Lesson Plan

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Array Math Projects: Animals, Robots, or Dream Houses

By: Jessica Shaffer
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Math
Grades 3–5

Introduction

Students can create an array of their favorite animal, a cool robot, or of the floor plan of their dream home! In this array math project, students practice their multiplication facts while exploring their creativity and engineering design skills by combining various arrays to find the total area of the figure!

Learning Objectives

- CCSS.MATH.CONTENT.3.OA.C.7. WALT multiply and divide within 100 using strategies such as the relationship between multiplication and division, or properties of operations (working towards accuracy and efficiency).
- CCSS.MATH.CONTENT.3.MD.C.7.A. WALT show that the area found by tiling would be that same as multiplying the side lengths.
- CCSS.MATH.PRACTICE.MP4. WALT model with mathematics.
- CCSS.MATH.PRACTICE.MP7. WALT look for and make use of structure.

Materials Needed

- Array Project Rubric
- Array Project Chart
- Graph Paper
- Construction Paper
- Chromebook/Tablet/Computer
- Colored Pencils/Crayons
- Glue Stick/Glue
- Scissors

Procedure

1. Review finding the area of rectangles and squares.
   - Review the formula for area (l X w = a).
   - Put practice problems on the board or Promethean Board for students to solve. If this project is being completed virtually, assign students the problems over a live meeting if possible, or on a Google Form.

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- Reference an anchor chart in the classroom or create one before the lesson. Students can use this as a quick reference when needed. If this is being completed virtually, have a document students can reference while working.

2. Pass out the rubric and show samples to the students (if you have them available). Make a sample of one of the projects if you do not have any student samples. You can hang it on the board or share it in Google Classroom with the students if it is being done virtually. Create a Google Folder of pictures of completed projects to save through the years. It is easier than trying to save the paper copies year to year. They are a nice room decoration but much simpler to store in Google Drive.

3. Students will have the choice of which project they woud like to complete. The options are: Dream House, Animal, or Robot. The Dream House is a challenge as it requires more arrays and labels than the other two. All models can be as complex or simple as students want.

4. Have students pre plan their project on a piece of scrap paper. It does not need to be drawn to scale, but it will help to have something to work off of.

5. Students will create the arrays for their projects. The arrays will be created and labeled as #1, #2, etc. Students will fill out a chart for the equations. The arrays will look like the sample photo, except instead of labeling the equations on the arrays, the students will fill them out on a chart. The chart is included in the lesson plan and there is an example provided modeling how to write the equations and answers. Students will also solve for the total area of the model by adding together the area of each individual array. Proper labels are required for the area.

6. Students will glue the model together on the construction paper. Creativity is encouraged in the project. Students will color and design the rest of the project. It is important to keep the project neat and also that the number of each array is visible after coloring! Students may trace over the array number in a Sharpie to make it more visible.

7. Students can submit a paper version of this project or a picture of the project (if it is during virtual learning). Another way to submit during virtual learning is to have the students present their paper project on a Google Meet/Zoom Meeting, and submit the Array Chart through a Google Document. Having the students present the projects also brings in cross-curricular speaking standards in ELA.

8. Another way to do this project virtually is to have students create the arrays on the computer and submit it that way. It would be a good option for your more technologically advanced students, or also if it is later in the school year, you can make it a requirement if you have taught all students how to do this on the computer. You can use video or instructional slides if students need help in creating this project using a computer/ Chromebook.

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9. This project can be completed in a short period of time or it can be stretched out. This is a one-day plan, and you can start the project one day and have it continue on as a center throughout the week. This is also helpful for early finishers, as they can work through their center work. Creating a few additional worksheets or online centers can also be helpful for this lesson and provide a strengthened grasp of the concepts for the students, as well as classwork grades.

****This is a good project to use for virtual learning. The rubric can be input into Google Classroom.****

Evaluation

This project will be scored according to the rubric. The rubric can be modified according to the grade level expectations.