Mathematical Quality of Instruction
30-Minute Lesson Codes for MET

This material is based upon work supported by the National Science Foundation under grant number EHR-0233456, DUR-0335411 and DRL-0918383 and work supported by the U.S. Department of Education under cooperative agreement number R305C090023 and by contract with the Bill and Melinda Gates Foundation.

Lesson Richness of the Mathematics		
This code captures the depth of the mathematics offered to students. In all cases, ignore incorrect elements of richness in assigning a score.		
Low	Mid	High
Elements of rich mathematics are not present or only minimally present. May be an occasional explanation, connection, or multiple methods, but mathematical meaning is not focus of lesson.	Elements of rich mathematics are present in moderate quantity. Mathematical meaning is somewhat a focus of lesson. This may include many instances of "local" meaning or several rich elements (e.g., multiple methods and links) used individually or without consistent contribution to development of meaning or practices.	Elements of rich mathematics are consistently present, with *coherent* focus on mathematical meaning and/or practices throughout the lesson.

Lesson Working with Students and Mathematics		
This code is an overall estimate of the teachers' interactions with the students around the content.		
Low	Mid	High
Few substantive interactions between teacher and students. Errors may occur but teacher addresses briefly and procedurally. OR Substantive student mathematical productions or errors do occur, but teacher usually does not respond to or use those productions. OR Teacher responses to student productions lead the lesson off-track.	Some conceptual remediation of errors and/or use of student productions. OR Extended and detailed procedural remediation throughout lesson.	Strong and significant conceptual remediation of errors and/or consistent use of student productions.

Lesson Errors and Imprecision		
This code is an overall estimate of the errors and imprecision across the viewed sample. NOTE: In the segment-level scoring, a segment with a minor error would receive at least a mid score. In this version of the code, a low score now allows for the possibility of very minor errors.		
Low	Mid	High
Lesson is clean of all but a handful of minor errors (typically language imprecision or an incorrectly solved exercise). These errors should be infrequent.	Lesson features consistent minor or occasional serious errors; and/or may lack clarity for portions of the lesson. Consequently, important elements of mathematical content are not totally clear, but central ideas or procedures are nevertheless understandable.	Lesson features persistent serious errors and/or lacks clarity for major portions of the lesson. Some or all important mathematical content is distorted, including central ideas or procedures.

Lesson Student Participation in Meaning-Making and Reasoning		
This code attempts to capture evidence of students' involvement in "doing" mathematics and the extent to which students participate in and contribute to meaning-making and reasoning. • During ***active instruction segments***, this mainly occurs through student mathematical statements: reasoning, explanations, question-asking. • During ***small group/partner/individual work time***, this mainly occurs through work on a non-routine task.		
Low	Mid	High
There are only a few or no examples of student participation in meaning-making and reasoning. Tasks are largely procedural in nature. Also score as low if there are unproductive explorations in which *the majority* of the students are off-track, mathematically.	There are several examples of student explanations and/or mathematical questioning and reasoning. AND/OR Students engage in a task with a moderate level of cognitive activation. May also include tasks with variable enactment (both high and low during observation).	Students participate by contributing consistently to meaning-making and reasoning. Such participation is a significant feature of the lesson, with many student contributions and/or extended work on a challenging task.

Lesson Classroom Work is Connected to Mathematics		
Low	Mid	High
Majority (50% or more) of observation is spent on non-mathematical activities (e.g., classroom management, cutting and pasting).	Observation includes significant time (roughly 10-40%) spent on non-mathematical activities.	Observation includes very little time spent on non-mathematical activities (10% or less).

Lesson Explicitness and Thoroughness in Presentation of the Content		
This code indicates how explicit, complete, detailed, and thorough the teacher's (or a student's) presentation of the content is when outlining or describing mathematical procedures, describing the steps of a procedure used to solve problems, describing mathematical properties or providing mathematical definitions. **Only use for Algebra lessons.**		
Low	Mid	High
There are no examples of presentation of procedures, properties or definitions. OR The teacher's presentation of the content is poor, as indicated by the omission of critical steps/pieces of content, incorrect content, incomplete presentation of content, or unclear presentation of content.	The presentation of the content is acceptable and mostly clear, but not exceptionally explicit, detailed or thorough. OR Mathematical content may be largely well presented, but the lesson includes some "sloppy" presentation of the content (high and low elements). OR It meets some of the criteria for high but only briefly and/or infrequently.	The presentation of the content is not only clear, but also exceptionally *explicit*, *detailed,* and *thorough*. Presentation includes some combination of careful and systematic organization, emphasis on key pieces or key decision points, emphasis on meta-features, and generalization beyond specific problems. Occurs more often than briefly/infrequently.