Project 32

Building Out Of The Box

Objective: Child will be able to use SOHO Bricks as manipulatives to help in answering questions using equations and inequalities as they solve and check for an unknown variable.

Essential Question(s): How might we solve for an unknown quantity?
Special Materials: Small boxes.
Bricks Required: All

Project Structure:
Engage/Explain:

1. Present a box filled with an unknown amount of bricks by shaking it up and down so it makes noise.
2. Tell child that there is an unknown number of SOHO Bricks in this box. Their task today is to solve for how many bricks are in this box, and to explain in detail how they got the answer. Winning answers may receive bonus points or any other reward.
3. Provide child with a math expression that can be used to solve the amount of bricks in the box. For example, place 4 bricks in the box and provide the expression $x + 6 = 10$.
4. There are a number of ways that child may solve this problem. Most may use mental math to determine that x is 4.

Explore:

1. Now that child knows the answer is 4, ask them to clarify how they got the answer.
2. Facilitate child's responses to get them to reason that mentally, they are removing the 6 from both sides to isolate the x.
3. Together with the child, set up the algebraic expression using SOHO bricks and "balance" board. Demonstrate with manipulatives the removal of 6 (the unbalance), and the removal of 6 from 10 to rebalance and to identify $x = 4$.
4. Open the box to show child that there are indeed 4 bricks.

Explain/Elaborate:

1. Set up and label stations with unknown boxes of bricks and loose bricks to mirror expressions around the room.
2. Have child rotate to each station to solve their problems.
3. After all stations are completed, share out by modeling each station and reveal the correct number of bricks. Child should check their work and ask clarifying questions where needed.
4. Follow up this activity with scaffolding to performing the steps with mathematics only and provide additional practice problems.