

TASK

Name _____ Date _____

Applications of Multiplication & Division

A teacher wants to place her 36 students into groups with an equal number in each group. How many different ways can the teacher group the students?

Applications of Multiplication & Division

Teacher: Mrs. Scherr

Grade: Third

Note: A student has difficulty talking in front of his classmates, so the teacher summarizes for him.

1. T: So, I know, but Carson you were doing a great job explaining it to me earlier. And you basically instead of using cubes, you were using tally marks each time you went through, and you were doing it in an equal fashion, weren't you? Ok, thank you very much.
2. T: Isabelle, can you bring yours up and share with us what you were doing and your thinking?
3. T: Ok, which one are you going to share with us? Groups of 4, so let's make this a little smaller. [indistinguishable chatter] Ok, Isabelle, can you explain to us? Alright, if everyone can put their attention up to the board, Isabelle is going to be explaining her thinking.
4. S1: So, um, when I was, um, when I was doing it, um, I just did a, a bunch of numbers, and I used the cubes to, um, see if, um, to see if it worked. And groups of four did. So, I did groups of four. (Student groups the cubes into 9 groups of 4.)
5. S1: Groups of 4. So, so here's four. And that makes 8. And so 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34 36.
6. T: So, I noticed how you were counting by 2's when you did that. Wait, can you leave those for just a minute? Because the one thing that I noticed is when she did this, she basically was doing circles, and inside those circles, she was then placing the cubes. And how many cubes were going inside the circles?
7. Class: 4.
8. T: 4. Ok. Now, it's very similar to what Carson was doing but instead of using the cubes, he was using what instead?
9. Class: Tally marks.
10. T: Tally marks. Both great different tools to use. However, adding to this, (thank you very much, Isabelle) Carly, can you bring yours up, because I want you to see what Carly was using; same answer, but just showing it in a different way.
11. T: (We'll just get those in a minute. Isabelle. Nope. We are going to use your graph paper.)
12. T: Ok, so I am going to make it a little bigger. OK, I want you to look at how Carly put hers together with the four groups of 9. And Carly, can you explain what you did?
13. S2: Yes, I used the cubes and I decided, um, Mrs. Scherr helped me do something because I wasn't really good at doing boxes all by myself. And I found out that you can do 4 with cubes, um, and I said or because you can do it a diagonal way, well not a diagonal, but going down instead of just going sideways. And that's how come I put 4.

14. T: Any questions for Carly? Clarifying questions. I have one, Carly. What do you mean when you are going sideways? What does that mean?
15. S2: Um... well it means that you are going basically, how can I say this?
16. T: Maybe someone in our audience could help. Can you call on someone, Carly, to explain what you are thinking?
17. S2: Yup.
18. S3: It means that you are going this way, like the one at the top is going both ways instead of going up and down its going side to side.
19. T: Can you come up and point and use those words as you're pointing?
20. S3: This one is going up and down. This one is going side to side.
21. T: So, one is more horizontal and the other one is more vertical?
22. S3: Yeah.
23. T: Ok.
24. S3: [indistinguishable talk]
25. T: We should, shouldn't we? So, we were talking about horizontal and vertical. Ok, what is different from what Carly did and from what Carson and Isabelle did. Remember, they came up with the same answer. Four times 9 equals 36. What is different? Franky?
26. S4: Um, instead of using tally marks, dots, or cubes, she used arrays.
27. T: She used arrays. Hmm, should that be a math vocabulary word we put up here? OK. So, Carly used an array, and Carly, I noticed the partner that you sit by, Ariel, also used arrays. Would you raise your hand if you used arrays to help you solve this problem? Ok, thank you. Would you raise your hand if you were using something similar to what Isabelle or Carson was using where you were putting them in groups, but they weren't really making the arrays?
Ok. Thank you, Carly.