I. Intellectual Support

1	2	3	4	5
Intellectual support is negative. Action/comments by teacher or students result in put-downs of students' academic efforts. Students interfere with one another's efforts to learn. Classroom atmosphere for learning is negative.	Intellectual support is mixed. Both negative and positive actions/comments by teacher or students concerning students' academic efforts are observed. Teacher fails to call upon students who want to participate repeatedly.	Intellectual support is neutral or mildly positive. Evidence may be mainly in the form of verbal approval for student effort and work. Support tends to be given to students who are already taking initiative in the class, and it tends not to be given to those who are reluctant participants or less articulate or skilled in the subject.	Intellectual support from the teacher is clearly positive. There is some evidence of intellectual support among students for their peers. Evidence of special efforts by the teacher take the form of expressions that convey high academic expectations for all, mutual respect, and a need to try hard and risk initial failure.	Intellectual support is strong. The class is characterized by high academic expectations, challenging work, strong effort, mutual respect, and assistance in achievement for all students. Both teacher and students demonstrate a number of these attitudes by soliciting and welcoming contributions from all students who are expected to put forth their best efforts. Broad participation may be an indication that low achieving students receive intellectual support for learning.

Lesson Notes

Guiding Question: How does my lesson make intellectual support visible?

Adapted from National Center for Research in Mathematics Education. (1992). Wisconsin Center for Educational Research. Madison, WI: University of Wisconsin-Madison. *Scale for Academic Language Support for ELLS developed by E. Rubenstein-Avila (2006); Also from the work of R. Kitchen (2005). **Please cite as Aguirre & Zavala (2009) Culturally Responsive Mathematics Teaching Analysis Tool. Unpublished instrument. University of Washington.**

II. Depth of Knowledge and Student Understanding

1	2	3	4	5
Knowledge is very thin because concepts are treated trivially or presented as non-problematic. Students are not involved in the coverage of information they are to remember.	Knowledge remains superficial and fragmented. Underlying or related concepts and ideas might be mentioned or covered, but only a superficial acquaintance or trivialized understanding of these ideas is evident.	Knowledge is treated unevenly during instruction. Deep understanding of some mathematical concepts is countered by superficial understanding of some other ideas. At least one idea may be presented in depth and its significance grasped by some (10%-20%) students, but in general the focus is not sustained.	Knowledge is relatively deep because the students provide information, arguments, or reasoning that demonstrates the complexity of one or more ideas. The teacher structures the lesson so that many students (20%-50%) do at least one of the following: • sustain a focus on a significant topic for a period of time; • demonstrate their understanding of the problematic nature of information and/or ideas; • demonstrate understanding by arriving at a reasoned, supported conclusion; • explain how they solved a relatively complex problem.	Knowledge is very deep because the teacher successfully structures the lesson so that most students (50%-90%) do at least one of the following: • sustain a focus on a significant topic; • demonstrate their understanding of the problematic nature of information or ideas; • demonstrate complex understanding by arriving at a reasoned, supported conclusion; • explain how they solved a complex problem. In general, students' reasoning, explanations, and arguments demonstrate fullness and complexity of understanding.

Lesson Notes

Guiding Question: How does my lesson make student thinking/understanding visible and deep?

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III. Mathematical Analysis

1	2	3	4	5
Students receive, recite, or perform routine procedures. In no activities during the lesson do students engage in mathematical analysis.	Students primarily receive, recite, or perform routine procedures.	There is at least one significant activity involving mathematical analysis in which some students (10%-20%) engage. OR, mathematical analysis that is primarily diversionary in nature occurs throughout the lesson.	There is at least one major activity in which students engage in mathematical analysis. This activity occupies a substantial portion of the lesson; and many students (20%-50%) are engaged in it.	Most students (50%-90%), for most of the time (50%-90%), are engaged in mathematical analysis.

Lesson Notes

Guiding Question: How does my lesson enable students to examine math concept(s) and/or procedure(s)?

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IV. Mathematics Discourse and Communication

1	2	3	4	5
Virtually no features of mathematical discourse and communication occur, or what occurs is of a fill-in-the-blank nature.	Sharing and the development of collective understanding among a few students (or between a single student and the teacher) occur briefly.	There is at least one sustained episode of sharing and developing collective understanding about mathematics that involves: (a) a small group of students or (b) a small group of students and the teacher. Or, brief episodes of sharing and developing collective understandings occur sporadically throughout the lesson.	There are many sustained episodes of sharing and developing collective understandings about mathematics in which many students (20%-50%) participate.	The creation and maintenance of collective understandings permeates the entire lesson. This could include the use of a common terminology and the careful negotiation of meanings. Most students (50%-90%) participate.

Lesson Notes

Guiding Question: How does my lesson create opportunities to discuss mathematics in meaningful and rigorous ways (e.g. debate math ideas/solution strategies, use math terminology, develop explanations, communicate reasoning, and/or make generalizations)?

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V. Student Engagement

1	2	3	4	5
Disruptive disengagement; students are frequently off-task as evidenced by gross inattention or serious disruptions by many students (20%-50%); this is the central characteristic during much of the class.	Passive disengagement; students appear lethargic and are only occasionally on-task; for most of time, many students (20%-50%) are either clearly off-task or nominally on-task but not trying very hard.	Sporadic or episodic engagement; most students (50%-90%), some of the time (20%-50%), are engaged in class activities, but this engagement is uneven; mildly enthusiastic or dependent on frequent prodding from the teacher.	Engagement is widespread; most students (50-%-90%), most of the time (50%-90%), are on-task pursuing the substance of the lesson; most students seem to be taking the work seriously and trying hard.	Serious engagement; almost all students (90% or more) are deeply involved, almost all of the time (90% or more), in pursuing the substance of the lesson.

Lesson Notes

Guiding Question: How does my lesson foster sustained and widespread student involvement in mathematical activity?

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VI. Academic Language Support for ELLs*

A. USE of L1

1	2	3	4	5
An explicit intolerance toward students' use of L1 is evident such as translation or code-switching (e.g. "We only use English in this classroom.") Students who are not yet fully proficient in English are ignored and/or seated apart from their classmates.	No acknowledgement of ELL students' needs or presence is evident. Although there is no explicit use of ESL strategies, or attention to L1 (such as explicit attention to cognates), students' use of L1 is tolerated. Focus on correct usage of English vocabulary only.	There is at least 1 instance of support for L1. Even if teacher does not use L1, it is evident that students' linguistic repertoires are valued and that they are encouraged to build on them (e.g. students can present in L1, students work in groups in L1).	Sustained encouragement and value of L1 usage is observed at least between teacher and one, or small group, of students. Focus is on mathematical discourse.	Extensive and sustained attention to students' linguistic funds of knowledge. Sustained encouragement of L1 usage, or hybrid language (ex. code-switching) is observed among teacher and students, in a variety of interactions (Teacher-students, pair, small group, and whole class). The main focus is the development of mathematical discourse and meaning making, not students' production of "correct" English.

Lesson Notes

Guiding Question: How does my lesson provide academic language support for ELLS?

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B. USE of ESL scaffolding strategy

1	2	3	4	5
No evidence of an ESL scaffolding strategy. Students who are not yet fully proficient in English are ignored and/or seated apart from their classmates.	Although there is no explicit use of ESL strategies, or attention to L1 (such as explicit attention to cognates), students' use of L1 is tolerated. Focus on correct usage of English vocabulary.	There is at least one instance in which an ESL scaffolding strategy is used to develop academic language (i.e., revoicing, use of graphic organizers, activation of prior knowledge).	Sustained use of at least a couple of ESL strategies, such as the use of revoicing and attention to cognates, direct modeling of vocabulary, or encouragement of L1 usage is observed at least between teacher and one, or small group, of students.	Deliberate and continuous use of ESL strategies, such as gesturing, use of objects (realia), use of cognates, revoicing, graphic organizers and manipulatives are observed during whole class and /or small group instruction and discussions. The main focus is the development of mathematical discourse and meaning making, not students' production of "correct" English.

Lesson Notes

Guiding Question: How does my lesson provide academic language support for ELLS?

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VII. Funds of Knowledge/Culture/Community Support

1	2	3	4	5
No evidence of connecting to students' cultural funds of knowledge (parental/community knowledge, student interest). Lesson incorporates culturally neutral contexts that "all students" will be interested in.	There is at least one instance in connecting math lesson to community/cultural knowledge and experience. Lesson draws on student knowledge and experience. Focus is with one student or a small group of students.	There is at least one sustained episode of sharing and developing collective understanding about mathematics that involves connecting to community/cultural knowledge. Or, brief episodes of sharing and developing collective understandings occur sporadically throughout the lesson.	There are many sustained episodes of sharing and developing collective understandings about mathematics that involves connecting to cultural/community knowledge (e.g. student experiences are mathematized, student/parent connections with math work; math examples are embedded in local community/cultural contexts and activities – i.e. games).	The creation and maintenance of collective understandings about mathematics that involves intricate connections to community/cultural knowledge and permeates the entire lesson. This would include hook/intro, main activities, assessment, closure and homework. Students are asked to analyze the mathematics within the community context and how the mathematics helps them understand that context.

Lesson Notes

Guiding Question: How does my lesson help students connect mathematics with relevant/authentic issues or situations in their lives?

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VIII. USE of critical knowledge/social justice

1	2	3	4	5
No evidence of connection to critical knowledge (socio-political contexts, issues that concern students)	Opportunity to critically mathematize a situation went unacknowledged or unaddressed when present.	There is at least one instance of connecting mathematics to analyze a sociopolitical/cultural context.	There is at least one major activity in which students collectively engage in mathematical analysis within a sociopolitical/authentic or problem-posing context. Mathematical arguments are provided to solve the problems. Pathways to change/transform the situation are briefly addressed.	Deliberate and continuous used of mathematics as an analytical tool to understand an issue/context, formulate mathematically-based arguments to address the issues and provide substantive pathways to change/transform the issue.

Lesson Notes

Guiding Question: How does my lesson support student use of mathematics to understand, critique, and change an important equity/social justice issue/situation in their lives?

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