CATHY HUMPHREYS: Okay, if you can't explain it, you don't understand. So make her explain it Drew. What would be helpful is if you work in the center of the table so that everyone could see what you're doing and can contribute to it. Okay and Tanana what were you writing about?

STUDENT: I labeled ABCD and then I put – I was going to put AEB is congruent to AEB because they're side angle side.

CATHY HUMPHREYS: Okay.

STUDENT: Or it could be…

CATHY HUMPHREYS: But you're doing rhombus right?

STUDENT: No, we did a kite.

CATHY HUMPHREYS: Oh, you did a kite. Okay, so what do you have to prove…lets back up here for the kite? What do you have to prove?

STUDENT: We have to prove that there are two sets of adjacent sides that are congruent.

CATHY HUMPHREYS: Okay, good. Now what are the criteria that you have for the diagonals?

STUDENT: Um, they have to be perpendicular.

STUDENT: One has to be bisected or they intersect.

CATHY HUMPHREYS: Okay, anything else? What about the lengths?

STUDENT: The generic one is used like twice as long as…like the generic leg.

CATHY HUMPHREYS: Okay, I want you to stop thinking about kite as a real thing in life.

STUDENT: Okay.

STUDENT: So to make a kite, do the diagonals have to be the same length? Do they have to be different lengths? Did you experiment with that? Okay, why don't you fiddle around with that because you have the three things; you have to consider the angle and you've got the intersection but you don't have the lengths part yet. So as soon as you've got that you can write your conjecture. Okay?

STUDENT: So M is congruent to...okay.

STUDENT: And then if those two are congruent then…

STUDENT: So we have to use our flex property for MQ - MQ is congruent to QM. And then for this one we're going to have to say QO is congruent to MQ. And since this angle is congruent, we have side angle side for every single one of them; and then we use the CPTCP right?

STUDENT: Yeah, what's the title?

STUDENT: Yeah, just say Proofing Points.

CATHY HUMPHREYS: I don't care about decorations.

STUDENT: Oh yeah.

CATHY HUMPHREYS: I just…okay good! I just want to see the math.

STUDENT: So um, when we're writing our conjecture, does it have to be like...when you're making a shape or can it be related to the problem with the sticks and fastening the holes and stuff?

CATHY HUMPHREYS: As opposed to…?

STUDENT: Like saying diagonals or sticks.

CATHY HUMPHREYS: Oh no, diagonals is better. The sticks thing was the sort of a launching idea and diagonals is the correct mathematical term.

STUDENT: So you can't really say that you're trying to fasten it at the same number of hole…

CATHY HUMPHREYS: Oh right! And how would you say it if these weren't holes? What would you say?

STUDENT: Same distance from the end point.

CATHY HUMPHREYS: Great! Same distance from the end point. That's really good!

STUDENT: Okay then and intersect at the same distance from the end point – from one end point.

STUDENT: They intersect at the same distance from the end point.

STUDENT: We've kind of already proved that it's a kite so I think we did something wrong.

CATHY HUMPHREYS: You kind of are ready to prove that it's a kite or you cannot prove that it's a kite?

STUDENT: Uh, we wrote that two sets – two adjacent sides are congruent. We wrote that all quadrilaterals would be congruent...

CATHY HUMPHREYS: All what would be?

STUDENT: Sorry, I said that completely wrong. Um, the two diagonals that intersect would be perpendicular and just saying that automatically makes it a kite because there is no way that it couldn't be a kite.

CATHY HUMPHREYS: Okay, so that's what you need to prove; that there is no way it couldn't be a kite. That's what you have to show – step by step by step. That's what proving means.

STUDENT: Oh…it's just like... I kind of get it more now but it just seems like I'm saying what a kite is and then saying it's a kite. I'm giving it the exact properties of a kite and then saying it's a kite but then saying all the properties of a kite are given.

CATHY HUMPHREYS: Are they given?

STUDENT: That's how we wrote it.

CATHY HUMPHREYS: So if the properties are given - the perpendicular diagonals, that doesn't guarantee that it's a kite. You have to show why that makes it a kite.

STUDENT: Oh, okay.

CATHY HUMPHREYS: You have to show why and you might have to use congruent triangles or something like that.

STUDENT: Yeah.

CATHY HUMPHREYS: But in other words, it seems "obvious" to you but um, it's actually not unless you can use mathematical reasons why those sides – like, do you know why those side – these two sides are congruent? Why the adjacent…why?

STUDENT: Because the...I don't know what it's called. The opposite side of the right angle...do you know what that's called?

CATHY HUMPHREYS: Well, you can have lots of right angles Ryan – the hypotenuse.

STUDENT: Where are the giant rulers?

STUDENT: What's the name of...?

CATHY HUMPHREYS: The hypotenuse.

STUDENT: Yeah, above the hypotenuse...

CATHY HUMPHREYS: Just because these are opposite right angles does not mean that they are congruent.

STUDENT: Okay, I get it now.

CATHY HUMPHREYS: What can you do to help get this expedited?

STUDENT: The list.

CATHY HUMPHREYS: The list?

STUDENT: The two (inaudible).

CATHY HUMPHREYS: Oh! I wonder if one person could write on the statement and the other could write the reason. Could that help? Could you both...could two people write at once?

STUDENT: Could somebody do my hair at the same time?

STUDENT: We are starting to write the proof.