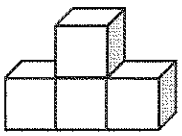
G5-M5-Lesson 1

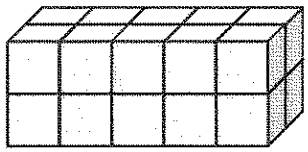
1. The following solids are made up of 1 cm cubes. Find the total volume of each figure, and write it in the chart below.

a.



I see there are 3 cubes on the bottom and 1 cube on top. Therefore, this solid has a total of 4 cubes.

b.



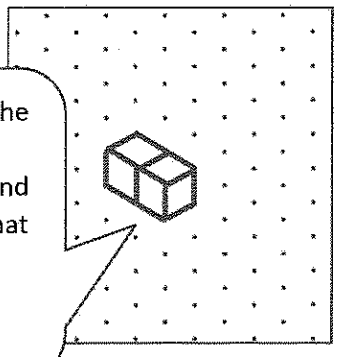
I see there are 2 layers of cubes like layers of a cake (top and bottom). There are 10 cubes on the top, and there must be 10 cubes on the bottom. Therefore, this solid has a total of 20 cubes.

Since Figure (a) is made of a total of 4 cubes, I can say that it has a volume of 4 cubic centimeters.

Figure	Volume	Explanation
a	$4\ \text{cm}^3$	*I added 3 cubes and 1 cube.* $3 + 1 = 4$
b	$20\ \text{cm}^3$	*I counted the top layer and then multiplied by 2.*

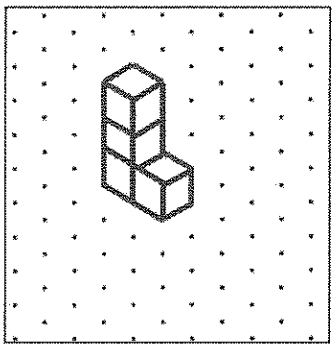
2. Draw a figure with the given volume on the dot paper.

a. 2 cubic units



I can connect the dots to make straight lines and draw figures that look like centimeter cubes.

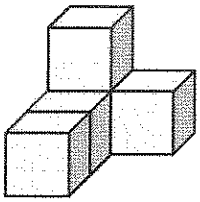
b. 4 cubic units



3. Allison says that the figure below, made of 1 cm cubes, has a volume of 4 cubic centimeters.

   a. Explain her mistake.

   Allison is not counting the cube that is hidden. The cube that is on the second layer needs to be sitting on a hidden cube. The volume of this figure is 5 cubic centimeters.



   I see there are 4 cubes showing, but there is one hidden under the 1 cube on top.

   b. Imagine if Allison adds to the second layer so the cubes completely cover the first layer in the figure above. What would be the volume of the new structure? Explain how you know.

   The volume would be 8 cm^3. I counted the first layer, and then multiplied by 2.

   $4\ cm^3 \times 2 = 8\ cm^3$

   Since Allison wants to build a second layer that is the same as the first layer, I can just multiply 4 cubes times 2.