# **Project 30 Pump Up the Volumes**

**Objective:** Child will understand that volume is how you measure the amount of space something takes up.

Essential Question(s): How do we measure how much space something takes up?

Special Materials: pencil and paper Bricks Required: 16x16 or 8x8 plate, 2xN bricks

# **Project Structure:**

### Engage/Explain:

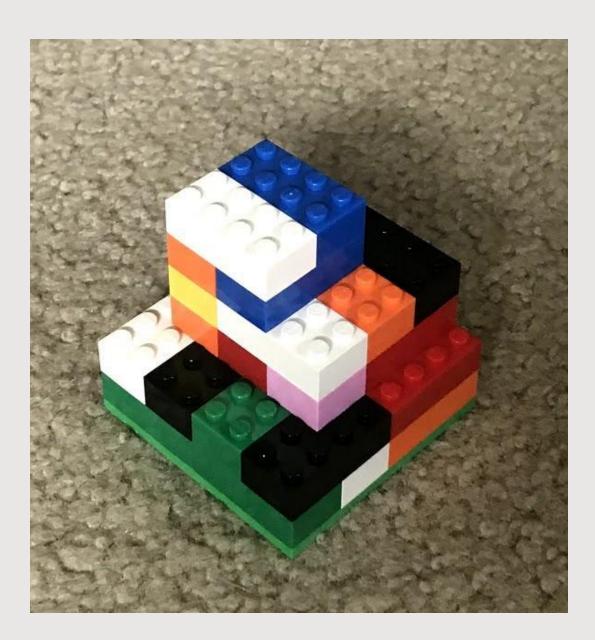
- 1. Hold up a rectangular object of some sort (a ream of paper, a deck of cards, a book) and ask child how to measure it.
  - a. Child may recommend using a ruler. Ask what parts of the object should be measured. Child's answers will vary.
  - b. Explain that child has already found the area of flat things, but that something like a book or deck of cards takes up space and that we measure that space through finding an object's volume.
  - Measure the object to find its volume. C.

## Explore:

- 1. Have child build a rectangular structure and find its volume.
  - a. Child could be restricted to just 2x2 and 2x4 bricks; total bricks might then be counted to find the volume (noting that 2x4 bricks would count as two bricks). Unit of measure would be "bricks."
  - b. Child could build with any bricks and use the number of studs on each layer to find the volume. Unit of measure would be "cubic studs."
  - c. The example has three sections: 8 on the top layer, 18 on the middle layer, and 32 on the bottom layer, yielding 58 cubic units.

## Explain/Elaborate

- 1.
- 2. container.
  - a. Some possible methods are:
    - i.
  - ii. Counting the brick units;
- Have child perform their method to determine the volume of the box. 3.



Task child with finding the volume of quadrilateral containers (like a small cardboard box). Have child devise an explanation on how they plan to measure the volume of the

- Using the SOHO bricks to fill the container;
- iii. Using a ruler to measure the 3 dimensions.