

MATHEMATICS

(Released Summer 2022)



MISSISSIPPI
DEPARTMENT OF
EDUCATION

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Acknowledgments

Carey M. Wright, Ed.D. | State Superintendent of Education

Kim S. Benton, Ed.D. | Interim Chief Academic Officer

Marla Davis, Ph.D. | Associate State Superintendent

Tennette Smith, Ed.D. | Executive Director, Office of Elementary Education and Reading

Wendy Clemons | Executive Director, Office of Secondary Education

Tammy Crosetti | State Director of Curriculum and Instruction

Tommisha Johnson, Ed.S. | State K-12 Mathematics Director

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University of Mississippi

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Special Acknowledgments:
Teaching Lab

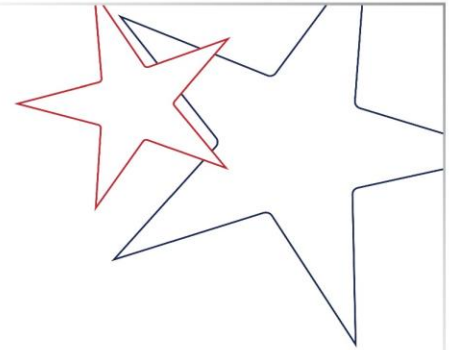
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VISION

To create a world-class educational system that gives students the knowledge and skills to be successful in college and the workforce, and to flourish as parents and citizens

MISSION

To provide leadership through the development of policy and accountability systems so that all students are prepared to compete in the global community

State Board of Education STRATEGIC PLAN GOALS



1

ALL Students Proficient and Showing Growth in All Assessed Areas

EVERY School Has Effective Teachers and Leaders

4



2

EVERY Student Graduates from High School and is Ready for College and Career

EVERY Community Effectively Uses a World-Class Data System to Improve Student Outcomes

5



3

EVERY Child Has Access to a High-Quality Early Childhood Program

EVERY School and District is Rated "C" or Higher

6



INTRODUCTION

Mathematics teaching is complex and requires teachers to have a deep understanding of the mathematical content that they are expected to teach and a clear view of how student learning of mathematics develops and progresses across grades. It also calls for teachers to be skilled at using instructional practices that are effective in developing mathematics learning.

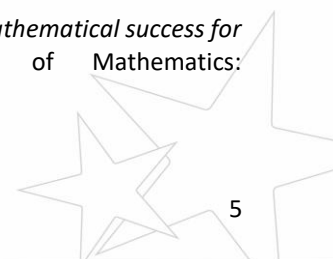
Ensuring mathematical success for all takes administrators, coaches, specialists, and other school leaders to make the mathematical success of every student a nonnegotiable priority. Actions to support this focus include providing job-embedded professional development, training, and coaching to make the implementation of effective instructional practices a priority; maintaining a schoolwide culture with high expectations, allocating time for teachers to collaborate in professional learning communities; and supporting improvement with multifaceted assessments used to monitor progress and inform changes to instruction.

To help identify the needs of individual teachers or the school, many administrators may gather instructional information through the use of a criterion-based tool, such as the ***Mathematics Instructional Observation Protocol (MIOP)***, which is suggested when conducting instructional observations.¹

PURPOSE

The primary purpose of the ***Mathematics Instructional Observation Protocol (MIOP)*** is to provide instructional leadership teams at the local level with common, research-based, and content-specific criteria when conducting instructional observations. The feedback provided to each mathematics educator, along with coaching and professional learning, are meant to build teacher capacity and improve student achievement while implementing the Mississippi College- and Career-Readiness Standards (MS CCRS) for Mathematics.

¹ From National Council of Teachers of Mathematics. (2014). *Principles to Actions: Ensuring mathematical success for all- Executive summary*. Retrieved from National Council of Teachers of Mathematics: www.nctm.org/uploadedFiles/Standards_and_Positions/PtAExecutiveSummary.pdf



INSTRUCTIONAL OBSERVATION DEFINED ²

An **instructional observation** is a formal or informal observance of the teaching and learning environment and is typically conducted by student teachers, teacher colleagues, administrators, instructional coaches, district, and state staff in order to provide educators with constructive critical feedback aimed at improving their classroom management and instructional techniques.

Instructional observations, also known as *learning walks*, *peer observations*, *teacher observations*, and *walk-throughs* may vary in time length—from a few minutes to a full class period or school day. In many cases, observation notes are recorded using common templates or guidelines that describe the observers’ “look fors” or the observed teacher’s feedback request. While classroom observations are conducted for a wide variety of reasons, they are perhaps most commonly associated with building teacher capacity and increasing student achievement. School administrators regularly observe teachers as an extension or in conjunction with formal job-performance evaluations.

INSTRUCTIONAL PROTOCOL DEFINED ³

An **instructional protocol** is a set of step-by-step guidelines that are commonly used by educators to structure professional discussions about lesson planning, instructional techniques, student engagement, student tasks, performance data, learning environment, and/or classroom management; ensuring they are efficient, purposeful, and productive.

Once completed, they are often followed by a debriefing process during which participants discuss what they have learned from the experience and/or how the process worked well and how it might be improved.

² “Instructional *Observation*”—The Glossary of Education Reform by Great Schools Partnership is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

³ “*Protocol*”—The Glossary of Education Reform by Great Schools Partnership is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

LEARNING WALK VS. WALK-THROUGH

When discussing instructional observations, educators tend to use the words “learning walk” and “walk-through” interchangeably due to both being non-evaluative, informal classroom visits in which instructional leaders focus on and observe specific areas of the teaching and learning environment. However, it is best practice to decipher a clear distinction between the two.

Learning Walk⁴

A learning walk is a non-evaluative, evidence-based, informal classroom visit using a researched-based tool that allows administrators, teachers, or other specified observers opportunities to reflect on what students are learning, current instructional strategies, student engagement, and student interaction with the content. The primary purpose of a learning walk is for the observer(s) to compare criterion instructional practices with those they observe. The summation dialogue, the subsequent feedback provided, and self-reflection are the chief benefits of this collaboration.

Walk-through⁵

The walk-through can be defined as a brief, structured, classroom observation, usually conducted by the building level administrator that may or may not be followed up with verbal or written feedback about what was observed. An essential benefit of conducting numerous walk-throughs is to increase the number of classrooms that administrators visit, so brevity in each classroom is a must. While the typical walk-through lasts about 10 minutes, some may be shorter. Depending on the size of the school, walk-throughs may allow the administrator to visit every classroom as often as once a month, weekly, or even daily. Walk-throughs do not replace, but instead, supplement longer or more formal observations by providing a high number of classroom visits that, over time, may reveal patterns and instructional issues throughout the school.

The following two pages provide additional clarity around this distinction.

⁴ Main, P. (n.d.). *Learning walks: A guide for school leaders*. Retrieved from Structural Learning: <https://www.structural-learning.com/post/learning-walks-a-guide-for-school-leaders>

⁵ Center for Comprehensive School Reform and Improvement. (n.d.). *Using the Classroom Walk-Through as an Instructional Leadership Strategy*. Retrieved from AdLit| All About Literacy: <https://www.adlit.org/topics/curriculum-instruction/using-classroom-walk-through-instructional-leadership-strategy>

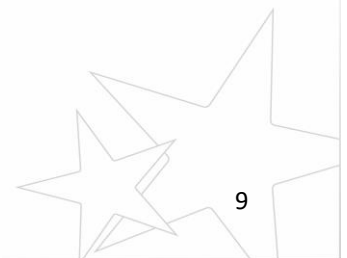
LEARNING WALK CONSIDERATIONS

OBSERVERS	PURPOSE	TIME	FEEDBACK
<p>Administrator(s), Coaches, Content Specialists, Lead Teachers, other Instructional Leadership Team Members, District, and/or State Personnel</p>	<p>To provide opportunities for instructional leaders to see in-practice instruction in comparison to predetermined criteria; gauge successes and deficits; and identify needs for professional development</p>	<p>Length: 10 minutes minimum, can extend throughout the entire class period or lesson</p> <p>Frequency: Generally conducted bi-annually, quarterly, or as often as needed</p>	<p>Required</p> <p>Note: Provides evidence-based feedback to foster teacher self-reflection and identify actionable next steps for professional learning</p>
<p>Professional Learning Community (PLC) Members, Teacher Peers, and/or Pre-Service Teachers</p>	<p>To provide an opportunity for peer observation of in-practice teaching strategies compared to a predetermined criterion</p>		

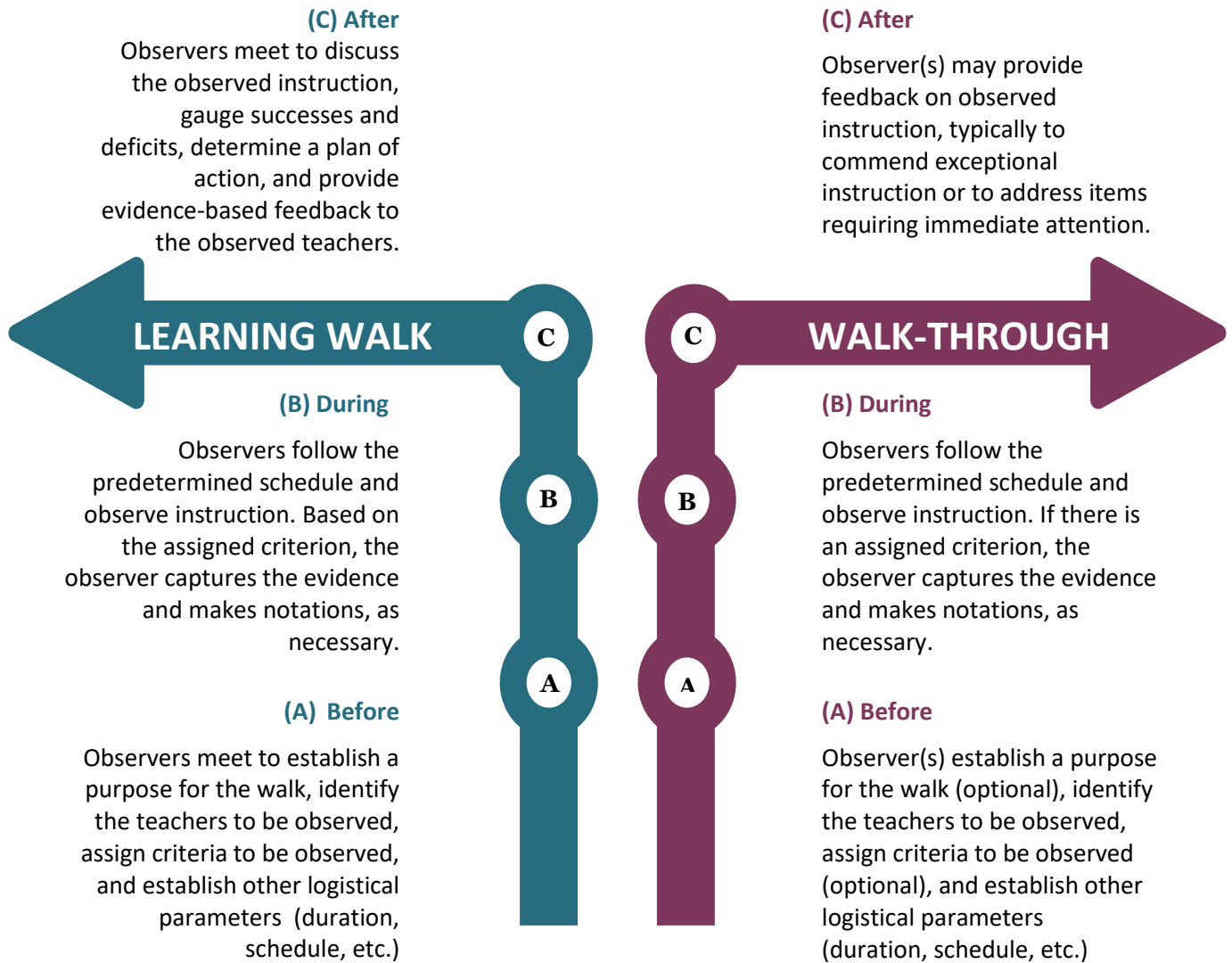


WALK-THROUGH CONSIDERATIONS

OBSERVERS	PURPOSE	TIME	FEEDBACK
<p>Administrator(s), but can extend to Instructional Coaches, Content Specialists, Lead Teachers, and other Instructional Leadership Team Members</p>	<p>To provide multiple opportunities for instructional leaders to see in-practice instruction</p>	<p>Length: 10 minutes maximum</p> <p>Frequency: As often as feasible or appropriate</p>	<p>Optional</p> <p>Note: Typically, only provided to note instructional practices that are exceptional or require immediate attention</p>
<p>Professional Learning Community (PLC) Members, Teacher Peers, and/or Pre-Service Teachers</p>	<p>To provide an opportunity for peer observation of in-practice teaching strategies</p>	<p>Length: 10 minutes maximum</p> <p>Frequency: As often as needed to capture instructional strategy</p>	<p>Optional</p> <p>Note: Typically leads to PLC discussion and continued professional learning</p>



INSTRUCTIONAL OBSERVATION PROCESS



CORE ACTIONS DEFINED

The *Mathematics Instructional Observation Protocol (MIOP)* provides specific, suggested Core Actions for teachers when implementing daily planning and practice of the Mississippi College- and Career-Readiness Standards (MS CCRS) for Mathematics. Each Core Action includes key criteria with the associated indicators or “look fors” that should be demonstrated by the teachers and students.

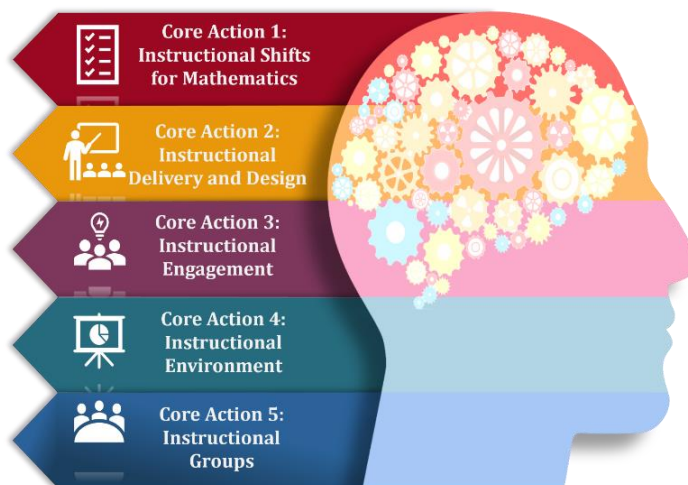


Figure 1: The Mathematics Instructional Observation Protocol’s Five Core Actions [**Note:** The MIOP Core Actions 1-3 are a derivative of Student Achievement Partner’s Instructional Practice Guide’s Core Actions 1-3⁶.]

Core Action 1: Instructional Shifts for Mathematics—Ensure the work of the enacted lesson reflects the *Focus, Coherence, and Rigor* required by the Mississippi College- and Career-Readiness Standards (MS CCRS) for Mathematics.

Core Action 2: Instructional Delivery and Design—Employ *Effective Mathematics Teaching Practices (EMTPs)* that allow **ALL** students to learn the lesson’s content.

Core Action 3: Instructional Engagement—Provide **ALL** students with opportunities to exhibit the *Standards of Mathematical Practice (SMPs)* while engaging with the lesson’s content.

Core Action 4: Instructional Environment—Design classroom systems to *promote access and attainment* for **ALL** students by having an element of *universal access* and self-selection of the structures and supports students’ use.

Core Action 5: Instructional Groups—Utilize *well-designed, small-group instruction* to make a significant difference for **EACH** student, no matter the current level of achievement.

⁶ Student Achievement Partners. (2018). *Instructional practice guide: Math K-8*. Retrieved from Achievethecore: https://achievethecore.org/content/upload/Instructional%20Practice%20Guide_Math_K-8.pdf

NOTABLE MENTIONS

Collecting Evidence⁶

For each lesson, evidence might include a lesson plan, tasks and assessments, teacher instruction, student discussion and behavior, instructional tools, classroom atmosphere, instructional supports, and student work. Although many indicators will be observable during the course of a lesson, there may be times when a lesson is appropriately focused on a smaller set of objectives, or you observe only a portion of a lesson. In those cases, you should expect to not observe all of the indicators.

Making Notations⁶

For each observation, it is essential to make note of what is seen and heard. It may be helpful to supplement what you have recorded with further evidence from artifacts such as lesson plans, tasks, or student work. Whenever possible, share the evidence collected during the observation in a follow-up discussion or when providing feedback.

Summation Dialogue⁶

The summation dialogue takes place after multiple observers conduct an observation of the same lesson. This collaborative conversation should reflect on the evidence collected during the observation to consider what practices are in place, what worked, what could improve, and what resources are available to support improvement. From this dialogue, a plan of action can be developed.

Providing Feedback

When providing feedback to teachers it is critical to base feedback on observable evidence, reinforce effective practices, and attend to the teacher's area of need and focus.⁷ Feedback should be timely, actionable, specific, related to agreed-upon learning outcomes, and calibrated to a teacher's abilities.⁸

⁷ DiPaola, M. F. (n.d.). Providing Effective Feedback to teachers: A critical task of instructional leaders. Retrieved from William & Mary School of Education: <https://education.wm.edu/centers/sli/events/lc-conference/Ldrshp%20Insti14-1.pdf>

⁸ Insight Advance. (n.d.). *Feedback strategies for coaches and administrators*. Retrieved from Harvard University Center for Education Policy Research: Visibly Better: <https://visiblybetter.cepr.harvard.edu/files/visibly-better/files/instructional-feedback-guidebook.pdf>

MATHEMATICS INSTRUCTIONAL OBSERVATION PROTOCOL (MIOP)–HOW TO READ THE MIOP

MATHEMATICS INSTRUCTIONAL OBSERVATION PROTOCOL (3-12)



TEACHER: _____
 COURSE/GRADE: _____
 OBSERVER: _____
 DATE: _____

Core Action
Definition

Key Criteria

Level of
Evidence

Core Action

Notes Column


Indicators or
“Look Fors”

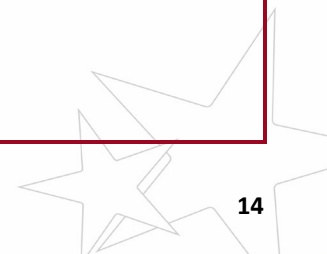
EVIDENCE	CORE ACTION 1: Instructional Shifts for Mathematics	NOTES
Ensure the work of the enacted lesson reflects the <i>Focus, Coherence, and Rigor</i> required by the MS College- and Career-Readiness Standards (MS CCRS) for Mathematics.		
Focus: The enacted lesson and instruction focus on the grade-level content standard(s) or unit(s).		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	<input type="checkbox"/> The current grade-level MS CCRS of focus are posted and referred to throughout the lesson. <input type="checkbox"/> "I can"/learning goal statements are aligned to focus standard(s). <input type="checkbox"/> Tasks, tools, anchor charts, word walls, and other instructional materials align with the focus standard(s).	
Coherence: The enacted lesson and instruction appropriately relates new content to math content within or across grades.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	The teacher uses systematic and explicit instruction that includes: <input type="checkbox"/> relating prior skills/prerequisites to the development of grade-level concepts. <input type="checkbox"/> integration of necessary and supporting grade-level concepts, knowledge, and skills. <input type="checkbox"/> sequential progression of concept development. <input type="checkbox"/> making or building upon real-world connections.	
Rigor: The enacted lesson and instruction intentionally target the aspect(s) of rigor called for by the standard(s) being addressed.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	Conceptual Understanding —see the MS CCRS including terms such as <i>understand, recognize, or interpret</i> <input type="checkbox"/> The teacher makes the mathematics of the lesson explicit by using representations, examples, multiple pathways to solutions, explanations, and/or classroom discourse. <input type="checkbox"/> The teacher checks for understanding throughout the lesson using informal but deliberate methods (e.g., questioning, assigning short problems, etc.). <input type="checkbox"/> Students access concepts from multiple perspectives to see math as more than a set of mnemonics or discrete procedures.	
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	Procedural Skill and Fluency —see MS CCRS including terms such as <i>fluently, find, or solve</i> <input type="checkbox"/> Students are provided the opportunity to develop a conceptual understanding of the operation(s). <input type="checkbox"/> Student solution methods are based on mathematics principles, not mnemonics or tricks. <input type="checkbox"/> Students are given an extensive opportunity to develop speed and accuracy with core function calculations in preparation for more complex concepts and procedures.	
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	Application —see MS CCRS including phrases such as <i>word problems or real-world problems</i> <input type="checkbox"/> Students apply mathematical knowledge in real-world problem-solving situations. <input type="checkbox"/> A variety of student-solution methods are shared and examined together to support understanding.	

MATHEMATICS INSTRUCTIONAL OBSERVATION PROTOCOL (3-12)



TEACHER: _____
 COURSE/GRADE: _____
 OBSERVER: _____
 DATE: _____


EVIDENCE	 CORE ACTION 1: Instructional Shifts for Mathematics	NOTES
Ensure the work of the enacted lesson reflects the <i>Focus, Coherence, and Rigor</i> required by the MS College- and Career-Readiness Standards (MS CCRS) for Mathematics.		
Focus: <i>The enacted lesson and instruction focus on the grade-level content standard(s) or unit(s).</i>		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	<input type="checkbox"/> The current grade-level MS CCRS of focus are posted and referred to throughout the lesson. <input type="checkbox"/> "I can"/learning goal statements are aligned to focus standard(s). <input type="checkbox"/> Tasks, tools, anchor charts, word walls, and other instructional materials align with the focus standard(s).	
Coherence: <i>The enacted lesson and instruction appropriately relates new content to math content within or across grades.</i>		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	The teacher uses systematic and explicit instruction that includes: <ul style="list-style-type: none"> <input type="checkbox"/> relating prior skills/prerequisites to the development of grade-level concepts. <input type="checkbox"/> integration of necessary and supporting grade-level concepts, knowledge, and skills. <input type="checkbox"/> sequential progression of concept development. <input type="checkbox"/> making or building upon real-world connections. 	
Rigor: <i>The enacted lesson and instruction intentionally target the aspect(s) of rigor called for by the standard(s) being addressed.</i>		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	Conceptual Understanding <i>—see the MS CCRS including terms such as understand, recognize, or interpret</i> <ul style="list-style-type: none"> <input type="checkbox"/> The teacher makes the mathematics of the lesson explicit by using representations, examples, multiple pathways to solutions, explanations, and/or classroom discourse. <input type="checkbox"/> The teacher checks for understanding throughout the lesson using informal but deliberate methods (e.g., questioning, assigning short problems, etc.). <input type="checkbox"/> Students access concepts from multiple perspectives to see math as more than a set of mnemonics or discrete procedures. 	
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	Procedural Skill and Fluency <i>—see MS CCRS including terms such as fluently, find, or solve</i> <ul style="list-style-type: none"> <input type="checkbox"/> Students are provided the opportunity to develop a conceptual understanding of the operation(s). <input type="checkbox"/> Student solution methods are based on mathematics principles, not mnemonics or tricks. <input type="checkbox"/> Students are given an extensive opportunity to develop speed and accuracy with core function calculations in preparation for more complex concepts and procedures. 	
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	Application <i>—see MS CCRS including phrases such as word problems or real-world problems</i> <ul style="list-style-type: none"> <input type="checkbox"/> Students apply mathematical knowledge in real-world problem-solving situations. <input type="checkbox"/> A variety of student-solution methods are shared and examined together to support understanding. 	

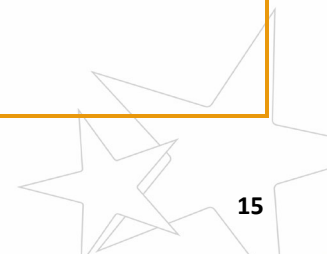


MATHEMATICS INSTRUCTIONAL OBSERVATION PROTOCOL (3-12)



TEACHER: _____
 COURSE/GRADE: _____
 OBSERVER: _____
 DATE: _____

EVIDENCE	 CORE ACTION 2: Instructional Delivery and Design	NOTES
Employ Effective Mathematics Teaching Practices (EMTPs) that allow ALL students to learn the lesson's content.		
1. Establish mathematics goals to focus learning.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	The teacher: <ul style="list-style-type: none"> <input type="checkbox"/> articulates the mathematics students are to learn. <input type="checkbox"/> identifies how the goal will fit into the learning progression. <input type="checkbox"/> discusses, references, and revisits the purpose of the goal and its contribution to the learning throughout the lesson. <input type="checkbox"/> uses the mathematics goal to guide lesson planning and reflection: and to make purposeful in-the-moment decisions. 	
2. Implement tasks that promote reasoning and problem-solving.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	The teacher: <ul style="list-style-type: none"> <input type="checkbox"/> provides opportunities for exploring and problem-solving that extend students' mathematical understanding. <input type="checkbox"/> selects tasks that provide multiple entry points through the use of varied tools and representations. <input type="checkbox"/> probes students to use various approaches or strategies to make sense of the mathematics concept. <input type="checkbox"/> chooses engaging, high-cognitive-demand tasks with various solution pathways. <input type="checkbox"/> chooses real-world tasks that reflect community and society. 	
3. Use and connect mathematical representations.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed <i>Select all observed:</i> <input type="checkbox"/> Visual/Pictorial <input type="checkbox"/> Physical/Concrete <input type="checkbox"/> Symbolic /Abstract <input type="checkbox"/> Verbal <input type="checkbox"/> Contextual	The teacher: <ul style="list-style-type: none"> <input type="checkbox"/> introduces representations to support students in building conceptual understanding. <input type="checkbox"/> allocates sufficient time to select, use, and discuss representations appropriate for solving the given problem. <input type="checkbox"/> focuses students' attention on the structure and essential features of the representation(s). <input type="checkbox"/> compares and connects representations to mathematics concepts and other representations. <input type="checkbox"/> ensures assessments include multiple representations of mathematics content. 	
4. Facilitate meaningful mathematical discourse.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	The teacher: <ul style="list-style-type: none"> <input type="checkbox"/> promotes an atmosphere where students share, listen to, honor, and critique each other's ideas respectfully. <input type="checkbox"/> uses strategies that promote purposeful sharing of mathematical ideas (e.g., Think/Pair/Share, Turn and Talk). <input type="checkbox"/> supports students' discourse by strategically selecting and sequencing student responses for whole-class analysis. <input type="checkbox"/> makes connections among student approaches and helps students consider and discuss differences in each other's thinking. <input type="checkbox"/> requires students to explain or defend their position. 	

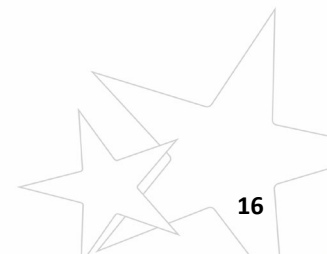


MATHEMATICS INSTRUCTIONAL OBSERVATION PROTOCOL (3-12)



TEACHER: _____
 COURSE/GRADE: _____
 OBSERVER: _____
 DATE: _____


5. Pose purposeful questions.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	<p>The teacher:</p> <input type="checkbox"/> asks intentional questions that make mathematics visible and accessible for discussion. <input type="checkbox"/> asks questions that probe or extend student understanding by using such words as explain, elaborate on, or clarify. <input type="checkbox"/> uses How, Why, and When questions to prompt students to reflect on their reasoning. <input type="checkbox"/> asks questions that elicit students to make sense of ideas and relationships. <input type="checkbox"/> asks questions that assist students in making connections in ideas and relationships. <input type="checkbox"/> allows sufficient wait time for students to formulate a response without interjecting or influencing student answers.	
6. Build procedural fluency from conceptual understanding.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	<p>The teacher:</p> <input type="checkbox"/> gives students time to think about diverse ways to approach a problem. <input type="checkbox"/> encourages students to use their own strategies and methods to solve problems. <input type="checkbox"/> asks students to justify their selected solution strategy. <input type="checkbox"/> connects and compares student-generated strategies to more appropriate or efficient strategies.	
7. Support productive struggle in learning mathematics.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	<p>The teacher:</p> <input type="checkbox"/> anticipates students' mathematical error(s), misconception(s), and/or struggle(s), and how to overcome them. <input type="checkbox"/> promotes an atmosphere where students are comfortable making mistakes. <input type="checkbox"/> positively encourages persistence through confusion, misconceptions, and struggles. <input type="checkbox"/> encourages students to problem-solve to find and correct their own mistakes. <input type="checkbox"/> provides ample work time and allows multiple attempts.	
8. Elicit and use evidence of student thinking.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	<p>The teacher:</p> <input type="checkbox"/> identifies strategies or representations that are important to look for as evidence of student understanding. <input type="checkbox"/> makes real-time decisions based on observations, student responses to questions, and modeled work. <input type="checkbox"/> reflects on evidence of student learning to inform future instruction.	

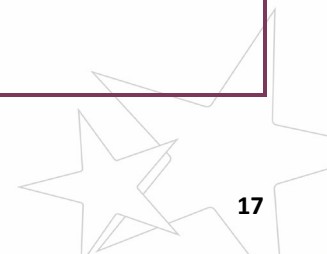


MATHEMATICS INSTRUCTIONAL OBSERVATION PROTOCOL (3-12)



TEACHER: _____
 COURSE/GRADE: _____
 OBSERVER: _____
 DATE: _____

EVIDENCE	 CORE ACTION 3: Instructional Engagement	NOTES
Provide ALL students with opportunities to exhibit the <i>Standards for Mathematical Practice (SMPs)</i> while engaging with the lesson's content.		
1. Make sense of problems and persevere in solving them.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	The students: <ul style="list-style-type: none"> <input type="checkbox"/> explain to themselves—understand—the meaning of a problem and look for entry points to its solution. <input type="checkbox"/> analyze the givens, constraints, relationships, and goals. <input type="checkbox"/> dissect the problem into simpler forms or parts to gain insight. <input type="checkbox"/> make conjectures—unproven statements—and plan a solution pathway. <input type="checkbox"/> evaluate the reasonableness of the solution. 	
2. Reason abstractly and quantitatively.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	The students: <ul style="list-style-type: none"> <input type="checkbox"/> make meaning of quantities and their relationships. <input type="checkbox"/> demonstrate flexible use of number relationships, number properties, shape attributes, units, and other foundational math skills when solving problems. <input type="checkbox"/> decontextualize—abstract a given situation by representing it numerically or symbolically. <input type="checkbox"/> contextualize—attach meaning to referents of numerical or symbolic representations. 	
3. Construct viable arguments and critique the reasoning of others.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	The students: <ul style="list-style-type: none"> <input type="checkbox"/> construct arguments by understanding and using stated assumptions, definitions, and previously established solutions. <input type="checkbox"/> assess the truth of conjectures—unproven statements—by building a logical progression of statements. <input type="checkbox"/> compare the effectiveness of two probable arguments. <input type="checkbox"/> identify flaws in logic or reasoning. <input type="checkbox"/> recognize and use counterexamples—statements disproving the logic. <input type="checkbox"/> communicate, defend, and justify their ideas. 	
4. Model with mathematics.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	The students: <ul style="list-style-type: none"> <input type="checkbox"/> demonstrate flexible use of representations, manipulatives, technology, and solution strategies when solving problems. <input type="checkbox"/> select and use mathematical models appropriate for the learning goal (e.g., diagrams, two-way tables, graphs, flowcharts, and formulas). <input type="checkbox"/> revise mathematical models used to represent a problem's solution as needed. <input type="checkbox"/> apply the mathematics to solve problems arising in everyday life. 	

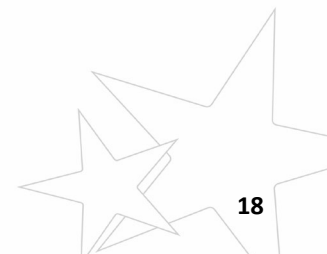


MATHEMATICS INSTRUCTIONAL OBSERVATION PROTOCOL (3-12)



TEACHER: _____
 COURSE/GRADE: _____
 OBSERVER: _____
 DATE: _____


5. Use appropriate tools strategically.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	The students: <input type="checkbox"/> consider, select, and use physical and/or digital tools appropriate for the learning goal of the grade level or course. <input type="checkbox"/> use manipulatives, materials, models, tools, and/or technology-based resources to assist in solving problems.	
6. Attend to precision.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	The students: <input type="checkbox"/> use appropriate academic language when reading and writing in mathematics. <input type="checkbox"/> use vocabulary, notation, place value, quantity, and units to justify their reasoning. <input type="checkbox"/> assign symbols and labels accurately to clarify the relationship of quantities and their meaning. <input type="checkbox"/> demonstrates accuracy and efficiency in computation.	
7. Look for and make sense of structure.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	The students: <input type="checkbox"/> look closely to discern patterns and relationships within the representation(s). <input type="checkbox"/> analyze the format of the mathematics represented. <input type="checkbox"/> recognize the significance of using specific strategies.	
8. Look for and express regularity in repeated reasoning.		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	The students: <input type="checkbox"/> discuss repeated reasoning that may occur in a problem's solution. <input type="checkbox"/> look for general methods and shortcuts. <input type="checkbox"/> consider necessary prerequisite steps when solving a problem. <input type="checkbox"/> continually evaluate the reasonableness of results.	

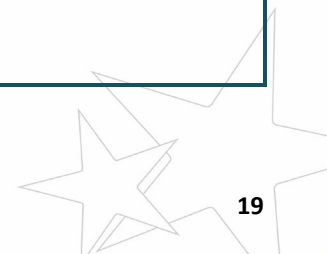


MATHEMATICS INSTRUCTIONAL OBSERVATION PROTOCOL (3-12)



TEACHER: _____
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 DATE: _____


EVIDENCE	 CORE ACTION 4: Instructional Environment	NOTES
Design classroom systems to promote access and attainment for ALL students by having an element of universal access and self-selection of the structures and supports students' use.		
<i>Walking the Walls</i>		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed <i>Grades 3-5:</i> _____ minutes posted for the mathematics block	The teacher: <input type="checkbox"/> has the daily class schedule/agenda that includes uninterrupted time for mathematics instruction and accommodates whole-group and small-group instruction posted. <input type="checkbox"/> has the current, scaffolded, and aligned learning goals posted. <input type="checkbox"/> has an interactive, academic, word wall posted. <input type="checkbox"/> has anchor charts that model a coherent progression of concepts, including a mix of content, product, and processes posted.	
<i>Access to Materials, Tools, and Technology</i>		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed <i>Select all observed:</i> <input type="checkbox"/> calculator <input type="checkbox"/> computer/tablet <input type="checkbox"/> manipulatives <input type="checkbox"/> mini whiteboards <input type="checkbox"/> Smartboard <input type="checkbox"/> other:	The teacher: <input type="checkbox"/> ensures every student has access to the required materials to participate. <input type="checkbox"/> uses and provides access to tools (e.g., computer, smartboard, manipulatives, or mini whiteboards) during mathematics instruction. <input type="checkbox"/> ensures classroom materials are organized, labeled, and readily accessible to all students.	
<i>Classroom Arrangement</i>		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed <i>Select all observed:</i> <input type="checkbox"/> Whole Group <input type="checkbox"/> Small Group <input type="checkbox"/> Both <input type="checkbox"/> Transition(s) Required	The teacher: <input type="checkbox"/> remains positioned throughout the classroom to observe all students. <input type="checkbox"/> uses proximity to maintain student engagement and positive behavior. <input type="checkbox"/> has an unobstructed pathway to all students. <input type="checkbox"/> has arranged the classroom to maximize room space for instruction. <input type="checkbox"/> arranges seating to reflect the format for instruction. <i>If transitions are required:</i> <input type="checkbox"/> the transition expectations are clearly stated or posted. <input type="checkbox"/> transitions between activities for small group and whole group are smooth and efficient.	



MATHEMATICS INSTRUCTIONAL OBSERVATION PROTOCOL (3-12)



TEACHER: _____
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 DATE: _____

EVIDENCE	 CORE ACTION 5: Instructional Groups	NOTES
Utilize well-designed small-group instruction to make a significant difference for <i>EACH</i> student, no matter the current level of achievement.		
<i>A group management system is evident and indicates flexible student placement and appropriate group size.</i>		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	<input type="checkbox"/> Expectations are posted and explicitly stated (e.g., station rotation, behavior, student roles, asking questions). <input type="checkbox"/> Evidence of student thinking is used to inform station activities and grouping. <input type="checkbox"/> The use of scaffolding, differentiation, chunking, and other Universal Design for Learning (UDL) strategies are evident.	
<i>Differentiated math groups are MS CCRS focused, designated, labeled, and defined.</i>		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	<input type="checkbox"/> Content: <i>What students are learning.</i> <input type="checkbox"/> Process: <i>How students develop conceptual understanding.</i> <input type="checkbox"/> Product: <i>What students produce to model their level of understanding.</i>	
<i>Group work includes student-friendly resources to support opportunities for success.</i>		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	<input type="checkbox"/> MS CCRS aligned "I can"/learning goal statement(s). <input type="checkbox"/> MS CCRS aligned activities. <input type="checkbox"/> Activities require student accountability (demonstration of the practiced skill or completed work). <input type="checkbox"/> Activities include explicit student-friendly directions and examples of success (expected outcome/product). <input type="checkbox"/> Mini anchor charts provide the necessary support to reflect the content. <input type="checkbox"/> Mathematics representations are connected. <input type="checkbox"/> Students have access to required tools and resources (e.g., manipulatives, technology).	
<i>Students remain academically engaged during student centers and independent work.</i>		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	<input type="checkbox"/> Extension and enrichment work is prepared and easily accessible for early finisher. <input type="checkbox"/> Extension and enrichment work is aligned to the focus standard, is an extension of the current learning goal(s).	
<i>The teacher's group instruction is present.</i>		
<input type="checkbox"/> Strong Evidence <input type="checkbox"/> Partial Evidence <input type="checkbox"/> No Evidence <input type="checkbox"/> Not Observed	<input type="checkbox"/> The teachers' group includes an appropriate number of students. <input type="checkbox"/> The teacher's group focuses on content or process. <input type="checkbox"/> The teacher utilizes multiple mathematics representations. <input type="checkbox"/> The teacher provides access to the required tools.	

