Project 35

Hold The (Number) Line

Objective: Child will be able to determine a way to represent numbers going different directions using + and - numbers.

Essential Question: How might we represent directions Left/Right, Up/Down, North/South, East/West using only numbers?

Project Structure:
Engage/Explain
1. Stand approximately in the middle of the room to start the project. From standing, ask child to count your steps as you walk.
2. Begin to walk towards the front of the room, slowly exaggerating each step to make them easy to count. Child should be counting out loud.
3. Write the number of steps down so it is easy to remember.
4. Repeat the process with the same number of steps, but towards the back of the room. Write it down.
5. Ask child: How might we differentiate the difference between the two walks?

Explore
1. Ask child to create lines to represent the two different directions of the walk, identifying the starting point with different color SOHO bricks.
   a. Child ought to be designing a line of bricks where 0 is a different color than the rest.
   b. They should be marking on the line the correct number of steps "forward" and the correct number of steps "backwards.
2. Ask child how we might use this line to identify the number of steps and direction with just mathematical notation—rather than by saying "forward" or "backwards."
   a. Give child time to develop their comprehension and share ideas. The hope is to get them to use +/- as replacements for direction words.
   b. It may be helpful to facilitate child's ideas by using the expression "opposite" direction when talking about the difference between forwards and backwards.
3. Have child explain their concepts and how +/- may be used to represent opposite directions.
4. Have child make attempts at making number lines with varying scales for same and different scenarios.

Explain/Elaborate
1. Provide child with scenarios to practice using the number line. Scenarios may be related to walking, temperature changes, climbing up/down a ladder, gaining or losing money, and so on.
2. Have child write an explanation of how the number line works, and how opposite numbers may be used to solve a wide variety of real-world problems.
3. Have child write out an explanation of the importance of scale and how it may be changed.