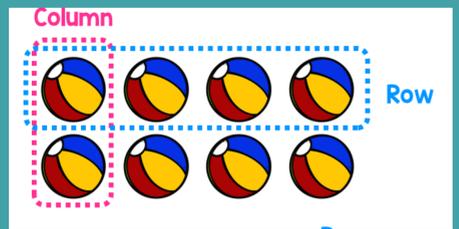


HOORAY FOR ARRAYS



By: Brooke Davis

Learning Goals

Learning Goal 1: Students will be able to accurately define and identify the terms: rows, columns, and product in a given multiplication sentence and array.

Learning Goal 2: Students will be able to use manipulatives to create arrays to help them solve multiplication problems.

Standard

CC.2.2.3.A.1: Represent and solve problems involving multiplication and division.

Results

Overall, the post-assessment data shows that the students made tremendous improvement with using arrays to solve multiplication problems after the intervention lessons were taught. Based on the data collected from the post-assessments, out of 14 total students that participated in the intervention, 0 students scored an 11/16 or below on the assessment. Therefore, all 14 students who were once considered below basic or basic at both learning goals, no longer fell into either of those categories after the intervention lessons. Of those 14 students, 3 students received a score between 12/16 and 14/16 on the pre-assessment which is considered proficient at both learning goals. The remaining 11 students received a score between 15/16 and 16/16 on the pre-assessment which is considered advanced at both learning goals.

Participants

This math intervention included 14 third grade students from an urban school setting. The students in this intervention group scored an 11/16 or below on the pre-assessment. The 14 third grade students were split up into 2 groups of 7. Half of the math class was spent teaching the first group of students and the other half was spent teaching the second group of students the same lessons.



Table Key

Below Basic: 0/16 - 6/16

Basic: 7/16 - 11/16

Proficient: 12/16 - 14/16

Advanced: 15/16 - 16/16

Student Number	Score on Pre-ASSESSment	Score on Post-ASSESSment
2	3/16	12/16
4	4/16	15/16
5	4/16	16/16
6	4/16	16/16
7	4.5/16	15/16
8	7/16	16/16
9	7/16	16/16
10	8/16	16/16
11	9/16	14/16
12	9/16	16/16
13	9/16	16/16
14	9/16	14/16
15	10/16	16/16
16	11/16	16/16

Intervention Process

All three intervention lessons took place at a Kidney Activity Table in the third grade classroom. Each lesson was 25-30 minutes long. The first lesson focused on teaching students what an array is and how to identify the number of rows and columns in an array and multiplication sentence. The students worked with real-life examples of arrays to determine the number of rows and columns in each. They also worked to sort and match the number of rows and columns in given pictures of arrays and multiplication sentences. To end the lesson, students completed Array Practice Cards where they had to determine the number of rows, number of columns, and the product of each given array or multiplication sentence. The second lesson focused on teaching students how to construct arrays with the correct number of rows and columns to solve multiplication problems. The students used a spinner and unifix cubes to build arrays. After building each array, the students drew it and wrote and solved the multiplication sentence that was being represented by the different arrays they built. To wrap up the lesson, the students completed a 3-way matching game that involved matching pictured arrays to the multiplication sentences they represented and then matching the multiplication sentences to their correct products. The final lesson continued to focus on teaching students how to construct arrays with the correct number of rows and columns as they created Array Cities. The students designed buildings by creating arrays of windows using a dice and colorful squares of construction paper. After students glued their array of windows onto each of their buildings, they wrote the number of rows and columns there was in each of the window arrays on their buildings and then wrote and solved the multiplication problem represented by each array. To end the lesson, students completed an exit ticket where they had to solve two multiplication word problems using an array.

Conclusions

This was an effective and well-executed math intervention for the third grade students within the intervention group. The two learning goals were met and proved to be extremely beneficial for the students in mastering the use of arrays to solve multiplication problems. All students within the intervention were very engaged and excited while taking part in the three lessons. The students did an amazing job listening, absorbing, and doing what was asked of them throughout the intervention. This played an essential role in the success of this math intervention.

Recommendations for Next Steps

If I were to continue working with this group, I would teach these students another multiplication strategy to help them solve multiplication problems. Arrays are only one of the many strategies' students can use to solve single-digit multiplication problems; therefore, I think it is crucial to teach the other multiplication strategies such as drawing equal groups, repeated addition, and number lines.