STUDENT: We found a pattern, we found a pattern for the rectangle and the squares right? Because she told us that if we get a right angle then it will be a square and if it is not a right angle, it will be a rectangle. So that's what we need to do for every single shape, like a trapezoid. Like for trapezoid I don't know, I just play around with it. We need to find a way that every time we'll get it. Like this, every time we are going to get a square or a rectangle. And then we need to do that for every single shape – like for a parallelogram, a trapezoid, ah what else, a rhombus. So do you want to split it up? Like you do rhombus and you do a trapezoid or a parallelogram. What do you want to do? Which one?

STUDENT: Um, trapezoid.

STUDENT: You'll do trapezoid. Which one do you want to do?

STUDENT: Kite.

STUDENT: You do the kite and I'll do rhombus. You want to try that? Let's try to find...let's try to find like patterns and if you find something then share it; and then we will work from there. Okay?

STUDENT: So how should we do this?

STUDENT: So how do we know how far up the stick makes a regular and at the placement, if it makes a regular or irregular shape; and if the length matters?

STUDENT: It has to be like in the middle or something.

STUDENT: Yeah, I think they both have to be centered to make a regular. Well, in some cases. Like in the diamond case, it can't be centered.

STUDENT: Wait, what is the diamond one?

STUDENT: The diamond, you take this short one and the long one and you make them both centered and then…

STUDENT: So you have to have an equal amount of dots on each side. Does that look right?

STUDENT: I think so.

STUDENT: So that's a way to measure where you put it. What I want to know is does the size of the stick matter with like regular or irregular shapes?

STUDENT: I think it does matter.

STUDENT: So let's try putting these two in the same spot and see if we get two different shapes, or if it's the same shape but different size.

STUDENT: I have a square and a rhombus. This is a square and a rectangle.

STUDENT: No it isn't.

STUDENT: How is it a rectangle?

STUDENT: Because it's not.

STUDENT: I know but I made it...

STUDENT: I know I made the other two too and it's a rectangle.

STUDENT: Oh wait, you're right. Okay, my bad. Oh, I see why it is a rectangle because if they cross like this.

STUDENT: Oh, yeah. Like this shape.

STUDENT: Okay, so I have a rectangle and a rhombus. What do you guys have that isn't a rectangle? This isn't a rhombus.

STUDENT: I have a rectangle and I have this. I'm not sure if it is a kite.

STUDENT: This side is kind of a kite.

STUDENT: This side and this side have to be the same for a kite.

STUDENT: This side is longer than that side so it's not a kite.

STUDENT: So it would be that too?

STUDENT: No.

STUDENT: Then what would it be? But if you can't tell what it is then that's what it is.

STUDENT: Okay, so you also have a kite.

STUDENT: And a rectangle.

STUDENT: Okay, so let's put our rhombuses all together and then same with the rectangles.

STUDENT: So what is yours? A square, rhombus, trapezoid?

STUDENT: Do we need a trapezoid?

STUDENT: No.

STUDENT: It acts the same as this.

STUDENT: So that means we need a trapezoid and we need an actual square. So we can say like, we took two pieces of paper together or something like that and... Whatever stuff you need.

STUDENT: Let's put the paper in the middle.

STUDENT: We can go like this.

STUDENT: That's not a square.

STUDENT: It would be a rectangle.

STUDENT: Yeah.

STUDENT: Let's just tape two pieces of paper together.

STUDENT: This way?

STUDENT: No. So wait. How about you tape two pieces of paper together and then what you do is like, put these two things approximately like this and make a square.

STUDENT: So we'll tape it like this?

STUDENT: Yeah, just like that.

STUDENT: Can we tape it? We should ask Ms. Humphreys.

STUDENT: Do you guys know what other shapes we need?

STUDENT: What about a rhombus?

STUDENT: We have a rhombus – wait, do we have a rhombus?

STUDENT: Yeah, we do. Trapezoid, parallelogram.

STUDENT: And a square which we are doing now.

STUDENT: Okay, so you are doing a square and trapezoid. Do you want to do a parallelogram? Okay, I'll do something else.

STUDENT: I'll do a trapezoid.

STUDENT: They have to be the same length.

STUDENT: Yeah, again they have to be perpendicular.

STUDENT: Would a trapezoid be the same way?

STUDENT: A trapezoid would not be perpendicular.

STUDENT: So they wouldn't intersect on the mid-point?

STUDENT: They would.

STUDENT: They could.

STUDENT: Yeah, they do…not really.

STUDENT: You have to do them like rotating.

STUDENT: No, I think they do because it's like this. Two sides are always parallel.

STUDENT: I think they have to be like this.

STUDENT: No. Okay, you have to imagine the sides. So on the top of the configuration I'm holding up...

STUDENT: Okay, now I see it. It doesn't work.

STUDENT: So it's really more like, like um, these two are congruent and these two are congruent.

STUDENT: It's like two isosceles triangles.

STUDENT: Yeah.

STUDENT: That doesn't, it doesn't always necessarily have to be a true for a trapezoid right? A trapezoid doesn't have to be an isosceles triangle; it can be something else right?

STUDENT: Well, so I suppose you could do that. That strikes me as somewhat weak; it would flex the wrong way.

STUDENT: Like in half.

STUDENT: Did we get our stuff we need to get our resources?

STUDENT: I thought we had all our resources.

STUDENT: I guess not.

STUDENT: Do you think that one of the sides has to be smaller than the other one?

STUDENT: We could try that out again.

STUDENT: Because I couldn't get it with the large stick; I don't know how to.

STUDENT: We have a paper that describes all the types of things like what a trapezoid is – isosceles trapezoid.

STUDENT: Put in the middle it could be a rhombus every time.

STUDENT: Wait, what's a rhombus?

STUDENT: A rhombus is a parallelogram with all congruent sides. That's what I'm trying to do right now. So wait, I'm going to try the other way and see if we get a rhombus.

STUDENT: Do they have to be connected?

STUDENT: This is a kite too right?

STUDENT: Do they have to be connected anywhere other than the mid-point?

STUDENT: Wait – congruent, congruent. These two would be congruent and these two are congruent. Yeah, that would be a kite, I think.

STUDENT: Then we wrote that it would be a square or a rectangle. Then if it's not, it doesn't matter if it's on top or bottom either. So it creates a trapezoid.

STUDENT: And then the segments must be congruent?

STUDENT: Yeah, this pair and this pair.

STUDENT: Can a trapezoid be a rectangle?

STUDENT: I don't think so because...

STUDENT: Because isn't a trapezoid only like the two sides are parallel?

STUDENT: Two maybe but I don't think so. That's a rhombus.

STUDENT: Are we supposed to find a formula or I mean write descriptive things about it?

STUDENT: I think we need to define for each shape what creates it, what diagonals.