### Alaska State &/or Cultural Standard:

MA.4.OA.1 Represent verbal statements of multiplicative comparisons as multiplication equations

### Lesson Objective(s):

To allow students to use their creativity to show their knowledge of multiplication using arrays.

### List of materials needed for the lesson:

- Black 18x24” construction paper
- White 18x24” construction paper
- Assorted colors 12x18” construction paper (and/or smaller scraps)
- Scissors
- Glue/glue stick
- Pencils

### Procedures:

1. We have been talking about arrays and multiplication for awhile, so I explained to the students the project we were going to do: to build a city using our chosen arrays as the windows of the buildings. I should have shown that the windows needed to be in straight rows, no matter how many rows and columns they chose, for we had to adjust a bit after they were glued on. They needed to have at least three buildings with three different arrays. The shape and amount of buildings and windows they chose was up to them. I showed them a couple examples I found online to give them ideas. I told them they should choose arrays they already knew, even if they only knew lower numbers, and this allowed all my students to participate with minimal input from me.
2. Students should have their pencil, scissors and glue/glue stick out and ready to go.
3. Then, students choose their black or white background, and a sheet of each color of 18x24” construction paper. I had them come up a couple at a time to minimize chaos.
4. Once they had their paper, they could begin designing and cutting out their buildings and their windows. Before they were done, they had to write the equation of their window array on or near the building that it matched.
Vocabulary words or concepts you might need to teach to help children understand the lesson:

Reviewing how to use **arrays** to represent multiplication and to include an **equation** when they are done with their building

Adaptations for children with special needs, learning or language differences to assure as full engagement as possible:

Focus on the fact that multiplication is repeated addition and they can still create arrays that are sets of whatever number they want to create.

Extensions: (What follow up activities, books enrichment that could be used to extend the learning beyond this lesson?)

Create division cities, where there are curtains on certain windows to create division problems. Or fractions. Or make it a continuing problem: first building is a multiplication problem, second building is a division problem but you multiply the first building by the quotient of the second building; third building is a fraction, and you divide the second building into or by the third building's fraction until you get to the last building and have a final answer. (Hope that’s clear…)

Plans to bring closure, clean up, and completion to lesson:

Students had to show me their completed city so minor adjustments could be made, then they needed to clean up their area, putting scraps in recycle or back where the construction paper was if it was big enough to be used for something else. After the students left, the cities were posted in the hall, but if there had been time, the students could have put them there.
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<thead>
<tr>
<th>Assessment / evidence of learning (How will you know if students have met the learning objective?)</th>
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<tbody>
<tr>
<td>Since the students got to choose their array, I could tell when they showed them to me what their level of knowledge of multiplication facts were. I kind of already knew that, but this confirmed my knowledge. It also gave me an opportunity to celebrate where they were in the process of understanding multiplication in this way.</td>
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<th>After lesson reflection:</th>
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<td>This activity encouraged me to try to find more ways to integrate art into the core subjects. Now that we’ve gone virtual, it’s harder to think of ways to incorporate art, but I will keep searching… and looking forward to when we are back together and that integration isn’t as challenging.</td>
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