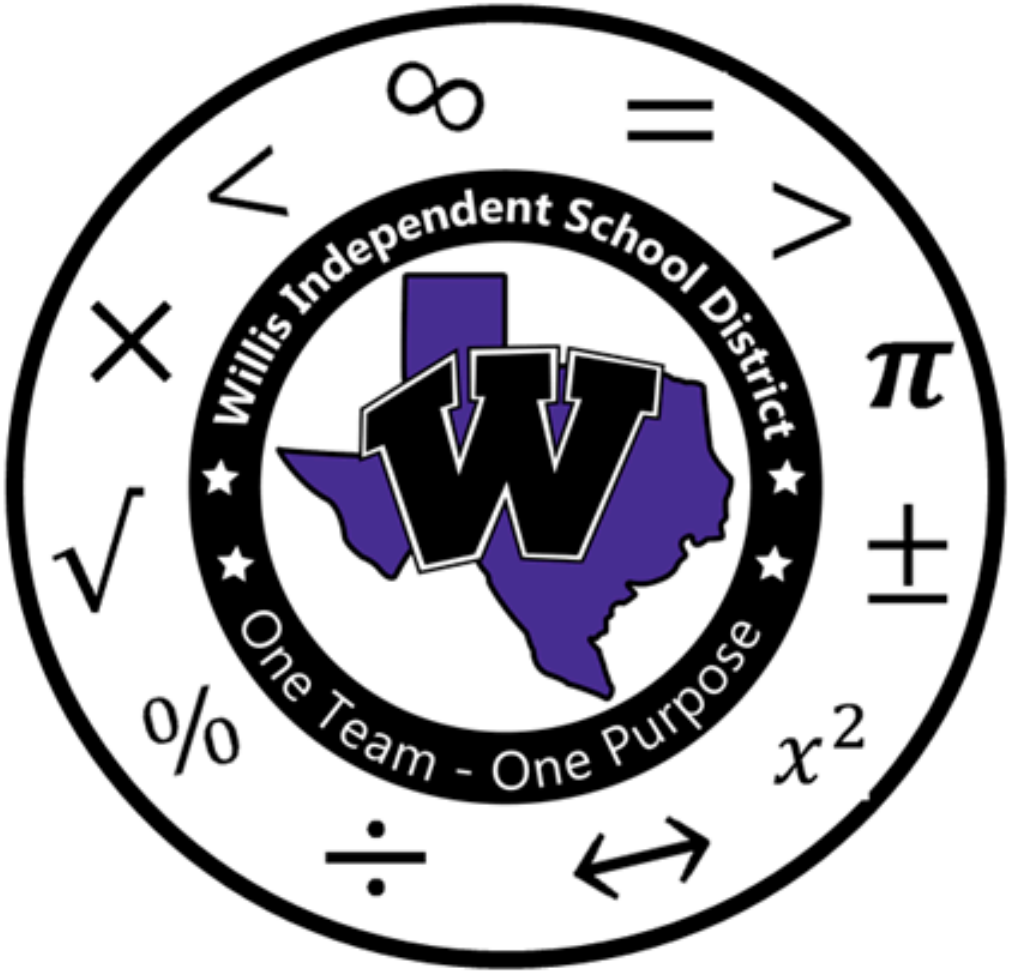

2024-2025 Willis ISD Balanced Math Strategy Implementation Guide

MATH REVIEW AND MENTAL MATH

Anchor Statements	"GOLD STANDARD"	Proficient	Developing	Needs Improvement
Daily Math Review Daily Math Review is a **deliberate** daily practice of previously taught computational skills and concepts based on need. DMR is a repetitive process that provides timely and specific feedback which allows students to correct procedural misconceptions.	❏ Includes 2-3 computation problems based on targeted classroom data ❏ One key statement per problem connected, to the math, and is utilized to help solve problems ❏ Students solve problems independently for 4-5 minutes ❏ Students collaborate for 1-2 minutes before checking, while teacher monitors student discourse ❏ Students use a different color writing utensil to check their work ❏ The teacher accurately models his/her thinking process aloud, while solving the problems ❏ While modeling, the teacher directs students through an intentional error analysis with a symbol ❏ Students write or orally state their reflections based on their error analysis and key statements (sentence stem may be used for this piece) 1-2 minutes. ❏ Target time is 10-15 minutes total. ❏ Consistent 9 day review cycle, current day of cycle posted ❏ Assess on the 10th day with multiple problems by key statements to determine mastery and plan adjustments to next cycle	❏ Includes 2-3 computation problems based on classroom data ❏ One key statement per problem, connected to the math, and is stated during the lesson. ❏ Students solve problems independently for 4-5 minutes ❏ Students collaborate for 1-2 minutes before checking ❏ Students use a different color writing utensil to check their work. ❏ The teacher accurately models his/her thinking process aloud while solving the problems. ❏ While modeling,the teacher directs students through an intentional error analysis with a symbol ❏ Students write or orally state their reflections based on their error analysis (sentence stem may be used for this piece) 1-2 minutes. ❏ Target time is 10-15 minutes total. ❏ Consistent 9 day review cycle ❏ Assess on the 10th day with multiple problems by key statements to determine mastery.	❏ Includes 2-3 computation problems. ❏ Key statement(s) posted ❏ Students solve problems independently for 4-5 minutes ❏ Students use a different color writing utensil to check their work. ❏ The teacher gets student input rather than modeling. ❏ Random error analysis with a symbol. ❏ Target time becomes a mini lesson ❏ 9 day review cycle and assess on the 10th day	❏ Pre-determined warm-up or a spiral review ❏ No key statements ❏ No time limits for DMR parts ❏ DMR is not checked as a class ❏ No assessment

Mental Math: The purpose of mental math is to provide students with *mental* practice in computing basic number facts and combining mathematical operations to increase number sense.	❏ 2-3 problems daily based on number sense and number strategies ❏ Grade appropriate and follows a string of numbers/operations that can be computed mentally ❏ Linked by theme ❏ Target time is 5 minutes ❏ Is incorporated throughout the day during appropriate transition times (lining up, bathroom breaks)	❏ 2-3 problems daily based on number sense ❏ Grade appropriate and follows a string of numbers/operations that can be computed mentally ❏ Target time is 5 minutes	❏ 2-3 problems daily based on random number facts. ❏ Grade appropriate ❏ Target time is 5 minutes	❏ Unplanned number facts given to students at inconsistent times.

MASTERY OF MATH FACTS (Elementary)				
Anchor Statements	**"GOLD STANDARD"**	**Proficient**	**Developing**	**Needs Improvement**
Fluency with Facts: A quick response to a basic equation without resorting to non efficient strategies (such as counting). Basic math facts are defined as computations involving the 4 basic math operations with digits 0-9. It develops a strong understanding of the number system and its patterns that help students develop confidence in the 4 math operations (addition, subtraction, multiplication, and division).	❏ Grade appropriate problems ❏ Strategy and pattern based problems ❏ Evidence of varied researched based resources, that provides daily practice. (technology, oral practice, manipulatives, flash cards, music, etc.) ❏ All students actively participate (whole group, small group, stations, etc.) ❏ Student's track daily progress.	❏ Grade appropriate problems ❏ Strategy and pattern based problems ❏ Varied materials that provide daily practice (technology, oral practice, manipulatives, flash cards, music, etc.) ❏ All students actively participate (whole group, small group, stations, etc.)	❏ Problems are not strategically chosen ❏ Daily practice with no variation ❏ All students participate (whole group, small group, stations, etc.)	❏ Problems are not strategically chosen ❏ Daily practice with no variation ❏ Some students are actively participating.

INSTRUCTION AND LESSON DELIVERY				
Anchor Statements	**"GOLD STANDARD"**	**Proficient**	**Developing**	**Needs Improvement**
<u>Focus Lesson</u> The purpose of any mathematical lesson is to facilitate the learning of state standards with rigor and validity by maximizing student engagement, communication, critical thinking skills and perseverance in order to help them master essential standards and daily learning targets based on teacher-chosen tasks. Lesson design and instruction incorporates: ➢ relevant, equity based teaching practices, ➢ academic language, ➢ student discourse, ➢ cognitively demanding tasks, ➢ and evidence of learning.	❏ Lesson declares a clear learning target aligned to essential standards and district pacing - teacher shares the context of the target throughout the lesson. ❏ Consistently throughout the lesson, vertically aligned mathematical vocabulary is used, both orally and written, by teachers and students to support mastery of the learning target ❏ Concepts begin at the appropriate grade level foundation with a variety of concrete representations that build to procedural understanding of abstract concepts ❏ The instruction incorporates a variety of lower and higher level cognitive demand tasks,used to engage students on procedural fluency, challenging thinking and deeper reasoning ❏ A balance of whole group and small group instruction based on classroom data to meet individualized student needs ❏ Teacher deliberately structures questions to promote appropriate mathematical discourse in order to assess student understanding ❏ Multiple opportunities for all students to communicate and justify their solutions ❏ A student led summary closure to determine the understanding and mathematical process of the learning target ❏ Teacher uses team planned and developed CFA's, then provides specific and timely feedback. The teacher then uses data to make instructional changes to meet diverse learning needs of the students.	❏ Lesson declares a clear learning target aligned to essential standards and district pacing - teacher shares the context of the target at the beginning of the lesson ❏ Vertically aligned mathematical vocabulary is used, both orally and written, by teachers and students to support mastery of the learning target ❏ Concepts begin at the appropriate grade level foundation with concrete representations that build to procedural understanding of abstract concepts ❏ The instruction incorporates a variety of lower and higher level cognitive demand tasks that are focused on student procedural fluency and reasoning skills ❏ A balance of whole group and small group instruction based on classroom data ❏ Teacher deliberately structures questions to promote appropriate mathematical discourse in order to assess student understanding ❏ Students communicate and justify their solutions ❏ A student led summary closure to determine the understanding of the learning target ❏ Teacher uses common formative assessments to provide specific and timely feedback to create groups	❏ Lesson declares a clear learning target aligned to the essential standard. ❏ Mathematical vocabulary is used, both orally and written, by teachers and students to support mastery of the learning target ❏ The lesson starts with conceptual understanding and use of concrete objects to build to procedural understanding and abstract concepts ❏ The instruction lacks a variety of lower and higher level cognitive demand tasks that are focused on student procedural fluency and reasoning skills ❏ Lacks a balance of whole group and small group instruction based on classroom data ❏ Teacher questions to promote mathematical discourse ❏ Students communicate their solutions ❏ A teacher led closure to determine the understanding of the learning target ❏ Teacher uses team planned and developed CFA's.	❏ Learning target lacks connection to standards ❏ Mathematical vocabulary is not included in the lesson ❏ The lesson starts with procedural understanding and abstract concepts ❏ The instruction consists rote tasks ❏ Whole group direct teach ❏ Lessons do not focus on the ability for each student to reason within their own understanding and skills to solve problems. ❏ Teacher questioning elicits simple responses from students ❏ Teacher shares solutions ❏ Closure is not evident ❏ No evidence of assessment.

Anchor Statements	"GOLD STANDARD"	Proficient	Developing	Needs Improvement
Math Workshop The purpose of a math work shop is to have a strong focus on instruction that reaches all levels of learners with a variety of instructional structures: ➢ Mathematical discourse ➢ Mathematical tasks ➢ Utilizing math manipulatives and tools ➢ Problem solving ➢ Small group instruction ➢ Student reflection of learning	❑ Focused learning target with clearly defined instructions and examples. ❑ Intentional grouping of students based on needs with students tracking their progress ❑ The teacher is facilitating differentiated small groups; reinforcing new learning or providing intervention/enrichment, while monitoring students in other stations ❑ Student learning stations could include : ○ Focus lesson practice ○ Spiraled essentials ○ Strategy based fact fluency ○ Number sense/computation ○ Enrichment/Supporting Standards ❑ Learning stations include student accountability, appropriate to the tasks, and ways to reflect on their learning ❑ Students have a choice of various mathematical manipulatives and tools to utilize ❑ Teacher aggressively monitors to determine next steps. ❑ Students use mathematical discourse consistently including academic vocabulary and justify their strategies. ❑ Students are engaged, taking risks, and are open to various perspectives. ❑ Students practice and grapple with mathematical ideas using high-level tasks in: ○ Various collaborative group sizes or ○ Independent practice	❑ Focused learning target with clearly defined instructions. ❑ Intentional grouping of students based on needs. ❑ The teacher is facilitating small groups; reinforcing new learning or providing intervention/enrichment, while monitoring students in other stations ❑ Student learning stations could include: ○ Focus lesson practice ○ Spiraled essentials ○ Strategy based fact fluency ○ Number Sense/computation ○ Enrichment/Supporting Standards ❑ Learning stations include student accountability appropriate to the tasks ❑ Students have various mathematical manipulatives and tools to utilize ❑ Teacher monitors to determine next steps ❑ Students use mathematical discourse and justify their strategies. ❑ Students are engaged in task at hand ❑ Students practice and grapple with appropriate mathematical tasks in ○ Various collaborative group sizes or ○ Independent practice	❑ No learning target present ❑ Students are grouped together. ❑ The teacher has a group but there is no focus ❑ Student learning stations are present but without a variety of mathematical concepts present. ❑ Time to allow students to independently work through mathematical concepts without collaboration. ❑ No student reflection is present. ❑ Mathematical manipulatives and tools are present but not utilized. ❑ Mathematical discourse is present.	❑ No learning target present ❑ Students are working independently. ❑ The teacher is wandering around monitoring stations. ❑ No learning stations are present. ❑ Very minimal time is allowed for students to work through the mathematical concepts. ❑ Mathematical manipulatives and tools are not present. ❑ Mathematical discourse is not present.

PROBLEM SOLVING				
Anchor Statements	**"GOLD STANDARD"**	**Proficient**	**Developing**	**Needs Improvement**
<u>Problem solving process:</u> Provides opportunities to apply knowledge and skills to solve unfamiliar types of problems by examining the question to find key ideas, choosing an appropriate strategy, and organizing ideas to communicate the mathematical thinking process both orally and written. Willis ISD problem solving connects to process standard 1(B) "use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution" for grades K-12.	❏ Problem selected is connected to a grade level unit of study ❏ Problem selected is connected to a specific strategy. ❏ Mathematical processes are used to acquire and demonstrate mathematical understanding. ❏ Problem solving tool (mat) is being implemented correctly ❏ Analyze ❏ formulate a plan ❏ determine and justify a solution ❏ Evaluate for reasonableness ❏ Mathematical solutions are expressed through a written response. ❏ Opportunities for students to share strategies and justify the reasonableness of their answers.	❏ Problem selected is connected to a grade level unit of study ❏ Problem selected is connected to a specific strategy. ❏ Mathematical processes are used to demonstrate mathematical understanding. ❏ Problem solving tool is being implemented correctly ❏ Analyze ❏ formulate a plan ❏ determine and justify a solution ❏ Evaluate for reasonableness ❏ Mathematical solutions are expressed through a written response. ❏ Opportunities for students to share strategies	❏ Problem selected is grade level appropriate, but not connected to a unit of study. ❏ Problem solving tool (mat) is present and evidence of some students using it. ❏ Mathematical solutions are expressed through a written response. ❏ Teacher chooses the strategy used to solve the problem.	❏ Problem is not predetermined or grade level appropriate ❏ Problem solving tool (mat) is present ❏ Teacher chooses the same strategy used to solve the problem. ❏ Problem is happening inconsistently.