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| Speaker | Line | Transcript | Times | Comment |
| A | 1 | Thinking was, or sort of, our question was, if we can, thank you, those two things, if we sort of went into the question of, "What can help kids connect the abstract, sort of, equation to something concrete?" And we wondered if maybe a place value drawing would help make that connection. So that was sort of the rationale behind using that tool. | 00:00 |  |
| B | 2 | Okay, so you want student to begin with, uh, 356 plus 432? | 00:27 |  |
| A | 3 | (nods) | 00:31 |  |
| C | 4 | And I think we were- we were trying to sort of ... both provide an access point for students who are having these gaps from first and second grade, to be able to think abou- the students who we have, who would give up, who don't know how to do the algorithm, who are kind of giving up. And we thought, we were trying to find a way to get them to have also the courage and the confidence, like, that they can do the drawings. You know? As just trying to find a way where they can step into the problem. So in some ways, we were thinking about just that lowest tier of students wh- who we have trouble getting to participate. But I really appreciate the idea that we're taking away the opportunity for kids to, to see for themselves what their prior knowledge is, and to actually have true inquiry. Because we're scaffolding it too much. | 00:31 |  |
| A | 5 | Mm-hmm (affirmative). | 01:28 |  |
| C | 6 | So, I guess my question is, how, how could we also think about this in a way where those students who really need the, the actual practicing of this, but who have a hard time stepping into the process, how could we get them involved? | 01:28 |  |
| B | 7 | Well, I- I may present this problem, this, how- how many, how many [inaudible 00:01:42]? I will ask of each of [inaudible 00:01:42]. | 01:40 |  |
| C | 8 | (Laughs) | 01:40 |  |
| A | 9 | (Laughs) | 01:40 |  |
| B | 10 | How many kids? | 01:40 |  |
| A | 11 | Three hundred and fifty six. | 01:40 |  |
| B | 12 | Are you sure? | 01:41 |  |
| D | 13 | What a coincidence! | 02:05 |  |
| B | 14 | (Laughs) | 02:05 |  |
| A | 15 | (Laughs) | 02:05 |  |
| C | 16 | (Laughs) | 02:05 |  |
| B | 17 | How- how- could you show me, why 356? | 02:14 |  |
| A | 18 | So, I saw, um ... I saw that they were organized in straight lines, and I saw groups of five and five and then I saw groups of 10. And then I counted all the groups of ten, and I got 20 groups of 10. That was 200. And then I counted 15 more groups of 10, that was 150 more, so that was 350, then one, two, three, four, five, six, three hundred fifty six. | 02:18 |  |
| B | 19 | So you made group of 10? | 02:51 |  |
| A | 20 | I made groups of ten. | 02:51 |  |
| B | 21 | Any other? | 02:51 |  |
| E | 22 | I counted by 10s. | 02:54 |  |
| B | 23 | Okay. | 02:55 |  |
| E | 24 | Because I'm, since we're thinking addition | 02:57 |  |
| B | 25 | Okay. | 02:58 |  |
| E | 26 | Not multiplication. | 02:58 |  |
| E | 27 | (laughs) | 03:00 |  |
| D | 28 | (laughs) | 03:00 |  |
| C | 29 | (laughs) | 03:00 |  |
| B | 30 | (laughs) | 03:00 |  |
| A | 31 | (laughs) | 03:00 |  |
| E | 32 | I think. | 03:00 |  |
| F | 33 | I did 10 times 15 | 03:09 |  |
| B | 34 | Okay. | 03:09 |  |
| F | 35 | And then 10 times 19. Plus six. | 03:10 |  |
| B | 36 | Okay. [crosstalk 00:03:15] | 03:15 |  |
| F | 37 | For some reason I got 300 and 46. | 03:15 |  |
| B | 38 | Okay, so- | 03:15 |  |
| F | 39 | Is that wrong? | 03:17 |  |
| B | 40 | Why this wrong? Or why this r- right? | 03:17 |  |
| A | 41 | I think- | 03:27 |  |
| C | 42 | 'Cause there's twen- a group of 20 going- there were 20 rows. There's 20 rows. | 03:27 |  |
| F | 43 | I think there's 19. There's twe- I miscounted. | 03:33 |  |
| C | 44 | Yeah, that's- just miscounting the- | 03:34 |  |
| F | 45 | There's 20. | 03:35 |  |
| B | 46 | I show 20 rows. | 03:35 |  |
| A | 47 | 19... | 03:35 |  |
| C | 48 | That's it. Fives? | 03:35 |  |
| F | 49 | 16, 17, 18, 19, 20. Yeah, it is 20, I miscounted that's why. So it should be... Yep. | 03:42 |  |
| B | 50 | Okay. H- h- how you count? | 03:52 |  |
| G | 51 | I did 20 times 10. And then I did 20 times 10 and then I cr- | 03:56 |  |
| B | 52 | So could you- could you- kind of show in the width between the box or something? | 04:00 |  |
| G | 53 | Yeah, so the 10, you multiply that by 20, and then I just do that again over here and then subtracted ten, 20, 30, 40, four. | 04:05 |  |
| E | 54 | Hm. | 04:16 |  |
| D | 55 | Hm. | 04:16 |  |
| B | 56 | So you say, 35 five groups of 10? That- you said 20 and then 15, right? | 04:19 |  |
| G | 57 | Ah- yeah. | 04:26 |  |
| B | 58 | So, 30 groups of 10. So why 356? | 04:29 |  |
| G | 59 | So 10... times 20 is the 200 then over here I just do the same thing- | 04:32 |  |
| B | 60 | What- 20 times 10 is 200? | 04:42 |  |
| A | 61 | Yes. | 04:45 |  |
| B | 62 | One. | 04:48 |  |
| A | 63 | Well, I can count on... 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, that's 10. | 04:48 |  |
| B | 64 | Okay, so ten groups of ten is hundred. | 04:57 |  |
| A | 65 | 100. And then another group of 10 tens- | 04:58 |  |
| B | 66 | So that's three groups of hundred? | 05:01 |  |
| A | 67 | Is another hundred. Correct. | 05:03 |  |
| C | 68 | Mm-hmm (affirmative) | 05:05 |  |
| A | 69 | Yep, three groups of a hundred. | 05:05 |  |
| B | 70 | And then? How many tens? | 05:06 |  |
| C | 71 | Five tens. | 05:08 |  |
| B | 72 | 5 tens. And then? Six? | 05:10 |  |
| C | 73 | Six ones. | 05:14 |  |
| E | 74 | Ones. | 05:14 |  |
| B | 75 | That is corresponding to the writing, right? | 05:14 |  |
| A | 76 | Right. | 05:18 |  |
| B | 77 | So you could say 35 groups of tens. And then six. At the same time three groups of 10, a hundred. And then five groups of 10. And then six. | 05:19 |  |
| A | 78 | Hm. | 05:30 |  |
| B | 79 | But you could through this discussion, students say, oh, this is three groups of hundred and five groups of- you no have to keep this box. However, you could see hundred in a box, right? Hm? So another [inaudible 00:05:48] another chart | 05:32 |  |
| A | 80 | (laughs) | 05:48 |  |
| B | 81 | (laughs) | 05:48 |  |
| C | 82 | (laughs) | 05:48 |  |
| D | 83 | (laughs) | 05:48 |  |
| E | 84 | (laughs) | 05:48 |  |
| F | 85 | (laughs) | 05:48 |  |
| G | 86 | (laughs) | 05:48 |  |
| B | 87 | It's the harder one. | 05:48 |  |
| G | 88 | (laughs) | 05:48 |  |
| B | 89 | (laughs) | 05:48 |  |
| C | 90 | (laughs) | 05:48 |  |
| D | 91 | (laughs) | 05:48 |  |
| E | 92 | (laughs) | 05:48 |  |
| F | 93 | (laughs) | 05:48 |  |
| G | 94 | (laughs) | 05:48 |  |