KENTUCKY DEPARTMENT OF EDUCATION

Mathematics Achievement Fund Grant Application Cover Page

District:	Madison	**Amount Requested:**	$50,000
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School:	Daniel Boone Elementary		
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Mathematics Intervention Grant Approved Program Selected:

Math Recovery

I assure the attached application contains accurate information. I understand grant applications with incorrect or falsified information will not be considered for review or revoked once awarded. I assure the application has been reviewed and approved for implementation by all shareholders. I assure the district and school will comply with all requirements, both technical and programmatic, pertaining to the grant. Failure to continuously meet compliance requirement and deadlines could result in partial or complete loss of funding of the Mathematics Achievement Fund.

Superintendent — Date: 9/28/16

Notary Public — My commission expires: 11/19/18

Principal Signature — Date: 9/29/16

Notary Public — My commission expires: 11/19/18

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Part 1: Identification of Need

1.1. Our comprehensive model includes units of study with common assessments, resources for implementation and our instructional framework. The units of study were developed through a teacher-led collaborative process at the district level, based on an in-depth analysis of Kentucky Core Academic Standards (KCAS). Standards were grouped into units based on enduring skills at each grade level. Units include standards, learning targets, misconceptions and vocabulary that facilitate intentional instruction toward mastery of mathematics content. Associated common assessments have pre- and post-test measures to inform planning of whole and small-group instruction and identification of needs for re-teaching, intervention, or enrichment. As described in Table 1.1a, we selected resources that give teachers flexibility in meeting the various needs within a class and provide options for both Tier 1 instruction and Tier 2 classroom intervention. This variety of research-based resources foster student thinking and reasoning, offer differentiation, and enable teachers to assess deep understanding.

Table 1.1a Resources used to Implement Core Curriculum

Resource	Description and Purpose	Tier
Number Talks	Daily enrichment of mental math strategies.	1
Everyday Counts Calendar	Daily enrichment of core math concepts	1
Math Design Collaborative	KCAS aligned Formative Assessment Lessons	1
Origo Stepping Stones	Aligned to KCAS; teacher resources; multi-tiered	1 & 2
iReady Instruction	Daily computer-assisted adaptive instruction	1 & 2
Teaching Number in the Classroom	Inquiry-based small-group and/or classroom intervention	2
Kentucky Numeracy Project	Numeracy activities for small-group instruction.	2

Our instructional framework is a daily 90 minute math workshop, providing multiple contexts for teaching, differentiation and assessment, as illustrated on Table 1.1b.

Table 1.1b:Components of Instructional Framework for Mathematics

Components	Description	Time
Warm up	Teacher-led discussion to transition and prepare students for core instruction.	10 min
Whole Group	Teacher-led core instruction to address standards-based units.	20 min
Small-Group/ One on One	Teacher-led small groups and individual conferences to provide enrichment, reinforcement and intervention as warranted by student achievement.	60 min
Assessment	**Embedded throughout** whole group, small group, and one-on-one conferencing.	

1.2 Need Analysis: K-PREP, our state assessment, presents school trends in math achievement for 3rd-5th graders. Table 1.2a presents the percentage of students scoring below proficiency on K-PREP from 2014-16 and comparison data for district students. The two-year average of 3rd-5th graders below proficiency was **61%;** this was worse than the district (**53.5%**). In 2015-16, **59%** of our students were below proficiency in math **and** nearly ¼ were well below proficiency, scoring *novice.*

Table 1.2a: Percentage of Students Below Proficiency (Novice or Apprentice) on K-PREP (2014-2016)

	3rd Grade		4th Grade		5th Grade			3rd -5th Grade	
	Sch	Dist	Sch	Dist	Sch	Dist		Sch	Dist
2015-16	58%	61%	61%	54%	56%	45%		59%	53%
2014-15	65%	55%	59%	58%	65%	49%		63%	54%
Two-Year Average (2014-2016)	61.5%	58%	60%	56%	60.5%	47%		61%	53.5%

Measures of Academic Progress **(MAP)** is an assessment to predict achievement and growth. Table 1.2b includes the percentage of students who entered grades 1 and 2 below proficiency on MAP from 2011-2015. The consistency of low achievement during that period is alarming. In fall 2015, **65%** of 1st graders and **67%** of 2nd graders were not proficient. In 2016, our district replaced MAP with a similar assessment, iReady. iReady data mirrors proficiency on MAP. **72%** of 1st and **62%** of 2nd were below proficiency in fall 2016. MAP, iReady and K-PREP show schoolwide low math proficiency and suggest our students who start behind in 1st grade often remain behind in later grades.

T*able 1.2b Percentage of Students Below Proficiency (2011-2016) as Measured by Fall MAP and iReady*

	iReady	MAP				
	Fall 2016	Fall 2015	Fall 2014	Fall 2013	Fall 2012	Fall 2011
First Grade	72%	65%	59%	64%	68%	65%
Second Grade	62%	67%	58%	62%	73%	70%

AVMR is a diagnostic assessment to measure proficiency in specific math skills of primary students. AVMR reinforces trends revealed by K-PREP, MAP and iReady. Over the last 2 years, more than **8 out of 10** students started 1st and 2nd grade below proficiency as measured by fall AVMR (Table 1.2c). Low proficiency of 1st and 2nd

graders on MAP, iReady, and AVMR sets the stage for achievement gaps in later years. AVMR shows a positive trend as the percentage below proficiency was reduced from fall to spring (Table 1.2c). However, the percentage of 2nd graders below proficiency illustrates these students regressed from spring of 1st grade to fall of 2nd. Thus, our data indicates a need for transitional interventions, particularly in the fall, for 2nd graders. Further, low achievement at 1st and 2nd in both spring and fall shows the need for additional collaboration with classroom teachers to improve Tier 1, core instruction.

Table 1.2c Percentage of Students Below Proficiency (2014-2017) as Measured by AVMR

	2016-2017	2015-2016		2014-2015	
	Fall	Fall	Spring	Fall	Spring
First Grade	81%	85%	42%	72%	54%
Second Grade	90%	83%	67%	79%	52%

Table 1.2d illuminates skill deficits among entering 1st graders on AVMR. Table 1.2d shows more gains in lower level skills (e.g., counting) from fall to spring than more complex problem-solving processes (e.g., structuring). This suggests a source of low achievement is a lack of self-regulation and application of higher level skills. Self-regulation means a student has consolidated lower level skills into complex problem-solving actions and is able to keep pace with grade level benchmarks. Classroom teachers reported these same skill deficits (e.g., structuring) and noted students have difficulty applying skills to different contexts. This lack of skill transfer and spring to fall skill regression further suggest students aren't becoming self-regulated in math.

Table 1.2d Percentage of Students Below Proficiency (2014-2017) on AVMR Tasks

	Forward Counting		Numeral ID		Structuring		Addition/Subtraction	
	Fall	Spr	Fall	Spr	Fall	Spr	Fall	Spr
2016-17	87%	n/a	42%	n/a	67%	n/a	69%	n/a
2015-16	90%	24%	51%	33%	71%	40%	63%	39%
2014-15	77%	25%	36%	33%	59%	46%	72%	44%

Summary: Our school serves 502 students in grades 1-5. Data shows a large percentage of primary students start school below proficiency and with specific skill

deficits in math. Thus, we must provide intervention for as many 1st graders as possible to prevent an insurmountable achievement gap in later grades. Persistent underachievement in 2nd grade also suggests some direct service is needed beyond 1st grade. Consistent low achievement and lack of self-regulation clearly shows a problem that must also be addressed through improved Tier 1 classroom instruction. A combination of direct preventative interventions at 1st grade, transitional intervention at 2nd grade and collaboration to support classroom instruction at grades 1-5 is necessary.

Part 2: Description of the Response to Intervention Framework

2.1 Our RTI framework is multi-tiered, data-driven and based upon the Kentucky System of Interventions. Tier 1 core classroom instruction is the foundation, Tiers 2 and 3 are short-term interventions and Tier 4 is special education. Interventions supplement, not replace, Tier 1 instruction. Interventions may occur within the classroom (Tier 2) and outside the classroom (Tier 2/3). Classroom (Tier 2) interventions are conducted by the classroom teacher during a designated RTI time. When data indicates a need for more intense service, we have some Tier 2 and 3 pull-out interventions delivered in small-groups and one-on-one settings. They target students with substantial math difficulties who have not responded to classroom instruction and intervention. The primary difference between classroom and Tier 2/3 pull-out interventions is frequency, duration and intensity. When students do not respond to multiple interventions across tiers, we may pursue long-term options such as special ed referral (Tier 4). We use a problem-solving approach and decisions are made by our RTI team (principal or guidance counselor, parent, classroom and intervention teachers). Our framework emphasizes early interventions that are research-based and conducted by highly-skilled teachers. All

teachers must have knowledge, resources and autonomy to adjust instruction. Thus, we don't use a singular program or assessment. We use a variety of resources, approaches and contexts that rely upon teacher expertise. Our MAF grant will build upon and improve our RTI framework as explained in Part 4.1.

2.2 Data: We use multiple assessments (Table 2.2) to select students, monitor progress, modify instruction and evaluate student learning. (Assessments are further described in Part 2.4, 4.2, 6.2 & 6.3). iReady is our computer-based universal screener and AVMR our selection assessment. Both inform student selection and measure outcomes by comparing student skill to established benchmarks. iReady and AVMR also identify skill deficits and inform classroom instruction and intervention. Progress monitoring assessments align with learning targets and have criteria for student learning. Progress monitoring for students in Tier 2 classroom interventions is provided by AVMR task probes to measure skill growth. Common assessments measure mastery of target standards used in Tier 1 core instruction. Collectively, they provide evidence of incremental skill acquisition and mastery of standards. For students in Tier 2 and 3 pull-out interventions, we currently use AVMR to diagnose needs and AVMR task groups and Fluency Assessments to monitor progress (see also Part 4.2). We will add the Math Recovery Assessment (MRA) to this protocol if the grant is awarded. This is described in Part 4.2. To comprehensively monitor progress, classroom and intervention data are compared at established intervals (Table 2.4). The breadth of our data, RTI team schedule (Table 2.4) and Professional Learning Community (PLC) framework (Part 5.2) give us a consistent way to compare data sources.

Table 2.2: Purpose, Person Responsible and Frequency of Assessments for our RTI Framework

iReady	Common Assessments	AVMR	AVMR Task Group Probes	Fluency Assessments AVMR Task Groups
Tier 1 Classroom		Tier 1 & 2 Classroom	Tier 2 Classroom	Tier 2 and 3 Pull-out
Universal Screener Outcome Data	Instructional Planning	Selection, Diagnosis Outcome Data	Progress Monitoring and Planning	Progress Monitoring Planning Outcome Data
Aug/Jan/ May	Pre/Post unit	Aug/Jan/ May	Weekly	Every 10 lessons

2.3 Scheduling for RTI: First, the principal establishes a master school schedule which the classroom teacher uses to schedule core math time. Tier 2 classroom interventions are scheduled within that block, with flexibility to move students between groups. After students are identified for Tier 2 and 3 pull-out interventions, the classroom teacher and intervention teachers schedule interventions so they don't overlap with core math instruction. Because movement is responsive to a child's progress, intervention schedules are fluid. This flexibility is enabled by our school's PLC framework (Part 5), which gives us a way to monitor progress and shift the amount, type and time of service. Our priority is a schedule that works for the child and preserves their time within the core program and we will adjust as warranted. In this way, the framework privileges student needs and establishes collaborative decision-making.

2.4 Eligibility and Tier Movement is determined by the RTI team. The process the RTI team uses is illustrated on Table 2.4. The assessments we use within this process are on Table 2.2. Specifically, the RTI team meets at least 4 times during intervention: at the beginning to select students, twice during the program to monitor progress and plan next steps; and at the end of the program to evaluate outcomes. Tier movement and adjustments to service within tiers is also continuous between intervals, and facilitated by our PLC meetings. Classroom teachers also move students between classroom groups as warranted by progress monitoring data at any time. Students are dismissed or moved to another tier of service according to their acquisition of established

benchmarks (Table 4.2b). Data indicating a student is not responding to multiple interventions may show a need for a special ed referral.

Table: 2.4: RTI Process to Determine Eligibility and Tier Movement

Selection and Scheduling	
Beginning of Program	• After giving iReady and AVMR, the RTI team meets to select intervention students. • Classroom and intervention teachers schedule Tier 2/3 pull-out interventions
Progress Monitoring	
During the program	RTI Team meets twice to review progress monitoring data and acquisition of benchmarks of Tier 2 and 3 intervention students; team may dismiss students from interventions
Weekly/ PLC's	Teachers meet in weekly grade level PLC's to review progress monitoring data, plan Tier 2 classroom interventions and adjust Tier 1 core instruction
Dismissal and/or Plan for Further Intervention	
End of Program	RTI Team meets to review progress monitoring data for students in Tier 2 and 3 interventions; to dismiss students from intervention and plan transitional support following intervention. An individual student team will convene to pursue additional options, including special education referral, for students who are unresponsive to multiple interventions.
****This entire process will be repeated at Mid-Year for Round 2 students**	
End of Year Evaluation	
End of Year	RTI Team meets to evaluate student outcomes on iReady and AVMR.

Part 3: Identification of the Grant Approved Program

We will implement Math Recovery(MR). Math Recovery will serve 1st graders in a pull-out, one-on-one setting for 45 minutes daily and 1st and 2nd graders in pull-out groups for 30 minutes daily. The following provides evidence of how our program addresses the needs described in Part 1.2. **1)**MAP and AVMR reveal low 1st and 2nd grade math performance and specific skill deficits. Research suggests students who start behind are likely to remain behind without responsive early intervention (Allington, 2009). Thus, we will target 1st and 2nd graders **with responsive intervention** before problems are more difficult to overcome. MR is responsive because teachers are trained to plan and carry out lessons that match student needs and address skill deficits (Table 1.2d) that contribute to low achievement. For example, MR includes: assessments that pinpoint student skill along a continuum; activities to quickly advance skill level; flexible lessons with multiple tasks that are hands-on and meaningful to build multiple subskills. **2)**Our

data also suggests regression in math proficiency between the end of 1st and beginning of 2nd grade. So, our plan also includes 2nd grade transition groups; this additional service is one way we will address this problem. It is equally important to identify the cause of skill regression between 1st and 2nd. Data suggests students are gaining skill but are not becoming self-regulated. In other words, skills aren't becoming internalized so students can apply them to novel situations. MR training equips teachers with theoretical understandings of the relationships between subskills and how to teach for self-regulation in math. Specifically, MR provides tailored experiences that help students internalize quantitative, verbal and symbolic aspects of number; construct their own understandings through exploration; and explain and justify their thinking. Since the self-regulation problem is pervasive, a major focus of collaboration with classroom teachers will be the relationship between skills, problem-solving and self-regulation. **3)Low proficiency** in primary grades, revealed on MAP and AVMR, contributes to long-term underachievement on K-PREP in intermediate grades. MR will help students build a foundation for higher-level math. We will focus service at 1st-2nd grade, fostering early independence so students are better equipped for later success. In this way, our interventions will have a systemic impact upon the chronic failure of students. However, we recognize early intervention is not a standalone solution and we must address the problems in our core program. In addition to MR, our Math Intervention Teacher (MIT) will collaborate with classroom teachers to improve core instruction (see Part 5).

Part 4: Identification of Students to be Served in MAF

4.1: Our MAF program includes Math Recovery delivered in one-on-one and small-group settings. It emphasizes early, responsive interventions that are research-based,

and data-driven. It includes collaboration between the MIT and classroom teachers to monitor progress, make instructional decisions and create more robust core instruction. Table 4.1 describes how MR will complement our RTI framework.

Table 4.1: Complementary Components of RTI Framework and MAF Programs

Principles of RTI Framework	How MAF program complements the framework
Tier 1 core instruction is foundational to student success	The MAF program includes MIT collaboration, training and co-teaching with classroom teachers to strengthen Tier 1 core instruction.
More than one tier of intervention is included	In addition to Tier 1 (core) and Tier 2 (classroom intervention) our program has Tier 2 MR (small group); Tier 3 MR (one-on-one)
Intervention must happen early	MR interventions promote accelerated learning for 1st-2nd graders.
Teacher expertise is essential to student success	The MIT has extensive training through MR to develop theoretical and practical knowledge. The MIT will collaborate, train and co-teach with classroom teachers to build capacity and improve Tier 1 instruction.
Interventions are responsive and short-term	The MIT has extensive training in observation, theory and responsivity, thus students make rapid progress.
Interventions supplement classroom instruction	MAF interventions are pull-out, and supplement the core program. Schedules ensure intervention is in addition to core instruction.
Decisions are data-driven	Our comprehensive RTI assessment protocol includes universal screening, diagnostics, progress monitoring, and outcome measures.
A problem-solving method is used to make decisions	Classroom teachers and MIT collaborate to monitor progress and make decisions about student placement, goals and Tier movement.

The principles of our RTI framework are visible in our school, though not all perfectly implemented. One purpose of our MAF program is to improve the RTI framework principles that aren't fully realized. For instance, a goal of our RTI framework is a mutually supportive, multi-tiered system that provides layers of concurrent support for students. Currently, Tier 2 classroom interventions aren't as supportive or targeted as they could be and therefore, students aren't always receiving layers of appropriate support. The MAF program will help classroom teachers learn to provide more targeted and appropriate Tier 2 interventions within the 90 minute math block instead of less effective ones provided currently. Teacher expertise is central to our RTI framework. Thus, our MAF program will include an MIT with extensive math expertise. The MIT will play a facilitative role in RTI by guiding data-driven decisions about student placement,

progress and instruction. In this way, our MAF program builds upon, complements and improves our existing RTI framework.

4.2: Eligibility: Our MAF program will provide Tier 2 and 3 pull-out interventions for 1st-2nd graders and transition groups for 2nd graders. Our universal screener, iReady, is a predictive assessment that measures math skills and subskills. iReady will be administered to all 1st and 2nd graders in the first two weeks of school. The MIT will collect iReady scores and identify students scoring in the lowest 20%. The MIT will then administer AVMR, which measures proficiency in math skills, to the lowest 20%. AVMR is the assessment we will use to select MR students. Table 4.2a illustrates the available teaching slots for MR, which will make the description of student selection clearer. First-round begins in fall. Students exit at different rates, so second round doesn't have a definitive starting point. However, it roughly equates to mid-year.

Table 4.2a:Number of Students Served in Each MAF Intervention

Intervention	First Round Students	Second Round Students	Annual Total
MR 1st grade (one on one)	3 students	3 students	6
MR 1st grade groups	2 groups of 4	2 groups of 4	16
MR 2nd grade groups	1 *transition* group of 6	1 group of 4	10

Selection Process: The RTI Team will identify the lowest-scoring 1st graders on AVMR and place them in interventions until slots are filled. Specifically, the 3 lowest scoring 1st graders will be placed in one-on-one intervention, Math Recovery (Tier 3). The next 8 lowest scoring 1st graders will be placed in small-group intervention, MR (Tier 2). The selection process ensures students who need the most intensive interventions are served first. In the fall, the MIT will also have a transition group of 2nd graders selected from students served in 1st grade intervention during the previous school year. This group will help students "transition" to the core program and prevent the regression of skill evidenced in data. Interventions are responsive and short-term; children exit at

different rates. Transition groups will likely be of shorter duration than students being served for the first time. As transition students exit, the MIT will select additional 2nd graders who were previous intervention students or 2nd graders who haven't responded to the core program. As other students exit, the MIT will select the next lowest 1st or 2nd graders. We will repeat this process to fill intervention slots throughout the year. When the need for pull-out interventions exceeds availability, the MIT will support Tier 1 instruction by providing training, attending grade-level PLC's, collaborating and co-teaching with specific teachers (Part 5).

Making Instructional Decisions and Determining Progress: The MIT will administer the Math Recovery Assessment (MRA) to students selected for MR. MRA more comprehensively measures the skills on AVMR (Table 4.2b) and provides a diagnostic profile to inform student goals. MRA provides entry data against which progress is monitored using formal and informal measures at specified intervals (Table 4.2c). Specifically: individual MRA tasks will monitor progress toward targeted benchmarks and proficiency goals (Tables 4.2b and 6.3). The MIT will select MRA tasks that monitor progress on targeted skills every 10 lessons, starting at lesson 10.

Table 4.2b: MRA Strands, Skills Measured and Example 1st Grade Benchmarks for Determining Progress

Strand	Skills and Criteria Measured	(Mid-Year) **Benchmarks** (Spring)	
Forward Counting	Count forward from any number	1-100	1-100
Backward Counting	Count back from any number	1-30	1-100
Numeral Identification	Identify & recognize numerals	1-100	1-1000
Structuring Number	Compose & decompose numbers	Fluent to 5	Fluent to 10
Addition/Subtraction	Strategies used to add & subtract	Count on and count back by 1's	

Fluency Assessments (FA) will also monitor progress. FA's were developed by the Kentucky Center for Mathematics. They compare observable behaviors and student explanations to those indicating proficiency with the fluency benchmark. The *FA*

includes nine equivalent forms of standard math tasks arranged on a gradient of difficulty to determine proficiency on grade-level benchmarks. They will be administered every 10 lessons, starting at lesson 15 to inform instructional decisions and determine progress during the intervention. **Anecdotal records** are an informal source of progress monitoring data. Instructional decisions will be based on the analysis of anecdotal records which provide evidence of student responses and explanations to intervention tasks. The MIT will collect and analyze anecdotal records daily using Math Recovery's continua, which illustrates observable indicators of skill development. Anecdotal records most directly inform daily instruction, whereas MRA and *FA* provide formal evidence of growth toward standard benchmarks. Table 4.2c depicts the process for progress monitoring, including frequency and intervals at which the RTI team will meet to monitor progress. Anecdotal records, MRA, *FA*, and classroom assessment data will be discussed at RTI team meetings and movement within Tiers will be determined by student achievement of MRA Benchmarks. Interventions are short term with most interventions taking 40-60 lessons. 60 is the maximum number of lessons in a single intervention. Progress and dismissal will be determined by student acquisition of MRA benchmarks (e.g., Table 4.2b includes example 1st grade benchmarks). Specifically, **a)**Students who **meet all benchmarks** may exit the program without further Tier 2 or 3 service; **b**)Students who **meet at least 3 of 5** benchmarks in Tier 2 or Tier 3, may move to a less intensive Tier 2 intervention, tailored with additional work on specific undeveloped skills. **c)**Students who meet **fewer than 3** benchmarks in Tier 2 may continue in a Tier 2 intervention of greater intensity (e.g., smaller group) or move to a Tier 3 intervention. **d)**Students who meet **fewer than 3** benchmarks in Tier 3, will be

recommended for additional screening and/or long-term support. Ongoing progress monitoring, collaboration and parent communication will ensure students are dismissed when needs are met and others may be served.

Table 4.2c: Progress Monitoring Tools and Intervals for MR Organized by Number of Lessons

Lesson #	Progress Monitoring	Lesson #	Progress Monitoring	Lesson #	Progress Monitoring
10	MRA Task Group	30	MRA Task Group	50	MRA Task Group
15	Fluency Assessment	35	Fluency Assessment	55	Fluency Assessment
20	MRA Task Group	40	MRA Task Group	60	MRA Task Group
25	Fluency Assessment	45	Fluency Assessment	End	Full MR Assessment
RTI Team meets		RTI Team Meets		End of Program: RTI Team Meets	

Part 5: Professional Learning and Sustainability

5.1: **School Math Team:** will include the MIT, principal, and a primary and intermediate classroom teacher. Individual members of the team have varied responsibilities. For clarity, we refer to the two classroom teachers on the Math Team as the *Plus2.* Any reference to *Math Team* assumes all members will participate. To enhance our comprehensive math model, we must increase teacher expertise. Our goal is to build expertise, starting with the members of the Math Team. The MIT candidate has been selected, has already completed Math Recovery (MR) training and will participate in ongoing, required MR training (Table 5.1).The Math Team will participate in ongoing professional learning and a myriad of collaborative activities throughout the year as described in Table 5.1 and in Part 5.2. This includes 10 days of intensive professional learning for the MIT and *Plus2s*. The MIT and *Plus2* teachers will develop a co-teaching model which is an apprenticeship framework that provides opportunity for teachers to study, observe, practice with support, receive and reflect on feedback and apply new learning. Co-teaching and collaboration will give the Math Team a systematic way of consolidating and applying information from the professional learning experiences on Table 5.1. The MIT will have 1 hour each day, for co-teaching activities with the *Plus2s*.

The breadth and coordination of professional learning experiences will elicit visible instructional change across our comprehensive math model. The principal's role on the Math Team will include: participating in professional learning, observing and documenting instructional change, and contributing financial resources.

Table 5.1: Professional Learning for Math Team Members

Activity	Participants	Description of Activity
Math Recovery	MIT (completed)	Year-long job embedded training for Math Recovery certification.
Collegial Meetings	MIT (ongoing)	In-person (3 per year) and Online (monthly) continuing PD exploring a variety of topics to improve instruction & implementation
KCM Training	*Plus2* Teachers	10 days of KCM Sponsored training covering a range of math topics appropriate for primary and intermediate *Plus2* teachers.
KCM Visits	Math Team	*Regional Coordinator visits (4 per year)* Teacher observations and feedback about instructional choices.
KCM Conference	Math Team	*KCM Conference (annual)* scholarly presentations on relevant research, theory and practice to be applied at school level.
KCM meeting	Math Team	Fall professional learning event

Our Math Team will address the needs across our comprehensive math model described in Part 1.2. These include: low and persistent underachievement across grades; significant, specific skill deficits at grades 1-2; and, skill regression between 1st-2nd grade. To address our widespread needs, we will include 8 classroom teachers on the Math Team over the next 4 years. At least half of 1st and 2nd grade teachers and every 3rd-5th grade math teacher will serve on the Math Team from 2017-2021. In 2017-2018, our *Plus2* teachers will include a primary (2nd) and an intermediate (3rd) teacher. We chose teachers from 2nd-3rd grades as a starting point to address our needs. The data shows low math proficiency at 1st-2nd so we must provide more support for the core program there. Since the MIT will provide the most service to 1st grade, those teachers have more access to her support. So, the first primary teacher on the Math Team (*Plus2*) will be from 2nd grade, where the need is equally great but the MIT support is less. Thus, our Math Team will focus on grades 1-3 in 2017-2018 to build capacity in early grades and prevent later problems. Our data suggests students may not achieve

and maintain proficiency because they aren't self-regulated. Classroom observations suggest teachers may not understand how to teach for self-regulation. This is even more visible in Tier 2 classroom interventions which often overemphasize isolated skills, worksheets or drills. In other words, our teachers must begin to see math as the development of a flexible, problem-solving system instead of the acquisition of disparate skills. That critical understanding leads to instructional practices that support self-regulation. Our comprehensive model already has the curriculum, resources, assessments and framework (Part 1.1) to support student learning. But, our data shows widespread needs, particularly early. Our teachers must build more expertise in how to promote a flexible, problem-solving math system and how to plan classroom intervention and instruction to support this. In year 1, we will focus on helping teachers acquire two Mathematical Teaching Practices (MTP): 1)ability to implement tasks that promote reasoning and problem solving, and 2)supporting productive struggle in learning math. Acquisition of these two MTPs is foundational to making responsive instructional decisions during math and fully-realizing the potential of the model described in Part 1.1. A major focus of collaboration and co-teaching with the *Plus2* teachers will be the relationship between skills, problem-solving and self-regulation.

5.2: Build Capacity: The following describes **how** our Math Team will build capacity of teachers throughout the building. Our Professional Learning Community (PLC) framework is a mechanism for communication and collaboration which is critical to addressing our school needs. PLCs are job-embedded and use student data to help teachers reflect upon instruction and build expertise. Grade level PLCs meet every week for one hour. In PLCs, the Math Team will share resources with grade-level

teams, help them reflect upon teaching and jointly plan classroom interventions, instruction and home-practice activities. In this way, PLCs will enable the Math Team to build capacity schoolwide. Each year our Math Team will include new *Plus2* teachers. As Math Team members exit, they will continue to play a facilitative role in grade-level PLCs. Our Math Team will also conduct two-hour trainings for the entire staff on 3 district PD days. Topics will include: teaching practices, instructional strategies, and using standards-based resources. We will use this time to address the self-regulation problem by providing training that focuses on the MTPs identified in 5.1. Math Team members will also facilitate vertical grade-level teams on these PD days to discuss cross-grade expectations and build mutual understanding of the progression of standards. This will extend the Math Team's reach beyond their grade-level and build teacher capacity schoolwide. In May, the Math Team will share a case study with the staff to illustrate their learning and student growth. This will be cumulative each year, with former and current Math Team members adding to the study. At the end of the grant term, this will illustrate the extent to which capacity was built across our school.

5.3: Family Involvement will be strengthened by our Math Team. Our goal is to create accessible, continuous opportunities for parents to be involved in all aspects of their child's learning. Table 5.3 includes family involvement to support our MAF proposal.

Table 5.3: Family Involvement to Support MAF Program and Persons Responsible for Each Activity

Activity	Person Responsible
Invite parents to watch demonstration lessons in person or via teleconferencing (e.g., SKYPE) or lesson videos shared through DropBox, YouTube or on DVD.	MIT
Create daily (Tier 3) and weekly (Tiers 1/2) home practice activities with directions to help parents understand the purpose and how to assist their child.	Math Team
Plan and conduct student-led conferences where students provide demonstrations of their growth and knowledge.	Math Team
An annual family math event such as a Parent University to help parents understand grade-level expectations and why math approaches have changed	Math Team
Create a summer "plan" with weekly practice activities, games and information about accessing free and low-cost community resources	Math Team

The Math Team will access resources to assist family involvement including district translators for communication, Family Resource Center to provide transportation for parents to attend events, and our guidance counselor to help with outreach.

5.4: Sustainability: The systemic change created by our program will ensure sustainability. The MAF program will create systemic change through MIT service to students and co-teaching and collaboration with *Plus2s*. Including 8 classroom teachers over 4 years in the *Plus2* model will result in widespread, sustained learning. As *Plus2s* cycle off the Math Team, they will continue to impact grade-level teams. As classroom teachers apply what they learn from the Math Team to core instruction, all students are impacted. Resulting changes in mindset and practice will lead to sustained change. Our district is committed to math instruction. Specifically, 100% of our primary teachers are AVMR trained and our district employs 5 Champion-trained interventionists to provide AVMR training. The district will continue to pay for AVMR training for new teachers and contribute an additional **$18,751.24** to this project, yearly. This illustrates commitment to implementation and further ensures sustainability after the grant term.

Part 6: Assessment and Evaluation Plan

6.1 Number of students to be served: Across the school year, we will serve at least 6 students in one-on-one MR intervention and at least 26 students in small-groups (Table4.2a). The numbers were determined by Math Recovery and district RTI guidelines for Tier 2/3 pull-out interventions. MR (Tier 3) is one-on-one. The recommended size of a Tier 2 Math Recovery group is 4. Because transition groups will serve previous intervention students, they are less intensive and serve up to 6 students at a time. The MIT will have 3 time slots for one-on-one and 3 group slots (Table 6.1).

Thus, the number of students served in a year was defined by the number of available slots and MR and RTI guidelines for interventions of appropriate intensity.

Table 6.1: Sample Schedule for Math Intervention Teacher

Activities and Scheduled Times	Min	% Day
MR one-one one 7:30-8:15 (Student 1) 8:15-9:00 (Student 2) 9:00-9:45 (Student 3) **MR small-groups** 9:45-10:15 (Group 1) 11:45-12:15 (Group 2); 2:00-2:30 (Group 3)	225	54%
Lunch, Planning, Co-Teaching, Collaboration:10:15-11:15; 11:15-11:45; 12:15-2:00	195	46%

6.2: Data Sources: Every aspect of our comprehensive math model is data-driven. Data for selection, progress monitoring and planning are described throughout this proposal. Five data sources will be used to evaluate program outcomes. Math Recovery Assessment(MRA) provides achievement levels in specific numeracy strands (Table 4.2b). The MIT will select individual MRA tasks to monitor progress toward benchmarks using the schedule on Table 4.2c. To measure outcomes at the end of intervention, the MIT will administer MRA and evaluate achievement of grade-level benchmarks. To monitor sustained progress of intervention students, the MIT will use iReady and AVMR. The MIT will collect fall, mid-year and spring iReady of former intervention students through the end of 3rd grade. The MIT will collect spring AVMR data for 1st graders and fall/spring AVMR for 2nd graders. The MIT will use a data collection grid with student names and interventions received to record these data. This tracking system will provide evidence of long-term proficiency for intervention students. The Math Team will also collect iReady and AVMR scores for all 1st-2nd graders and K-PREP for 3rd-5th graders to evaluate progress of all students. MRA, iReady, AVMR and K-PREP provide evidence of instructional change as higher proficiency should result from positive instructional change. Because the success of our MAF program hinges upon teacher development, we also need a mechanism to formatively monitor instructional change. Thus, we will also include a fifth data source, a KCM observation rubric to collect

evidence of Math Teaching Practices (MTP). Throughout the school year, the MIT and principal will use the rubric to document observable evidence of MTP's during lessons. The *Plus2*'s will use the rubric to self-evaluate and plan instruction with MIT support.

6.3: Specific and measurable goals: Outcome goals for intervention students are to reach proficiency benchmarks, apply math skill in core instruction, and to sustain math skill beyond 1st grade. Outcome goals for our program are to reduce the number of students below proficiency, to reduce the occurrence of skill regression between 1st and 2nd grade, and to improve the overall math performance of students by creating positive instructional changes within the core program. Table 6.3 illustrates measurable short and long-term performance goals to evaluate our program.

Table 6.3: Specific Measurable Goals

Measurable Goals	
Goals for MR Students	• MR students will increase at least **1 level** toward at least 1 MR benchmark every week of the program, so by week 15, benchmark levels in all five strands are achieved. • At least **70%** of MR students will reach MRA benchmarks by the end of program. • At least **80%** of MR students **who** reach MRA benchmarks will also: ▪ reach AVMR benchmarks following transitional service in 2nd grade. ▪ score *at or above grade level benchmarks* on iReady at mid-year of 2nd grade and in 3rd grade to measure longitudinal performance.
Long-Term goals (by 2021-2022)	Increase the following by at least **5%** each year: (2017-2021) • 1st graders who score proficient on spring AVMR • 2nd graders who score proficient on fall and spring AVMR • 1st, 2nd and 3rd graders who score proficient on iReady • 3-5th graders who score proficient or above on K-PREP
Instructional Change Goal	• The KCM rubric for Math Teaching Practices (MTP) will be used for classroom observations by the principal and MIT. By 2020-2021, **50**% of the MTP's will be visible in all classrooms, with at least 80% visible in *Plus2* classrooms.

Part 7: Budget

7.1: Efficient use of resources: The total cost of our program is **$68,751.24.** The MAF grant funds will provide **$50,000** of this amount and local funds will provide **$18,751.24** of the total. The majority of grant funds **($49,444.55)** is allocated to the MIT's salary/benefits. Remaining grant funds in the amount of **$555.45** will pay part of the MIT's materials and professional dues. Local funds will pay all costs related to the

Plus2's and MIT costs that exceed the grant amount (see Part 7.2 and budget summary). Efficiency is ensured by our program's focus on developing MIT, Math Team and classroom teacher expertise. The result will be better classroom instruction and responsive early intervention that precludes the need for expensive, long-term service to students. The MIT will serve at least 32 students each year and her salary is **$51,093**. Thus, the per student cost is **$1,597.** Around 48 additional students will be impacted in *Plus2* classrooms. Math Team expertise will be shared with all teachers, impacting all students. Because our program provides responsive 1st-2nd grade interventions, co-teaching with the *Plus2* and collaboration with classroom teachers, it will elicit accelerated, sustained learning and instructional change. Our plan also includes protocols to evaluate annual progress, ensuring program fidelity and efficient fund use.

7.2: Additional funds: Our program includes **$18,751.24** of additional school and district funds to supplement the cost of implementing math intervention. Table 7.2 shows how this amount is allocated to cover the costs of remaining MIT salary/benefits, and sub costs, materials, technology and training costs for the MIT and *Plus2* teachers.

Table 7.2: Local Funds Committed to Training, Sub Costs, Travel and Materials

Amount	Use of Funds
$5,176.24	MIT salary, benefits and stipend not covered by grant funds
$4,200	substitutes for MIT and *Plus2* while participating in required PD.
$1,000	materials for family involvement events and communication
$1,000	professional materials and resources for PD and implementation
$1,200	technology replacement and supplies for MIT
$6,175	Registration and travel for KCM conference and MIT/*Plus2* training

The budget summary describes, in detail, how grant **($50,000)** and school and district funds **($18,751.24)** will be spent and includes the source of local funds.

Mathematics Achievement Fund Grant

Budget Summary Form

Madison County

_____

District

Daniel Boone Elementary

_____

Name of School

Instructions: Use this form to provide a detailed, itemized explanation of expenditures for each MUNIS Code. Not all MUNIS codes listed need to be used. However, the school may not use MAF grant monies for any MUNIS code that is not listed. Successful approval of budget is pending further review by the KDE.

MUNIS Code	Description	Amount	Explanation of Expenditures
0110	Certified Permanent Salary	48,500.00	The Math Intervention Teacher (MIT) has 14 years of experience with a MaEd in Elementary Education. 9 years of experience as a MIT. The MIT is a certified Math Recovery Specialist who is also AVMR Champion and Content Coaching trained. **95%** of the **$51,093** MIT salary will be funded from the **MAF grant**. The remaining **$2,593** will come from **district funds**.
0113	Stipends for Certified Staff		The MIT will conduct 40 hours of districtwide AVMR course 1 and 2 training for new classroom teachers each summer in order to continue building capacity in math. The district will pay a **$1,000** stipend to compensate the MIT for her time.
0120	Certified Substitutes		An estimated **40** days of certified substitutes will be needed for the school Math Team members which includes the MIT and 1 primary and 1 intermediate classroom teacher. We refer to the classroom teachers as *Plus2* teachers. The cost for **40** substitute days is **$4200**. These will be

			allocated as follows: **30** days for MIT and *Plus2* to attend **10** days each of KCM training; **6** days for the MIT and *Plus2* to attend the KCM Conference; **1** day for the MIT to attend KCM Post-Conference; **3** days for the MIT and *Plus2* to attend a KCM Fall event. The daily rate for substitutes is **$105** per day. **$4200** will be paid from **district and school funds**.
0211	Life Insurance[1]		
0221	Employer FICA Contribution[1]		
0222	Medicare Employer Contribution[1]	703.25	**95%** of the MIT benefits will be funded from the MAF grant. The remaining **$37.60** will come from **district funds**.
0251	State Unemployment Insurance[1]	57.00	**95%** of the MIT benefits will be funded from the MAF grant. The remaining **$3.00** will come from **district funds**.
0260	Workers Compensation[1]	184.30	**95%** of the MIT benefits will be funded from the MAF grant. The remaining **$9.85** will come from **district funds**.
0298	Other Employee Paid Benefits[1]		**$1,532.79** will cover the MIT's Retirement (KTRS). This amount will come from **district funds.**
0580	Travel		Ongoing PD and KCM events require travel out of the district for Math Team members. The estimated amount is based upon travel to regional training sites, where most events are held. Travel for the MIT and *Plus2's* will include the 10 day KCM training, KCM fall event, and the KCM conference. Using the current rate for mileage reimbursement **(.41/mille)** we will allocate **$850** from **district/school funds t**o out

			of district travel
0610	General Supplies	412.45	MR utilizes a wide array of games and manipulatives. Thus, the budget includes **$412.45** from **grant funds** to cover the cost of instructional materials. The MIT will use these materials (e.g., colored folders, card stock, counters, dice, blank playing cards, manipulatives, Arithmetic Racks, etc.) in one-on-one and small-group MR lessons and co-teaching in *Plus2* classrooms. Family involvement will be a significant focus of our MAF plan. **$1000** will be allocated from **school funds** for the MIT and *Plus2* to create materials for family involvement. Specifically, **$500** is allocated to purchase games and materials for family involvement events and **$500** to purchase materials for weekly family communication and at home practice.
0643	Supplemental Books, Study Guides & Curriculum		KCM will provide ongoing PD for the MIT and *Plus2* teachers. The MIT and *Plus2* teachers will share learning with grade level teams. Thus, **$1000** will be paid from **school funds** to purchase professional materials that align with training received from KCM. These materials will be used during PD's conducted by the MIT and *Plus2* teachers and during grade-level PLC's. In this way, our Math Team is building capacity throughout the school.
0646	Tests[2]		
0734	Technology Related Hardware		MR uses specific technology for daily taping and reviewing of lessons. Our budget includes **$1,000** to replace or repair the MIT laptop, camera, and tripod from **district funds**.
0735	Supplies – Technology		To print home practice activities for MR students, the budget includes **$200** for ink for the MIT printer. This will be paid from **school**

	Related		**funds**.
0810	Due and Fees	143.00	To support the MIT's professional learning, grant, school and district funds will pay membership and registration dues to the following professional and scholarly mathematics organizations: **$50** for Math Recovery membership renewal and **$93** for National Council of Teachers of Mathematics dues will be paid from **grant funds**. **$525** for KCM Conference registration for the MIT and *Plus2* teachers will be paid from **district/school** funds**.** **$4,800** for the MIT and *Plus2* teachers to participate in KCM training. The cost for this 10 day training is **$1600** per participant. This will be paid from **district funds.**
Total		**$50,000**	

[1]These expenses may be paid from MAF grant funds, if they are paid for other teachers within the district.

[2]Schools may spend MAF grant funds for pre-screening all primary students.