

JACOB DISSTON: What I want to do is record some of the thinking that you guys are doing. You guys are doing really well in terms of sorting these cards and the discussions you've been having are really good. I just want some way of getting those down on paper. So, I'm going to give you this recording sheet and the first problem asks you "what are the differences between equations, inequalities, and expressions," "what is the difference," "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?" Explain as much as you can about what you know about how they are different. Ok, so I want to start by just writing quietly; writing individually. After two minutes, you can read to each other what you've written. You can ask somebody to help you write something more. You can write more based on what you hear, but I want to start just with you writing to yourself, to answer just the first question. You don't have to do any of the others. All right, just a quick, quiet two minutes. Write what you know about that first question, "how do you know how to sort these into groups?" Ok, so now what I like you to do is just share what you wrote. So read it. One person go ahead and read what you wrote. See if the other people agree, disagree. See if you can help each other kind of flush it out.

STUDENT: Have at least a greater sign. All right, (inaudible). Expression, they don't have an equal sign.

STUDENT: Has an equal sign between two values. Inequality has a "greater than less than," "greater than equal to," "less than equal to" which equals two values. Expression doesn't have an equal sign or those other ones and is essentially any number of numbers with at least one operation.

STUDENT: You wrote that?

STUDENT: Yeah.

STUDENT: The other ones?

STUDENT: No, you know how many words...

STUDENT: Inequalities have a "greater than or less than" sign or "greater than equal to" or "less than equal to."

STUDENT: (inaudible)

STUDENT: God you're horrible. And then the expressions have no sign except for multiplication, division, or stuff like that...yeah, operation.

STUDENT: Equations have equal signs, inequalities have "greater than less than," "greater than or equal to," "less than or equal to" signs. And expressions are just groups of numbers with operations.

STUDENT: Has all the variables and no equal signs. Inequalities are the ones that have "less than or greater than," "greater than equal than" sign. That's it.

STUDENT: Equations always have an equal sign.

STUDENT: Expressions don't have an equal sign.

STUDENT: I Say equation got an equal sign and inequalities got "less than or greater than" or the "less than or greater than or equal to" or the "more than or equal to." And the expressions don't got equal signs or nothing.

JACOB DISSTON: First what I want you to do is I want you to take a look at how you sorted them and how they got sorted on the board. I had a group come up and sorted them on the board and I want to see "have we sorted them in the same way" and just hear from people, "how do we tell equations apart?" Does anybody want to share how they wrote "how they said we tell equations apart from the other types of things?" Ronald you want to start?

STUDENT: I can tell the difference between equations and other things because they have equal signs.

JACOB DISSTON: What does everybody think? Is that the only thing we have to pay attention to?

STUDENT: Yeah

STUDENT: The thing I wrote down is "because sometimes equations, they can be solved and like inequalities they can be solved unless the directions tell you..."

JACOB DISSTON: Ok, what do you think about what these two said and other things you have?

STUDENT: Well I think that is basically right but an equation has an equal sign between two values.

JACOB DISSTON: An equal sign between two...?

STUDENT: Values.

JACOB DISSTON: Values. Ok, what's a value?

STUDENT: Um, like numbers or numbers and variables and just variables and stuff.

JACOB DISSTON: Did everybody hear what she said?

STUDENT: Yeah.

JACOB DISSTON: Equal sign between two...

STUDENT: Values.

JACOB DISSTON: Values which are numbers and variables and?

STUDENT: I guess other...

JACOB DISSTON: Other symbol strings I guess. Ok, is there anything else that makes an equation an equation besides the equal sign and setting two things equal?

STUDENT: It got to have some numbers in it?

JACOB DISSTON: Do all of these have numbers?

STUDENT: No.

JACOB DISSTON: So you are saying...I'm going to point to one that doesn't have numbers.

STUDENT: It got to have a value in it.

JACOB DISSTON: Ok so you are saying...variables are ok, variables and...

STUDENT: Yeah, you can't just have an equal sign and that's it.

JACOB DISSTON: Ah, so this is not an equation?

STUDENT: No

JACOB DISSTON: What is that?

STUDENT: Equal sign.

JACOB DISSTON: That's an equal sign? So it's not an equation? How can I make it into an equation Jen? Tell me what to write so it's an equation?

STUDENT: Two plus two equals four ($2+2=4$).

JACOB DISSTON: So there's an equation. So I put some values, what we call values. I put some things on both sides and I set them equal. Yes?

STUDENT: Another way is like if you are doing $2+2=4$, you could do $4=4$, something like that.

JACOB DISSTON: There's another equation, $4=4$, pretty straight forward one, $4=4$.