VIDEO NOTES: *7th Grade Math Lesson on Categorizing Expressions, Equations, and Inequalities*

Video Links: Categorizing Expressions (Part 1), Categorizing Expressions (Part 2)
Common Core State Standard: see "What Could this Teacher do to Improve" section
Compass Component and Rating: Questioning and Using Discussion Techniques (3b), *Effective Emerging*
Engaging Students in Learning (3c), *Effective Emerging*
Lesson Objective: Compare and contrast expressions, equations, and inequalities and classify examples.

Compass Component 3b: Questioning and Using Discussion Techniques (Rating: *Effective Emerging*)	
Indicators	**Evidence**
Teacher frames some questions designed to promote student thinking, but only a few students are involved.	• Teacher presents students with multiple questions to explain their rationale for how they categorized the cards and to explain the concepts of equation, inequality, and expression; some students struggle. The first question that the students answer in writing is, *"How do you know how to sort these into groups?"* (Part 1, 0:42). • Teacher calls on students, but not all students have an opportunity to provide answers. At various points, multiple students raise hands to respond.
Teacher invites students to respond directly to one another's ideas, but few students respond.	• Teacher occasionally asks students to build on other students comments. However, the students must always be prompted to contribute to the discussion or respond to another student. • Students share their responses in small groups (Part 1, 1:51), but do not necessarily respond to or contribute to each other's thinking.

Compass Component 3c: Engaging Students in Learning (Rating: *Effective Emerging*)	
Indicators	**Evidence**
Some students are intellectually engaged in the lesson.	• Some students are intellectually engaged when they are discussing with the small group. For instance, when teacher says, "*turn to your group and share…,"* all students engage (Part 1, 2:19). • However, some students appear distracted or are talking to their peers during the whole group discussion.

Learning tasks are a mix of those requiring thinking and recall.	• Students are merely required to recall the attributes of equations, inequalities and expressions in order to group the examples correctly. For example, the teacher asks, *"how do we pull the inequalities all together?" How do we tell inequalities?"* (Part 2, 0:09) • However, occasionally, students are asked to explain and justify their responses, requiring them to use a deeper level of thought. "*What are the differences between equations, inequalities, and expressions? How did you know to put these cards in this pile and these cards in this pile and those cards in that pile? What did you pay attention to?*" (Part 1, 0:18)
Students have no choice in how they complete tasks.	• Teacher provides students with a worksheet to organize the examples and write their thoughts. Then, students participate in the whole class discussion. .
The materials and resources are partially aligned to the lesson objectives, and only some demand student thinking.	• The worksheets are recall-based, asking students to define terms and provide examples. • Although the content is on grade level, the tasks and materials are not challenging.
There is a mix of different types of groupings, suitable to the lesson objectives. *(Effective Proficient indicator)*	• Students alternate between independent work (2 minutes of initial writing), small group work and discussion (classification and group discussion about teacher's questions) and whole group discussion. *"So I want to start by just writing quietly; writing individually. After two minutes, you can read to each other what you've written"* (Part 1, 0:40). This process deepens student learning and retention because they are given the opportunity to improve ideas developed during independent work *"You can ask somebody to help you write more. You can write more based on what you hear."* (Part 1, 0:48) with other students. The content is reinforced again during the whole group discussion.

WHAT COULD THIS TEACHER DO TO IMPROVE?

What did the teacher do in this lesson?	*Effective Proficient* Indicators	What could the teacher do to move to *Effective Proficient*? (example actions)	How could this lesson be improved for students to meet Common Core standards?
The teacher asks many questions that have one correct answer, merely requiring the students to recall content regarding equations, inequalities and expressions.	Teacher uses open-ended questions, inviting students to think and/or have multiple possible answers. (Questioning- 3b*)*	Ask students more questions that stem from higher levels of Bloom's taxonomy (beyond recall) to increase the rigor of the lesson by engaging higher level thinking skills that have more possible answers.	Although occasionally the teacher and students construct equations, the focus of this lesson is on understanding and practicing with the vocabulary (equation, inequality, and expression) and comparing/contrasting these

			concepts. To align with Common Core State Standards, the teacher and students could spend more time constructing examples for each of the concepts they examine. In addition, the students could construct equations and inequalities to represent real-world situations to further demonstrate their understanding.
The teacher calls on eight different students who have their hands up, occasionally multiple times each. During other points of the lesson, the teacher listens as students call out responses.	The teacher calls on most students, even those who don't initially volunteer. (Questioning – 3b)	Use cold calling to increase the number of students who participate, even if their hands are not raised.	
Questions on the worksheet require low-level thinking from students.	Learning tasks have multiple correct responses or approaches and/or demand higher-order thinking. (Engaging – 3c)	Focus the lesson on the application of concepts, instead of fact recall, to increase the rigor of the lesson and demand more higher-order thinking from students.	To align to the Common Core State Standards, the teacher could provide real-world scenarios requiring the students to develop expressions, equations, and inequalities. Then students could discuss how they determined which form was best to use for the given scenario.
Teacher provides students with a worksheet to answer the questions.	Students have some choice in how they complete learning tasks. (Engaging – 3c)	Increase engagement by allowing students to choose how they record the content. For example, comparing the three categories using words, manipulatives, numbers and variables, etc.	