LEGO® Education

# Volume

Can you calculate volume using LEGO bricks?

## ENGAGE

Think of (or look at) a box. A box has three dimensions – height, width, and depth. A box with a height of 1 foot, a width of 2 feet, and a depth of 3 feet has an area of 1 x 2 x 3 = 6 cubic feet. Volume is measured in cubic feet. A cubic foot is 1 foot high, 1 foot wide, and 1 foot deep, just like blocks that are the exact same size on each side.

## EXPLORE

Look at a 2 x 2 brick. It is 2 studs wide and 2 studs deep. We can also say it is 1 stud tall. The volume would be 1 x 2 x 2 = 4 cubic studs.

Look at a 2 x 4 brick. It is 4 studs wide and 2 studs deep. We can also say it is 1 stud tall. The volume would be 1 x 4 x 2 = 8 cubic studs.

Create a model that has all flat sides (nothing sticks out or is uneven on the sides and bottom; the top shows the studs). You may use whatever bricks you would like.

## EXPLAIN

When they have finished building, allow students to walk around the room to see other partners' builds. Ask questions like:

- What is the volume?
- How did you determine the volume?

## ELABORATE

Look at someone else's model. Determine the volume. Does your answer agree with theirs? If not, both of you should redo your math and see if you can agree. You can explain to each other how you figured your answer if you still do not agree. You must agree on both models.

## EXTEND

Work with a partner to build a new model with as many bricks as you would like. What is the volume of your new model? You must agree!