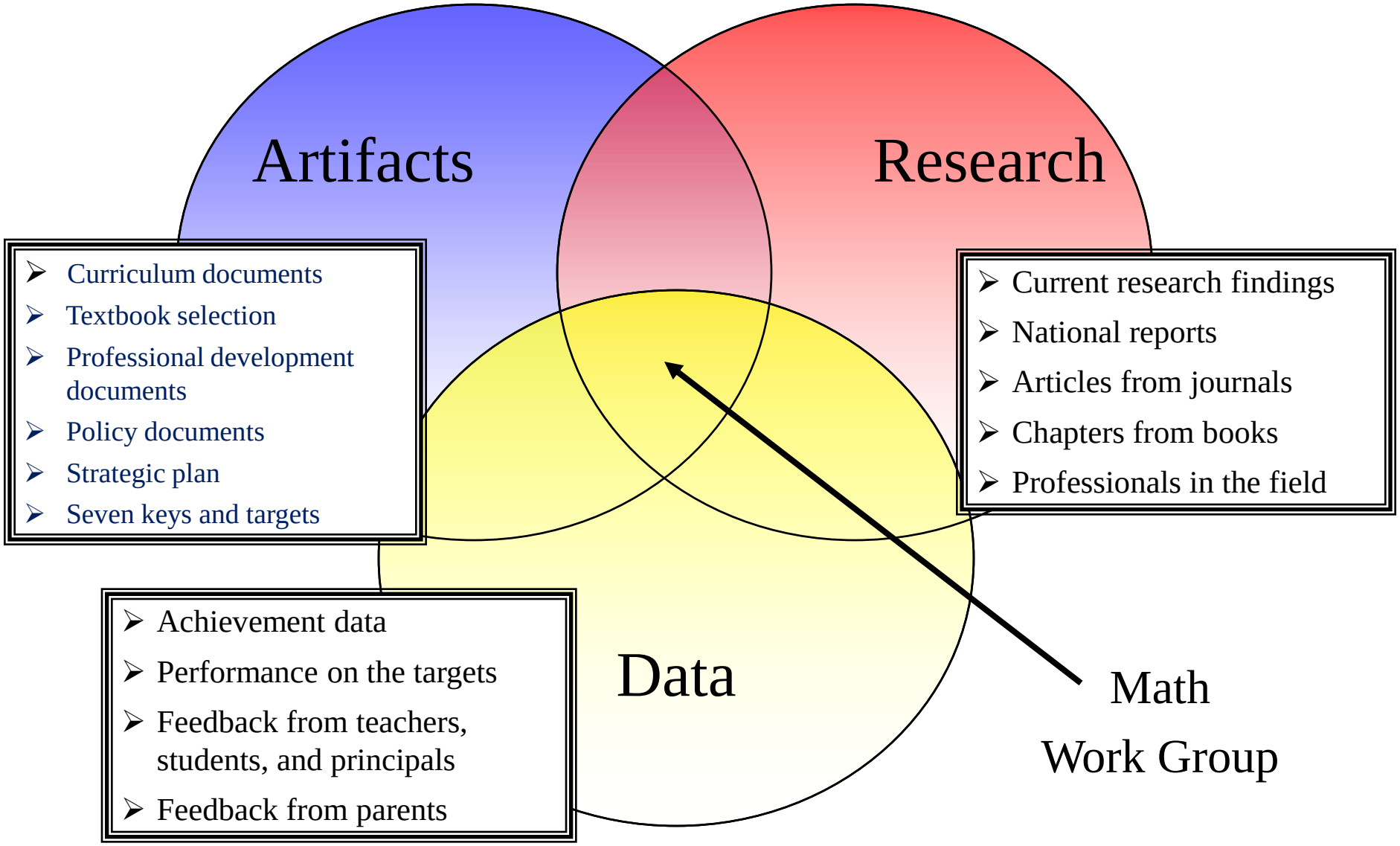
Work Group Plan: A Research-Based Approach

- Issue Identification and Problem Statement Development
- Generate Research Questions
- Build Capacity and Knowledge Base of the Work Group
- Create Vision for High-Quality Mathematics Teaching and Learning in MCPS
- Gap Analysis: Compare MCPS as-is State to the Vision
- Findings
- Recommendations
- Action Plan Development

Math Work Group: Conceptual Framework



Math Work Group: Conceptual Framework



Curriculum: The Written Curriculum

- National, state and local documents
  - National standards (NCTM standards and Focal Points), Voluntary State Curriculum, MCPS Curriculum and Indicators
- Other state standards
- Sequencing
- Pacing
- Textbooks, technology, workbooks, and other resource materials
- School structures
- How children and adolescents learn and learn mathematics
- Mathematics materials and instructional experiences are responsive to the district's racial and ethnic diversity
- Mathematics materials and instructional experiences reflect attitudes and beliefs that all students can achieve mathematical proficiency

Classroom/Instructional Practices: The Implemented Curriculum

- Differentiation and grouping practices
- Teaching basic facts
- Sequencing
- Pacing
- Textbooks, technology, workbooks, and other resource materials
- School structures
- Best practices for supporting (all) student learning—student engagement
- How children and adolescents learn and learn mathematics
- Mathematics materials and instructional experiences are responsive to the district's racial and ethnic diversity
- Mathematics materials and instructional experiences reflect attitudes and beliefs that all students can achieve mathematical proficiency

Curriculum: The Assessed Curriculum

- National, state and local documents
- National Assessments (NAEP), TN/2, Maryland School Assessment (MSA), High School Assessments (HSA), MCPS Unit and Course Exams
- Other state assessments
- Scholastic Aptitude Test and ACT
- Advanced Placement and International Baccalaureate
- Assessments that effectively evaluate students' mathematical proficiency across the five strands
- Mathematics materials and instructional experiences are responsive to the district's racial and ethnic diversity
- Mathematics materials and instructional experiences reflect attitudes and beliefs that all students can achieve mathematical proficiency

Teacher Preparation and Development: Teaching for Mathematical Proficiency

- How teachers learn and learn mathematics
- How children and adolescents learn and learn mathematics
- Professional development models
- Developing proficiency in teaching mathematics
- Teacher preparation
- Teacher content, pedagogy, and pedagogical content knowledge
- Mathematics materials and instructional experiences are responsive to the district's racial and ethnic diversity
- Mathematics materials and instructional experiences reflect attitudes and beliefs that all students can achieve mathematical proficiency

Acceleration Practices: Mathematics Targets and Acceleration

- Pacing
- Sequencing
- Algebra for all?
- Algebra by when?
- System targets
- Algebra 2
- How children and adolescents learn and learn mathematics
- Mathematics materials and instructional experiences are responsive to the district's racial and ethnic diversity
- Mathematics materials and instructional experiences reflect attitudes and beliefs that all students can achieve mathematical proficiency

Research Teams

1. Curriculum: The Written Curriculum

2. Classroom/Instructional Practices: The Implemented Curriculum

3. Curriculum: The Assessed Curriculum

4. Teacher Preparation and Development: Teaching for Mathematical Proficiency

5. Acceleration Practices: Mathematics Targets and Acceleration

MATH WORK GROUP TIMELINE