Project 1

Build a Bar Chart

Objective: Child will be able to create a bar graph representing statistics.

Essential Question(s): How can we show trends and patterns in our community and/or environment?

Special Materials: Paper and pencil for recording data, sticky notes for labeling brick chart
Bricks Required: 16x16 plates, 1x1 and 2x2 bricks

Project Structure:
Engage/Explore:
1. Begin by asking about patterns in the environment. "What sorts of things can you observe and count?"
   a. Ideas: hair color, types of furniture, anything that can be counted and categorized.
2. Explain how representing patterns visually makes comparing things easier.
   a. "How might we visually represent how many pens and pencils are in the container?"
      i. Tell child to count the pens and pencils and represent the respective numbers using a manipulative (SOHO bricks).
      ii. Child will create piles or lines of two different-colored 1x1 bricks to represent the numbers.
   b. "How do we know if the bricks are representing pens or pencils?"
      i. Child might suggest color differences or writing labels to identify which pile is which.

3. Provide child with 16x16 plates.
   a. Ask child how they might use their plate to organize the bricks which are representing pens and pencils to better keep track of them.
      i. Point out that there are many pens and pencils in the room, and ask what can be done to make the graph fit on the 16x16 plate.
         1. Child may suggest using a bigger brick, such as 2x2, to represent multiple items.
         2. Suggest using each 2x2 brick to represent five items, as counting by fives is easier; or to represent four items, so that each stud visualizes multiple items evenly.
         3. Allow time for child to arrange the bricks.
      ii. Facilitate child's development towards a bar graph by encouraging organization.
         1. Ask: "How will we know which are representing pens and which are pencils?"
         2. Child should be labeling, creating a key, or both.
   b. Grab a small bundle of a third category of item, such as markers.
      i. Ask: "How might we add the number of items in the third category to our brick plate?"
      ii. Allow time for child to add additional bricks in a third color while facilitating their organization and tracking.

Explain/Explore:

1. Decide what to count from the list generated at the beginning of the Engage section.
2. Gather data using tally marks on paper or piles of SOHO bricks.
3. Encourage child to count three times to verify the accuracy of their data.
4. Child creates a bar graph using bricks. Graphs may be two- or three-dimensional. Child should label the axes of their chart.
5. Once child has completed their bar graphs:
   a. Have them generate at least two "how many more/less" questions for analyzing and interpreting their data.
   b. Child should then create an answer key on the back of their paper.