Project 7

Bricks… They're Multiplyin'

Objective: Child will understand the commutative property of multiplication.

Essential Question(s): How does multiplication work? Is there a direction, or can it be flipped around?

Special Materials: Paper and pencil for recording data.
Bricks Required: 16x16 plates, 2x2 or 1x1 bricks

Project Structure:
Engage/Explore:

1. Distribute one 16x16 plate and 24 2x2 or 1x1 bricks.
2. Ask child to lay out a row of 4 bricks on the plate, then add 2 more equal rows.
3. Have child create a multiplication sentence based on their brick outlay.
4. Child then rotates their plates 90 degrees. Ask them to create a new multiplication sentence based on the new orientation.
5. Ask child to solve both multiplication sentences on a sheet of paper.

Explain:

1. Ask child: if they were to do the problems backwards, would they get the same answers? Why or why not?
2. Child should test their reasoning on a few problems and explain (commutative property).
3. Ask the child to lay out 1 more row of bricks (at this point it should be a row of 3 after the rotation). Then ask what the new multiplication sentence is (3x5).

Elaborate:

1. Have child create more arrays and share their multiplication sentences, rotating the 16x16 plate accordingly.
2. Challenge: Given 12, 18, or 24 bricks, how many multiplication sentences can you create? (This lays the groundwork for permutations and combinations in future years.)