Is it a Half?

Clip 2: What makes something ½?

Brief description of focus of video: Video clip #2 shows a classroom researcher tries to get them to expand their thinking about ½ and use a definition of ½ based on area to categorize determine whether each card does or does not represent ½. After this, the students work developing their thinking. (See clips 3a, 3b and 3c.)

Clip 2 What makes something ½? (Especially when it doesn’t “look like it”?)

00:06 – 2:33

R: [drawing squares and splitting them into 4 smaller squares] Okay, so I think you guys agree if I do this and shade over here [shades 2 out of the 4 smaller squares in the square] you are going to tell me half is shaded.

G1 and G2: Yeah.

R: Okay you agree to that. Now what if I go like this [draws another square] and I cut it into 4 again [splits square into 4 smaller squares] and I do this and this [shades 2 smaller squares in the square that are not next to one another]. Is half of the area of that square shaded?

G1: Well actually it is because that is the same size as that one. [pointing to smaller squares within square]

00:30

R: [inaudible] piece together are the same size?
G1: Well, no it’s still not half. Because…
G2: Because they have to be the same size, same shape,….  
R: Oh, but if I do my shaded pieces, there’s two. You see those are the shaded pieces?  
   [draws the two shaded smaller squares on their own outside of the larger square]  
G1 and G2: Oh yeah.  
R: And the nonshaded is like this at least, right? [draws nonshaded smaller squares on their own outside of the larger square]  
G1: Oh yeah. So it is half.  
01:00  
R: It is half in that case. [G1 has picked up a card that had been in Not A Half] Now, so are you now agreeing this one is half, too?  
G1: Yeah. She agrees [referring to G2].  
R: [asking G2] Okay so what do you think? You’re not sure yet?  
G2: It looks like it.  
R: It looks like it. So the way we decide half is going to be based on area.  
01:35  
G2: Actually, it kind of makes sense because these two are together [pointing to shaded region from previous example] and these two are together [pointing to shaded region from original example]. These two may not be together [pointing to nonshaded from original example] but that still doesn’t mean it has to be.  
G1: Yeah, but it would make more sense if they’re together. But, it can still be like that.  
01:35  
R: Okay, I would agree. It’s easier to see when it’s together, but - .  
G1: [picking up another card] And this one also.
R: And that one also. Tell me about that one now.

G1: That one [pointing to a different example and placing it under the “Half” column] I think is it, because it’s also like that.

R: Okay, so can you give me a really clear couple of sentences to convince me that half of the area is shaded? How do you know it’s half of the area?

G1: Well, because these are the two same [pointing to shaded region] as that one [pointing to the nonshaded regions]. And it doesn’t make any difference if it’s that one [pointing to shaded region from previous example] and that one [pointing to nonshaded region from previous example]. They’re almost the same, but these two are on the side and the white ones are in the middle [pointing to previous example].
R: Okay. You want to give an argument too? [turning towards G2]. I’d like to hear your thinking about it.

G2: It’s just the same thing. These two are together again [pointing at previous example] and…yeah…and… It’s just like …so it’s getting mixed up kind of. So like these two [pointing to previous example] are not together, these two are together [pointing to nonshaded regions, then shaded regions]. These two, these two are together [pointing to nonshaded regions] and these two are not [pointing to shaded regions]. It’s just like…[interrupted by G1]