

CMP Classroom Observation Guide: Working Together to Support Teacher and Student Learning

Unit:

Problem:

Focus Question:

The Students	1. Students engaging with important mathematical problems.	2. Students communicating with mathematical language and representation.	3. Students making connections related to the goals of the lesson.	4. Students summarizing the mathematics of the problems.	5. Students making sense of the underlying mathematics of the problem.	6. Students keeping meaningful records of their thinking.	7. Students reflecting on their thinking through discussion, notes, or mathematical reflections.
Level 1	Few students are engaged with mathematical problems most of the time.	Students use mathematical language in superficial ways; they rely on isolated terms or phrases; responses are not mathematical.	Students provide limited number of connections within mathematics and/or other subject areas.	There is no summarizing at the end of the lesson.	Students do not generalize; they focus only on specific cases within the context.	Students do not collect and maintain records of their work in any coherent form.	Students are unwilling or unable to articulate their current understandings of important mathematical ideas and identify any areas of difficulty or struggle.
Level 2	Some students are engaged with mathematical problems; others are off task much of the time.	Students occasionally use mathematical language; use of language is generally incorrect or incoherent.	Students rely on the teacher to state the connections within mathematics and/or other subject areas with little student involvement.	Students rely on the teacher to summarize the mathematics in a lesson with little student involvement.	Students rely on the context of the problem to discuss the mathematics.	Students collect records of their work but do not have them available or organized for use as a resource for future learning.	At times, students can articulate some of their current understanding of important mathematical ideas and can identify any areas of difficulty.
Level 3	Most students are engaged with mathematical problems most of the time.	Students use mathematical language that is appropriate for the stage of development in the unit or grade to regularly and correctly to articulate ideas.	Students build on and express connections within mathematics and/or other subject areas. Student communicate conceptual and procedural understandings related to the focus question or the goal of the lesson.	Students are involved in the process of summarizing the mathematics of a lesson. Students may: present thinking, justify, question, critique others, connect ideas or procedures.	Students generalize, symbolize, and/or connect ideas beyond the context of the specific Problem. Students use formal mathematical language and representations at a level that is appropriate for the stage of development.	Students maintain records of work (e.g., notebooks containing summaries of solution strategies, homework, glossaries) and use them appropriately for future learning.	Students clearly articulate their current understanding of important mathematical ideas and can identify any areas of difficulty.

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8. Students participating in discourse.	Supporting evidence from the lesson phases		
	<i>Launch</i>	<i>Explore</i>	<i>Summarize</i>
A. Students use a variety of tools (e.g., models, drawings, tables, graphs, symbols, concrete materials) to reason about and solve problems.			
B. Students make conjectures and explore examples and counter-examples to investigate a conjecture.			
C. Students listen and respond to the ideas of one another and to the teacher. (Students listen and respond to one another) (Students listen and respond to the teacher)			
D. Students ask questions of one another and the teacher. (Students question one another) (Students question the teacher)			
E. Students share and explain their mathematical thinking and solutions in oral or written form.			
F. Students try to convince themselves and others of the validity of a particular representation, solution, conjecture, and/or answer.			
G. Students rely on mathematical evidence and argument to justify validity and/or settle disagreements.			
H. Students initiate problems and pose new questions.			

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Teachers	9. Teachers supporting students' initial engagement with the mathematics task. (LAUNCH)	10. Teachers supporting students' exploration of the mathematics task. (EXPLORE)	11. Teachers supporting students' summarizing the essential mathematics. (SUMMARIZE)
Level 1	<p>Launch does not focus on the mathematical challenge of the problem. The launch lacks connecting the content and context of the problem, does not help students to connect the challenge to prior learning.</p> <p>Teacher reduces the challenge by modeling how to do the problem or "questioning away" the problem. Teacher reduces options for student exploration of the problem by using too much time in the Launch, not providing enough information, relying only on the text.</p>	<p>Teacher does not effectively orchestrate or foster the student exploration.</p> <p>Evidence may include the teacher: using time to tutor individuals or groups; giving direction rather than pose questions; telling answers; observing only a few groups; assigning homework rather than deepening a challenge.</p>	<p>Teacher does not engage students in a summary or asks students to simply give answers; does not attempt to help students discuss the mathematics or the ways of reasoning that are at the heart of the problem.</p> <p>Teacher may tell students the way the problem should have been solved.</p>
Level 2	<p>Teacher communicates the content or the context but doesn't connect the two.</p> <p>OR</p> <p>Teacher does not help students connect the problem to prior knowledge, skills, or problems.</p>	<p>Teacher does not consistently orchestrate students' explorations. Does some of Level 1 and some of Level 3.</p> <p>Teacher does not provide questions, supports, and/or challenges to meet the needs of students and/or groups.</p>	<p>Teacher has all students report with little or no strategic plan for orchestrating a discussion of the essential ideas of the Problem.</p> <p>Teacher does not create opportunities for students to engage with each other about the reasonableness of approaches or correctness of solutions.</p>
Level 3	<p>Launch is typically short and focuses students on the mathematical challenge. The cognitive demand of the task is maintained. Teacher helps student relate the context to the content of the problem and helps the students connect the mathematics to prior learning. Teacher may: tell stories, relate problem to students' lives and activities, actively involve students, read the text, revisit previous classroom ideas, connect problem to past mathematics experiences, summarize previous day's work.</p>	<p>Teacher orchestrates student exploration.</p> <p>Teacher builds a sense of all of the students' understanding and reasoning. Teacher plans for the Summarize.</p> <p>Evidence may include the teacher providing for individual needs by: observing all groups; posing questions to clarify, redirecting students or groups, scaffolding and/or challenging thinking; pressing students to explain their thinking.</p>	<p>Teacher makes strategic decisions about who presents in order to pull out the mathematics and ways of reasoning that are at the heart of the problem; uses a variety of questions to check for understanding, develop mathematical language, and push student thinking; encourages students to question each other and to help each other understand the mathematics; expects students to use mathematical evidence and argumentation to determine the validity of a solution; helps students connect the mathematical reasoning to the focus question or the goal of the lesson.</p>

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12. Teacher engages in behaviors that promote student engagement and critical thinking.	Supporting Evidence from the phases of the lesson		
	<i>Launch</i>	<i>Explore</i>	<i>Summarize</i>
A. Teacher supports students' responsibility for listening and participating in class by: <ul style="list-style-type: none"> • giving a direction or asking a question only once • alerting students when time for whole class work is about to resume • allowing a student explain his/her reasoning without interruption • refraining from repeating (or "parroting") student comments • respecting the initial generation of student work • providing appropriate wait time • _____ 			
B. Teacher provides opportunities for the class to question both correct and incorrect answers to encourage students to examine their confidence in their answers.			
C. Teacher focuses students' attention on one another's explanations by: <ul style="list-style-type: none"> • asking if students agree or disagree with another's reasoning and why • having a student restate or rephrase another student's statement • asking if a student's response seems reasonable • encouraging students to ask questions about or build on the others' ideas • _____ 			
D. Teacher focuses students' attention on connections within mathematical ideas and/or ideas from other subject areas by asking: <ul style="list-style-type: none"> • if the current content reminds students of things they have done before • how two strategies may be mathematically alike or different • whether there is any relationship between two students' ways of thinking about a problem • _____ 			
E. Teacher pushes students to clarify and/or expand their thinking by asking students: <ul style="list-style-type: none"> • to explain, clarify, or build on an idea • to consider another example as a check for understanding or as a way to go further with the mathematical ideas • to reflect on and generalize the mathematical ideas or questions • to connect their thinking to the mathematical goal of the lesson and/or the focus question • _____ 			

CONNECTED MATHEMATICS PROJECT

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Technology Use (Optional)	13. Student Use of Technology	14. Teacher Use of Technology
Level 1	Students use of technology limits or impedes the learning of mathematics.	Teacher use of technology limits or impedes the learning of mathematics.
Level 2	Students use technology, but it does not enhance their learning of mathematics.	Teacher uses technology, but it does not enhance the student learning of mathematics.
Level 3	Students use technology to enhance their learning of mathematics.	Teacher uses technology to support the learning of mathematics.