

## Video Supplement

### Norms for Watching Video (if not using your own)

- Speak from the “I” perspective. For example: “If I could rewind the tape and ask students a question, I would ask...”
- Be inquisitive, not judgmental. For example: “I wonder what might happen if,” instead of “the teachers should have...”
- Justify your ideas and conjectures based on the video clip, and not other parts of the lesson that you didn’t see. For example: “I think that the student understands...because in the video she...”
- Focus on how what you learned from the video might help you implement this (or similar lessons) with your own students.

### School Context

- School Type: Suburban Public School
- School Demographic Information (approximate):
  - Students of color: 33%
  - Free and reduced lunch: 53%
  - English language learners: 4%
  - Students with special needs: 10%

### Lesson Context

- Subject: Accelerated Algebra
- Unit: Polynomial Operations Unit
- Number of students in class: 23 Students
- Lesson duration: 37 minute lesson
- Prior preparation: Students have worked with verbal and algebraic and tabular expressions of linear expressions in previous units. In the current unit, students had been introduced to adding and subtracting polynomial expressions. No prior introduction to the area model has been provided during this school year.

### Video Context

This group has completed the first phase of the card sort matching the verbal and algebraic expressions. They are now working on fitting tables and area models to their existing matches. The teacher is circulating the room to provide support.

### Discussion Questions

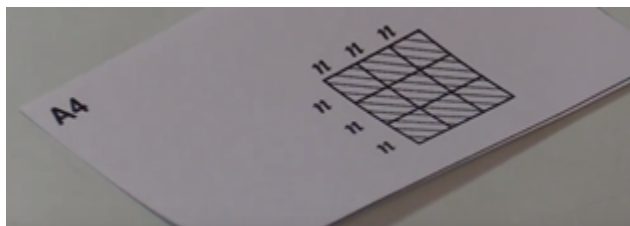
**Cognitive Demand:** *How long am I given to think, and to make sense of things? What happens when I get stuck? Am I invited to explain things, or just give answers?*

1. What do students’ explanations tell us about what they struggle with or find challenging?
2. As a teacher, what questions might we ask or moves might we make that help students struggle more productively by inviting them to make sense of and explain important mathematical ideas?

Video Transcript

Legend		
<b>T</b>	Teacher	Per and within dialogue
<b>S1 – S3</b>	Students 1 - Student 3	Per and within dialogue
<b>[ ]</b>	Actions/Non-verbal	Dialogue
<b>(x)</b>	Simultaneous speech	Dialogue
<b>{x}</b>	Sounds like x	Dialogue
<b>{ }</b>	Inaudible	Dialogue

1. S1: 0:00 So this one we have left, and this, this, and this. But we also have like those tables, but I just don't know how those tables work.
2. S2: One of these is probably over here

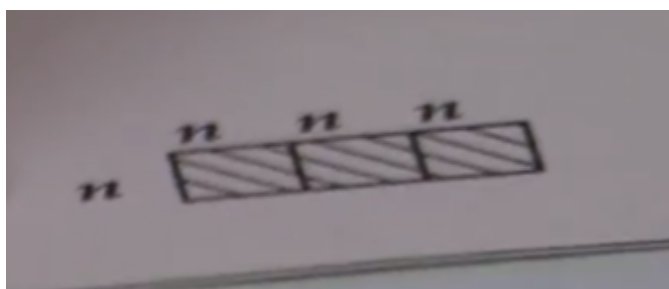


3. S1: Cuz that's saying n... is like multiplied by three, but it's like... I don't even know like. There's no, like...
4. S2: 2 plus
5. S1: Whatever
6. S3: Yeah, I don't know.
7. S1: I don't know how that works...

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8. S1: So this one's already greater than thirty-six and that table doesn't...do that. But I don't know how you could do a.. this thing with this cause that's a lot.
9. S2: { }

10. S1: But how would that be six to the second power though?
11. S2: I don't know
12. S1: But the other ones don't even have a six in it
13. S1: 1:09 Ok, so this, is like saying,
14. S2: N...
15. S3: N...Times..
16. S1: times three...



17. S2:  $\{n\}$  three times
18. S1: But then what's this n on this side, that's just like saying that it's like...
19. S2: Should we ask her?
20. S2: Should we ask her?
21. S1: Would this like, would this be like, would this be... this is only like one up here, right? It's like, it's not squared.
22. S2: What is this?
23. S1: That's like three times n. Is that like cubed then? Cause there's 3 of it? But wait how would that work? Yeah, that could be it...  $3n$ --This, right? Couldn't that be right? This one and this? Oh wait no, I said cubed and that's squared...wait.....
24. S3: There is no cubed though
25. S1: Yeah, so maybe it's just... Oh! Wait, maybe it is... I don't know...
26. S3: Should we ask her?
27. S1: Cause I don't know what this table goes with
28. S2: Just ask her

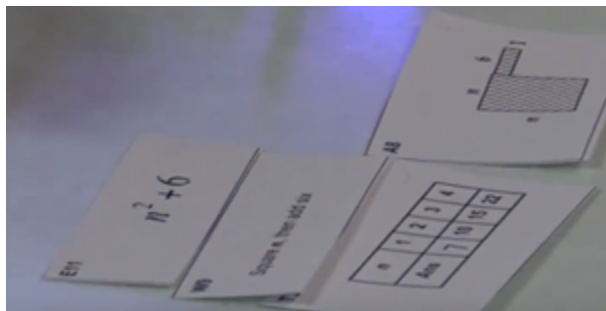
29. S1: 2:29 I don't know what this one is--oh that's saying plus six, that's saying plus six, right? And n times n, which would just be squared, so this! Right?

30. S2: Yeah

31. S1: Because n times n plus six.

32. S2: that table still wrote?

33. S3: Yeah i think, would there be four for each of those?



34. S1: Well not for everyone

35. S3: Well for this one at least.

36. S1: Aha.

37. S1: And this is just saying n times n three times, so n squared times three, right?

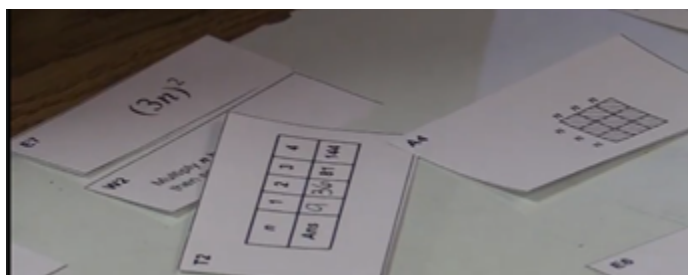
38. S2: Yeah. So it's probably this one.

39. S3: I think it's that one

40. S2: And then this one's probably this one

41. S3: Yeah, that one's saying n times n

42. S1: Yeah, but why is there three n's on the side?



43. S2: Because it's in parentheses, i don't know...what else could that be?

44. S1: What about-