



CLASSROOM OBSERVATION TOOL FOR MATHEMATICS



Standards-in-Action 2.0

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CLASSROOM OBSERVATION TOOL FOR MATHEMATICS

This tool provides a picture of ideal teaching and learning practices in a standards-based classroom. It includes what you can expect to see in a classroom that is effectively implementing the relevant standards in a daily lesson. It is designed as a professional development tool for instructors, those who support instructors, and others working to implement standards. It is not designed for use in evaluation of instructors.

Directions:

Under each Core Action, mark the indicators with either a “Y” (for “Yes, it is evident”) or an “N” (for “No, it is not evident”). However, if an indicator is not evident because it is not applicable in that particular observed lesson, then mark it as “N/A.” For example, the lesson may be implemented over a number of days and you are only observing a portion of the lesson for one day. Another example might be that you only observed the mid-to-final portion of the lesson and you did not observe some of the introductory activities. In both examples, some indicators might be marked “N/A.”

Use the section entitled “Evidence observed” for each Core Action to make notes about what is seen and heard to support findings. The process for observing effective teaching and learning practices is not linear. In many cases, determining whether certain Core Actions and indicators are evident will not become apparent until the lesson is over. Others will be evident early in the lesson. It is fine to take detailed notes on a separate paper and review the notes after the lesson to determine the presence of an indicator.

Core Action 1. Lesson content is rigorous and relevant for the level defined by the state-adopted standards.

Core Action 2. Learning activities are cognitively demanding and maximize opportunities for students to master the lesson content.

Core Action 3. Lesson content productively engages students.

Core Action 4. Lesson content is intentionally sequenced to develop students’ skills and knowledge.

Core Action 5. Students’ levels of understanding are checked throughout the lesson, and instruction is adjusted accordingly.

English Learner Additional Core Action. Lesson activities offer strategic scaffolds to provide English learners access to lesson content.



Core Action 1. Lesson content is rigorous and relevant for the level defined by the state-adopted standards.	Y, N, or N/A
A. Instructor presents a lesson with well-defined standards-based goals that focuses on the major work of the level (MWOTL). ¹	
B. Instructor presents a lesson that addresses the Standards for Mathematical Practice that are central to the lesson goals and connected to the targeted content.	
C. Instructor, when addressing the MWOTL, intentionally targets one or more aspects of rigor as appropriate for the addressed standard(s). Mark the aspect(s) of rigor the lesson addresses: <ul style="list-style-type: none"> • Conceptual understanding • Procedural skill and fluency • Application 	

Evidence observed:

¹ MWOTL – Major work of the level (MWOTL) – The most important mathematics in preparing adult learners for success in college, careers, and life. Instructors should learn to identify the topics that are—and are not—major topics for the various standards’ levels. When planning instruction, they should focus deeply on the MWOTL rather than racing to cover topics in a mile-wide, inch-deep curriculum. The standards recently adopted by states require educators to significantly narrow and deepen the way time and energy is spent in the math classroom. When educators apply a MWOTL approach to teaching and learning, students can gain strong foundations in critically important areas: *conceptual understanding, procedural skill and fluency, and the ability to apply what they learn to solve math problems inside and outside the classroom*. Students should spend most of their time on the MWOTL; it should be the major focus of instruction. https://lincs.ed.gov/publications/pdf/ccr/Math_Unit_1_Materials/Math_1_part_mat.pdf



Core Action 2. Learning activities are cognitively demanding and maximize opportunities for students to master the lesson content.	Y, N, or N/A
A. Instructor presents high-quality questions and tasks to prompt students to discuss their developing thoughts and elaborate on and justify their responses.	
B. Instructor consistently uses explanation, modeling, or examples to make the mathematics of the lesson explicit.	
C. Instructor provides students with opportunities to work with and practice level-specific problems and exercises.	

Evidence observed:



Core Action 3. Lesson content productively engages students.	Y, N, or N/A
A. Students participate actively in sustained class discussions and activities where they build on each other's observations and insights.	
B. Students have varied opportunities to apply what they are learning in authentic adult-oriented contexts.	
C. Most students display persistence with tasks and problems.	

Evidence observed:



Core Action 4. Lesson content is intentionally sequenced to develop students' skills and knowledge.	Y, N, or N/A
A. Instructor explicitly relates new mathematical concepts to previous lessons or students' prior knowledge.	
B. Instructor delivers concepts in a way that builds on their logical connections to each other.	
C. Instructor ends the class by: <ul style="list-style-type: none">• Reviewing lesson objectives;• Summarizing student learning with references to student work and discussion; and• Previewing the next class session and explaining how it will build on today's activities.	

Evidence observed:



Core Action 5. Students' levels of understanding are checked throughout the lesson, and instruction is adjusted accordingly.	Y, N, or N/A
A. Instructor consistently uses informal yet deliberate methods to provide students with prompt, specific feedback to correct misunderstandings and reinforce learning.	
B. Instructor consistently provides strategic supports and scaffolds to students who need them.	
C. Instructor provides opportunities for students to evaluate and reflect on their own learning.	

Evidence observed:



English Learner Additional Core Action. Lesson activities offer strategic scaffolds to provide English learners access to lesson content.²	Y, N, or N/A
A. Instructor draws on students' funds of knowledge about the topic and content of the lesson and provides opportunities for peer-sharing	
B. Instructor uses revoicing to model correct mathematical language, to help students put their thoughts into words, and to clarify their responses.	
C. Students have varied opportunities to demonstrate their understanding of the lesson's core content and its vocabulary.	

Evidence observed:

²Use the Additional Core Action when English learners (ELs) are part of the mathematics class you are observing. The indicators represent research-based instructional supports that will help to ensure that ELs have full access to the vital math content being taught.



AGGREGATION AND SUMMARY OF OBSERVATION DATA

Step 1: Aggregating and summarizing observation data.

Using one column for each classroom observed, mark the indicator with a **Y**—when you determined it was present—or an **N**—when you found it was not present. If an indicator is not present because it is not applicable in that particular observed lesson, then mark it as **N/A**. Calculate the overall observed classroom percentage. Divide the number of **Ys** in a row by the total number of indicators that are marked with either **Y** or **N**. (Do not include the **N/As**.) If the # of **Ys** is less than 50%, put a checkmark in the last column.

Core Action 1. Lesson content is rigorous and relevant for the level defined by the state-adopted standards.	CLASSROOMS OBSERVED										Total # of Ys	% of Ys	Check if less than 50%
	1	2	3	4	5	6	7	8	9	10			
A. Instructor presents a lesson with well-defined standards-based goals that focuses on the major work of the level (MWOTL).													
B. Instructor presents a lesson that addresses the Standards for Mathematical Practice that are central to the lesson goals and connected to the targeted content.													



Core Action 2. Learning activities are cognitively demanding and maximize opportunities for students to master the lesson content.	CLASSROOMS OBSERVED										Total # of Ys	% of Ys	Check if less than 50%	
	1	2	3	4	5	6	7	8	9	10				
A. Instructor presents high-quality questions and tasks to prompt students to discuss their developing thoughts and elaborate on and justify their responses.														
B. Instructor consistently uses explanation, modeling, or examples to make the mathematics of the lesson explicit.														
C. Instructor provides students with opportunities to work with and practice level-specific problems and exercises.														



Core Action 3. Lesson content productively engages students.	CLASSROOMS OBSERVED										Total # of Ys	% of Ys	Check if less than 50%	
	1	2	3	4	5	6	7	8	9	10				
A. Students participate actively in sustained class discussions and activities where they build on each other's observations and insights.														
B. Students have varied opportunities to apply what they are learning in authentic adult-oriented contexts.														
C. Most students display persistence with tasks and problems.														



Core Action 4. Lesson content is intentionally sequenced to develop students' skills and knowledge.	CLASSROOMS OBSERVED										Total # of Ys	% of Ys	Check if less than 50%	
	1	2	3	4	5	6	7	8	9	10				
A. Instructor explicitly relates new mathematical concepts to previous lessons or students' prior knowledge.														
B. Instructor delivers concepts in a way that builds on their logical connections to each other.														
C. Instructor ends the class by: <ul style="list-style-type: none">• Reviewing lesson objectives;• Summarizing student learning with references to student work and discussion; and• Previewing the next class session and explaining how it will build on today's activities.														



Core Action 5. Students' levels of understanding are checked throughout the lesson, and instruction is adjusted accordingly.	CLASSROOMS OBSERVED										Total # of Ys	% of Ys	Check if less than 50%	
	1	2	3	4	5	6	7	8	9	10				
A. Instructor consistently uses informal yet deliberate methods to provide students with prompt, specific feedback to correct misunderstandings and reinforce learning.														
B. Instructor consistently provides strategic supports and scaffolds to students who need them.														
C. Instructor provides opportunities for students to evaluate and reflect on their own learning.														



English Learner Additional Core Action. Lesson activities offer strategic scaffolds to provide English learners access to lesson content.	CLASSROOMS OBSERVED										Total # of Ys	% of Ys	Check if less than 50%	
	1	2	3	4	5	6	7	8	9	10				
A. Instructor draws on students' funds of knowledge about the topic and content of the lesson and provides opportunities for peer-sharing														
B. Instructor uses revoicing to model correct mathematical language, to help students put their thoughts into words, and to clarify their responses.														
C. Students have varied opportunities to demonstrate their understanding of the lesson's core content and its vocabulary.														



Step 2: Setting priorities for professional development.

Your program's priorities for instructional staff professional development may be based on multiple factors. These include overall program goals and objectives and multiple federal or state initiatives. Following are some brief guidance points:

1. Note which indicators were observed in less than half of the classes. Record this information by placing checkmarks in the following chart.

Core Actions	Indicators Observed in Less Than 50% of Classes		
	A	B	C
Core Action 1. Lesson content is rigorous and relevant for the level defined by the state-adopted standards.			
Core Action 2. Learning activities are cognitively demanding and maximize opportunities for students to master the lesson content.			
Core Action 3. Lesson content productively engages students.			
Core Action 4. Lesson content is intentionally sequenced to develop students' skills and knowledge.			
Core Action 5. Students' levels of understanding are checked throughout the lesson, and instruction is adjusted accordingly.			
English Learner Additional Core Action. Lesson activities offer strategic scaffolds to provide English learners access to lesson content.			



2. Determine which one or two Core Action areas present the greatest challenge(s) for instructors.

3. Record the priorities for professional development related to strengthening classroom instruction in the Core Action areas generated by discussion with instructional staff.



SAMPLE AGGREGATION AND SUMMARY OF OBSERVATION DATA

Step 1 : Aggregating and summarizing observation data.

Using one column for each classroom observed, mark the indicator with a **Y**—when you determined it was present—or an **N**—when you found it was not present. If an indicator is not present because it is not applicable in that particular observed lesson, then mark it as **N/A**. Calculate the overall observed classroom percentage. Divide the number of **Ys** in a row by the total number of indicators that are marked with either **Y** or **N**. (Do not include the **N/As**.) If the # of **Ys** is less than 50%, put a checkmark in the last column.

Core Action 1. Lesson content is rigorous and relevant for the level defined by the state-adopted standards.	CLASSROOMS OBSERVED										Total # of Ys	% of Ys	Check if less than 50%
	1	2	3	4	5	6	7	8	9	10			
A. Instructor presents a lesson with well-defined standards-based goals that focuses on the major work of the level (MWOTL).	Y	Y	N	N	N	N	Y	Y	Y	Y			
B. Instructor presents a lesson that addresses the Standards for Mathematical Practice that are central to the lesson goals and connected to the targeted content.	N	N	N	N	Y	N	N	Y	Y	N			



<p>C. Instructor, when addressing the MWOTL, intentionally targets one or more aspects of rigor as appropriate for the addressed standard(s).</p> <p>Mark the aspect(s) of rigor the lesson addresses:</p> <ul style="list-style-type: none">• Conceptual understanding• Procedural skill and fluency• Application	Y	N	N	N	Y	N	Y	N	N	Y			
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Core Action 2. Learning activities are cognitively demanding and maximize opportunities for students to master the lesson content.	CLASSROOMS OBSERVED										Total # of Ys	% of Ys	Check if less than 50%
	1	2	3	4	5	6	7	8	9	10			
A. Instructor presents high-quality questions and tasks to prompt students to discuss their developing thoughts and elaborate on and justify their responses.	Y	N	N	N	N	Y	N	Y	N	N			
B. Instructor consistently uses explanation, modeling, or examples to make the mathematics of the lesson explicit.	Y	Y	Y	Y	N	N	Y	Y	N	Y			
C. Instructor provides students with opportunities to work with and practice level-specific problems and exercises.	N	N	Y	N	N	N	N	Y	N	Y			



Core Action 3. Lesson content productively engages students.	CLASSROOMS OBSERVED										Total # of Ys	% of Ys	Check if less than 50%
	1	2	3	4	5	6	7	8	9	10			
A. Students participate actively in sustained class discussions and activities where they build on each other's observations and insights.	Y	Y	N	N	Y	N	N	N	N	N			
B. Students have varied opportunities to apply what they are learning in authentic adult-oriented contexts.	Y	Y	N	Y	Y	Y	N	Y	N	N			
C. Most students display persistence with tasks and problems.	N	N	N	N	Y	N	N	N	N	Y			



Core Action 4. Lesson content is intentionally sequenced to develop students' skills and knowledge.	CLASSROOMS OBSERVED										Total # of Ys	% of Ys	Check if less than 50%
	1	2	3	4	5	6	7	8	9	10			
A. Instructor explicitly relates new mathematical concepts to previous lessons or students' prior knowledge.	Y	Y	N	N	Y	N	N	Y	Y	Y			
B. Instructor delivers concepts in a way that builds on their logical connections to each other.	Y	Y	N	N	Y	N	N	Y	Y	N			
C. Instructor ends the class by: <ul style="list-style-type: none">• Reviewing lesson objectives;• Summarizing student learning with references to student work and discussion; and• Previewing the next class session and explaining how it will build on today's activities.	Y	Y	Y	N	N	N	Y	Y	N	Y			



Core Action 5. Students' levels of understanding are checked throughout the lesson, and instruction is adjusted accordingly.	CLASSROOMS OBSERVED										Total # of Ys	% of Ys	Check if less than 50%
	1	2	3	4	5	6	7	8	9	10			
A. Instructor consistently uses informal yet deliberate methods to provide students with prompt, specific feedback to correct misunderstandings and reinforce learning.	Y	N	Y	Y	Y	N	N	Y	Y	Y			
B. Instructor consistently provides strategic supports and scaffolds to students who need them.	N	N	Y	N	Y	Y	N	Y	Y	Y			
C. Instructor provides opportunities for students to evaluate and reflect on their own learning.	Y	N	Y	N	Y	Y	N	Y	Y	N			



English Learner Additional Core Action. Lesson activities offer strategic scaffolds to provide English learners access to lesson content.	CLASSROOMS OBSERVED										Total # of Ys	% of Ys	Check if less than 50%
	1	2	3	4	5	6	7	8	9	10			
A. Instructor offers a range of brief and engaging auxiliary resources to build students' knowledge and vocabulary about lesson content. This could include such resources as visual images, videos, and supplementary texts.	Y	N	Y	N	Y	Y	N	Y	Y	N			
B. Instructor provides such supports as sentence frames, visuals, graphic organizers, and student-friendly glossaries to promote understanding.	N	Y	Y	Y	Y	N	N	Y	Y	Y			
C. Instructor allows students to use their home language in various ways to build understanding and facilitate access to learning activities.	Y	Y	N	Y	N	Y	N	N	Y	Y			



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