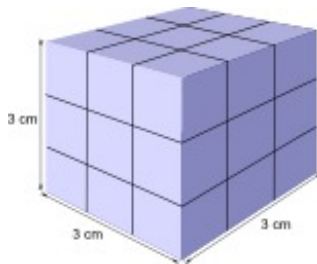


6.G Computing Volume

Progression 1

Task

a. Amy wants to build a cube with 3 cm sides using 1 cm cubes. How many cubes does she need?



b. How many 1 cm cubes would she need to build a cube with 6 cm sides?

IM Commentary

This is the first in a series of four tasks that gradually build in complexity. The purpose of this series of tasks is to build in a natural way from accessible, concrete problems involving volume to a more abstract understanding of volume. The purpose of this first task is to see the relationship between the side-lengths of a cube and its volume.

Solution

a. Each single layer of cubes contains $3 \times 3 = 9$ cubes. There are 3 layers, so Amy needs $3 \times 9 = 27$ one cm cubes in all. Or, a shorter way: Amy needs $3 \times 3 \times 3 = 27$

one cm cubes.

b. Now each single layer of cubes contains $6 \times 6 = 36$ cubes. There are 6 layers, so Amy needs $6 \times 36 = 216$ one cm cubes in all. As before, we can simply compute $6 \times 6 \times 6$ to get the number of one cm cubes. Amy needs 216 one cm cubes.



6.G Computing Volume Progression 1
is licensed by Illustrative Mathematics under a
Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License