MASTER PLAN

Secondary Mathematics

2023-2024

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Course Group Number: 10454600

Purpose

The mathematics program is designed to develop, improve, and enhance teachers' mathematical content and pedagogical knowledge to increase the effectiveness of teaching students enrolled in secondary mathematics courses. Professional learning activities are designed to deepen educators' understanding of and ability to apply instructional strategies and curricula, addressing focus, coherence, and rigor within the Benchmarks for Excellent Student Thinking (B.E.S.T.) Standards for Mathematics. Activities provide teachers with strategies to incorporate the Mathematical Thinking and Reasoning Standards (MTRs) into their daily lessons.

Needs Assessment

The need for professional learning in the area of Secondary Mathematics is based on the new Florida Assessment of Student Thinking (F.A.S.T.), given three times a year in Grades 6-8 starting in 2022-23 school year, to progress monitor student growth and the annual monitoring of student proficiency rates for Benchmarks for Excellent Student Thinking (B.E.S.T.) Standards for Mathematics, Grades 6 – 8, and state End-of-Course assessments (EOCs) in Algebra 1 and Geometry.

On the Florida Assessment Student Thinking (F.A.S.T.), Grades 6–8, the district-wide student proficiency rate has increased by at least one point from 2016-2019, specifically from 58 percent in 2016 to 61 percent in 2019, for an overall increase of three points over the five-year period. There was a 6% increase from 2022 to 2023. There was a significant reduction in the percentage of students proficient on the 6-8 mathematics assessment. This was mostly due to pre and post pandemic learning loss. The long-term desired target, established by the Secondary Mathematics Department, is 65 percent by 2024. See Table 1, below.

Table 1. Student Proficiency Rate: Florida Standards Assessment Mathematics, Grades 6–8 Level 3 and Above

Year	2016	2017	2018	2019	2021	2022	2023	2024 Target
Broward Schools	58%	61%	61%	61%	44%	50%	56%	65%
Florida Statewide	56%	57%	58%	59%	50%	53%	pending	-

On the Algebra 1 End-of-Course Assessment, the district-wide student proficiency rate has increased from 58 percent in 2016 to 62 percent in 2019, with a peak of 67 percent in 2017. The long-term desired goal, established by the Secondary Learning Department, is 64 percent proficiency on the Algebra 1 EOC by 2024. This is in alignment with target established by District Strategic Plan is 64 percent. See Table 2, below.

Table 2.
Student Proficiency Rate: Algebra 1 End-of-Course Assessment Percent of Students Level 3 and Above

Year	2016	2017	2018	2019	2021	2022	2023	2024 Target
Broward Schools	58%	67%	63%	62%	41%	43%	48%	64%
Florida Statewide	54%	62%	63%	60%	47%	49%	51%	-

District staff prioritize professional development and follow-up support for school-based instructional staff in response to demonstrated need as evidenced by school-wide proficiency rates and year-on-year growth.

The tables below and on the following pages describe the Desired Outcomes for professional learning in support of each role associated with this Master Plan.

Desired Outcomes and Performance Indicators

1.0 Mathematics Teachers, Grades 6 – 12			

1.1 Developing Mathematical Content Knowledge. Mathematics teachers will have a thorough understanding of the state-adopted curriculum standards for Mathematics.

Performance Indicators			
Level 4	Level 3	Level 2	Level 1
Explains state- adopted curriculum standards clearly and accurately within their grade band (elementary, middle, high). Explains state- adopted curriculum standards clearly and accurately from previous and/or subsequent levels. *i.e. Middle school teacher can explain elementary and high school standards.* Supports peers (mentoring, lesson creation, professional learning) with knowledge of conceptual understanding, procedural fluency and real-world applications of mathematical concepts contained in the state adopted curriculum standards for the grade/course they teach.	Identifies state- adopted curriculum standards clearly and accurately within their grade band (elementary, middle, high). Explains state- adopted curriculum standards clearly and accurately from previous and/or subsequent levels. Demonstrates (i.e. posttest, lesson plans, observations, etc.) conceptual understanding, procedural fluency, and real-world applications of mathematical concepts contained in state-adopted curriculum standards for the grade/course they teach.	Identifies state- adopted curriculum standards clearly and accurately within the grade level or course they teach. Identifies state- adopted curriculum standards clearly and accurately from previous and/or subsequent grade level/course. Recognizes conceptual understanding, procedural fluency, and real-world applications of mathematical concepts contained in state-adopted curriculum standards for the grade/course they teach.	Not able to identify state-adopted curriculum standards. Not able to identify state-adopted curriculum standards from other levels or grades. Not able to demonstrate conceptual understanding or procedural fluency for the state-adopted curriculum standards in mathematics.

1.2 Development of Mathematical Practice Standards. Mathematics teachers will possess the knowledge, capabilities, and dispositions to use at the appropriate school levels a variety of instructional strategies to encourage student development of mathematical practice standards.

Performance Indicators			
Level 4	Level 3	Level 2	Level 1
Supports peers (mentoring, lesson creation, professional learning) at modeling problem solving strategies and	Models problem-solving strategies and always provides students with the opportunities to solve	Models problem-solving strategies and occasionally provides students with the	Does not incorporate problem-solving into their instruction.

providing students opportunities to solve problems.	problems.	opportunities to solve problems.	Does not provide students with opportunities to construct mathematical arguments and does not require students to use precise mathematical language.
Supports peers (mentoring, lesson creation, professional learning) in helping colleagues encourage students to construct mathematical arguments and share their mathematical arguments with others while using precise mathematical language.	Provides students with opportunities to construct mathematical arguments and share their mathematical arguments with others. Requires students to discuss mathematical ideas using precise mathematical language.	Provides students with opportunities to construct mathematical arguments and share their mathematical arguments with others. May allow students to discuss mathematical ideas without using precise mathematical language.	
Supports peers (mentoring, lesson creation, professional learning) in providing students with various mathematical tools and allowing students the opportunity to develop the knowledge to be sufficiently familiar with tools appropriate for their grade or course.	Provides students with various mathematical tools. Allows students the opportunity to develop the knowledge to be sufficiently familiar with tools appropriate for their grade or course.	Provides student with a specific tool that should be used for a particular problem or task. Does not allow the student to choose his or her own tool.	Does not provide students the use of mathematical tools. Does not incorporate modeling of real world situations into instruction. Does not provide students the opportunity to look for structure or find patterns.
Allows students to decide when each of these tools might be helpful, recognizing both the insight to be gained and their limitations.	Provides students with opportunities to model real world situations with mathematics by identifying important quantities in a practical situation and mapping their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. Teacher prompts students to analyze those relationships mathematically to draw conclusions.	Models real-world situations with mathematics by identifying important quantities in a practical situation and mapping their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas for students.	
graphs, flowcharts and formulas. Teacher prompts students to analyze those relationships mathematically to draw conclusions.			
Supports peers (mentoring, lesson creation, professional learning) in providing students opportunities to discern a pattern or structure in mathematics they are studying and in providing students the opportunity to look for repeated calculations to formulate general methods and shortcuts.	connect to previously learned mathematical content Provides students the opportunity to look for repeated calculations and formulate general methods and shortcuts.		

1.3 Developing Appropriate Pedagogy. Mathematics teachers will possess the knowledge, capabilities, and dispositions to create at the appropriate school levels learning experiences that fit the different approaches to meet the needs of all students.

Performance Indicators			
Level 4	Level 3	Level 2	Level 1
Supports peers (mentoring, lesson creation, professional learning) in regard to common student misconceptions and planning for them in instruction and assessments. Supports peers (mentoring, lesson creation, professional learning) in addressing student errors as they arise and using question prompts to assist the student to correct their own errors in reasoning. Supports peers (mentoring, lesson creation, professional learning) in differentiating instruction for all students based on frequent formative and summative assessments.	Demonstrates (i.e. post-test, lesson plans, observations, etc…) knowledge of common student misconceptions and plans for them in instruction and assessments. Addresses student errors as they arise and uses question prompts to assist the student to correct their own errors in reasoning. Differentiates instruction for all students based on summative assessments. Uses flexible grouping (whole class, small groups, partners, individualized curriculum).	Demonstrates (i.e. posttest, lesson plans, observations, etc…) knowledge of common student misconceptions and does not include these in classroom examples or assessments. Addresses student errors as they arise by providing the student with the correct solution. Differentiates instruction for struggling students. Varies instructional delivery methods (Direct Instruction, Inquiry-based learning, Problem-based learning).	Lacks knowledge of common student misconceptions. Does not address student errors as they arise. Does not differentiate instruction.

1.4 Curriculum. Mathematics teachers will possess the knowledge, capabilities, and dispositions to use, evaluate, and create mathematics curriculum aligned to the state-adopted curriculum standards.

Performance Indicators			
Level 4	Level 3	Level 2	Level 1
Supports peers (mentoring, lesson creation, professional learning) in District-adopted mathematics curricular resources and effectively incorporating them into daily instruction. Supports peers (mentoring, lesson creation, professional learning) in evaluating non-District adopted curricular resources for alignment to state-adopted curriculum standards and appropriateness to meet the needs of individual students. Creates effective curricular resources aligned to state adopted curriculum standards and revises based on implementation and collegial feedback.	Understands the District adopted mathematics curricular resources and effectively incorporates them into daily instruction. Evaluates non-District adopted curricular resources for alignment to state-adopted curriculum standards. Creates effective curricular resources aligned to state-adopted curriculum standards.	Demonstrates (i.e. posttest, lesson plans, observations, etc.) an understanding of the District-adopted basal/textbook and incorporates it as the sole instructional material for daily instruction.	Is not aware of District-adopted curricular resources. Does not evaluate curricular resources. Does not create curricular resources.

1.5 Assessment. Mathematics teachers will possess the knowledge, capabilities, and dispositions to use at the appropriate school levels a variety of assessments to encourage student development of critical thinking, problem solving, and performance skills, and to inform instruction.

Performance Indicators			
Level 4	Level 3	Level 2	Level 1
Uses Webb's Depth of Knowledge to ensure challenging yet appropriate rigor when designing assessments (formative and summative). Supports peers (mentoring, lesson creation, professional learning) in collaborating with Professional Learning Communities to develop common assessments aligned to state-adopted curriculum standards.	Includes some moderate to high-level cognitive processes in daily classroom activities and assessments. Collaborates with Professional Learning Community to develop common assessments aligned to state-adopted curriculum standards.	Uses assessments that require students to remember, recall, or process information at the lower end of Bloom's taxonomy or Webb's Depth of Knowledge. Develops assessments aligned to state-adopted curriculum standards. Uses one type of formative assessment and differentiates instruction	Assessments can be classified as low complexity ones. Does not collaborate with Professional Learning Community to develop assessments. Does not use formative assessment.
Supports peers (mentoring, lesson creation, professional learning) in using various formative assessments throughout instruction and differentiating instruction based on the results of the assessments.	Uses various formative assessments throughout instruction and differentiates instruction based on the results of the assessments.	based on the results of the assessment.	

Data Collection Plan: Mathematics Teachers, Grades 6 – 12			
Level of Measurement	Instrument/Data Type	Frequency	Responsible for Collecting Data
1. Participants' Reactions	Feedback and attendance from PD Management System	1x/workshop	Facilitator
2. Participants' Learning	Lesson Plans, Observation for proof of implementation (PD to Practice)	2x/year	Facilitator
3. Organizational Supports	Monitor supports provided upon teacher and/or administrator request and availability of district instructional resources.	Review 2x/year	Curriculum Supervisor, Secondary Mathematics
4. Participants' Practice	Teacher reflections Student work samples	1x/workshop	Curriculum Supervisor, Secondary Mathematics
5. Student Outcomes	Report card grades Florida Standards Assessment, Mathematics, Grades 6 – 8, End-of-Course Examination in Algebra I and Geometry	1x/workshop (formative) 1x/year (summative)	Secondary Learning and Student Assessment and Research Departments

Evaluation Plan

Level 1. Participant Reactions		
<u>Audience</u>	<u>Mid-Year Evaluation</u>	<u>End-of-Year Evaluation</u>
Mathematics Teachers, Grades 6 – 12, Assistant Principals 6-12	Feedback and attendance from PD Management System	Analysis of results from Professional Learning Feedback Summary of completion by course

Level 2. Participant Learning		
<u>Audience</u>	<u>Mid-Year Evaluation</u>	<u>End-of-Year Evaluation</u>
Mathematics Teachers, Grades 6 – 12, Assistant Principals 6-12	Pre/Post Assessments Lesson Plans	Analysis of pre/post assessment results and/or lesson plans

Level 3. Organizational Support		
<u>Audience</u>	<u>Mid-Year Evaluation</u>	<u>End-of-Year Evaluation</u>
Mathematics Teachers, Grades 6 – 12, Assistant Principals 6-12	Monitor supports provided upon teacher and/or administrator request and availability of district instructional resources.	Review support data 2x/year

Level 4. Participants' Use of New Knowledge and Skills		
<u>Audience</u>	<u>Mid-Year Evaluation</u>	<u>End-of-Year Evaluation</u>
Mathematics Teachers, Grades 6 – 12, Assistant Principals 6-12	Teacher reflections Student work samples	Analysis of reflections and work samples

Level 5. Student Learning Outcomes		
<u>Level of Impact</u>	<u>Mid-Year Evaluation</u>	<u>End-of-Year Evaluation</u>
Mathematics Teachers, Grades 6 – 12, Assistant Principals 6-12	Prior-year results of Florida Standards Assessment, Mathematics, Grades 6 – 8 and End-of-Course Examination in Algebra I	Course Grades Statewide Data