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| --- | --- | --- | --- | --- | --- |
| 01:10:00 | Not visible. Heard discussing with Ankur which problem Jeff is working on.  **Collaboration.** | Not visible. “He just proved 32.”  **Collaboration.** | Jeff explains he would have multiplied 4(1) and 4(2), each doubled when inverting colors, and add the two solid color for towers four high.  **Informal presentation.** | Listening.  **Disengagement.** | Brian is seen making a very long tower on the table.  **Using tools/manipulatives.**  Resarcher asks if the students have questions, and if this can be used for towers four tall.  **Researcher guidance.** |
| 01:10:40 | Not visible.  **N/A** | Not visible.  Helps Jeff with 2^4=16, which Jeff double checks.  **Checking answer.** | Asks for help with their normal solution.  **Collaboration.** | Not visible.  Asks the height and colors.  **Clarifying the problem.** | Watching Jeff.  **Disengagement.** |
| 01:11:00 | Not visible.  **N/A** | Asks why they need a new way to count their answer.  **Communication improvement.** | Noting a mistake, Jeff asks for time to check.  **Checking answer.**  Ankur and Romina help Jeff recalculate at the board.  **Checking answer.** | Helps Jeff calculate.  **Checking answer.** | No change.  **Disengagement.** |
| 01:11:50 | Working individually as Ankur watches.  **Working individually.** Discusses his work with Ankur.  **Checking answer.** | Repeats his question about a new method.  **Communication improvement.** | Repeats there is a mistake in his work.  **Checking answer.**  Begins working individually at his seat.  **Working individually.** | Helps Jeff calculate.  **Checking answer.**  Listens to researcher.  **Disengagement.** | Not visible.  **N/A** Researcher notes to Ankur that she wants to ask about the rule he believes in.  **Researcher guidance.** |
| 01:13:10 | Writing individually, and asks Ankur to prove his answer.  **Working individually; collaboration.** | Watches Michael, and studies his work.  **Disengagement.** | Writing his work side-by-side with Romina.  **Informal presentation.** | Looking onto Jeff’s work.  **Disengagement.** | Watching Jeff and Romina’s papers.  **Disengagement.** |
| 01:14:05 | Asks Ankur to check his work for errors.  **Checking answer.** | Reads a paper with work.  **Checking answer.** | Begins discussing with Romina, comparing their answers.  **Checking answer.** | Compares her paper in discussion with Jeff’s.  **Checking answer.** | Watching as Jeff and Romina discuss.  **Disengagement.** |

Notes:

Communication improvement vs Collaboration

Communication improvement implies a miscommunication or misunderstanding. Above, the student says ‘I do not understand ... (the need for a new answer),’ so this is communication improvement where a student requests input.

Collaboration may imply a student is simply trying to achieve input, following the generic definition of collaboration. Collaboration may seem applicable when a student requests input about an answer, and this is why its description states ‘not answer checking or informal presentation.’

Count for above section:

Checking answer 11

Communication improvement 2

Clarifying the problem

Collaboration 4

Disengagement 8

Informal presentation 2

Researcher guidance 2

Using tools/manipulatives

Working individually 3