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Using the Video "Student Discourse."

This video is about 15 minutes, 7 chapters, each showing students engaged in discourse about a mathematical idea. All clips originate in the same week, when students were studying Bits and Pieces II, Investigation 3.

Discourse as a Means of Assessing Understanding and Engagement

When I show video of CMP classrooms viewers find there are too many things to attend to, just as the teacher in any classroom finds there are many demands on her attention. But the single most important thing a teacher does is listen to students. We can't plan, execute plans, alter plans, orchestrate summaries, assess understanding, clarify or enrich, if we don't first listen carefully. On the video "Developing an Algorithm for Multiplying Fractions" the focus of the story is the broad arc of learning to make sense of an algorithm, and, while student and teacher voices carry this story forward, there is little time to ponder interchanges in the momentum to get to the denouement of the story. On the videos "Teacher Questions" and "Student Skills" the focus is on a closer attention to actual words, this time to uncover what mathematical ideas students understand. In "Student Discourse" the focus is again on student words and the mathematical ideas they communicate. But I have noticed that viewers often comment on how engaged students seem to be, so this video allows us to think harder about issues involved in fostering engagement.

Focus Questions

As with "Teacher Questions" and "Student Skills" this video is perhaps best assigned as an investigation where viewers, collaborating in pairs or small groups, can re-view clips as often as needed, with a transcript as support.

Some focus questions that work are:

- What mathematical idea is being discussed in each clip?
- From what we can hear do you think that students understand this mathematical idea?
- What would you ask to clarify or extend student thinking?
- Is this a student- student or student - class or teacher - student or teacher-class interchange?
- Who initiates the discussion? A student or the teacher?
- Who takes responsibility for continuing the discussion? A student or the teacher?
- How would you characterize the discussion?
- What is the value of the explore time?
- How do you set the stage for this kind of student discourse?
- How can you foster curiosity and engagement in reasoning in your class? (See Teri's reflection for Day 2, and her extended interview in the appendix.)

Other Audiences for "Student Discourse."

This video and some of the above questions can be used with Principals and parents to show examples of what is meant by "exploration" and by "group work." Sometimes parents think that "exploring" means "the blind leading the blind" or that, left to their own devices, students will not make productive use of small group time. The evident intellectual work being done *willingly* by learners, whenever the task is interesting and the environment is supportive, belies this misperception. The key is in the careful selection and sequencing of problems to take advantage of and connect to prior knowledge. See "Guiding Principles" and "Sequence of Problems" under "Research and Development" on the CMP website: http://connectedmath.msu.edu. Each Problem is accessible to every student, though not always at the same level. Problems are designed to develop new mathematical knowledge by building on prior connections and knowledge. The student text and the classroom environment, working together, support students in making sense of important mathematical ideas.