Melissa Whigham CDC Mrs. Joshi

Question: Michael says to find the volume of a rectangular prism you just count the cubes. Sam says you use the formula l x w x h to find the volume. Who is correct? Explain your reasoning.

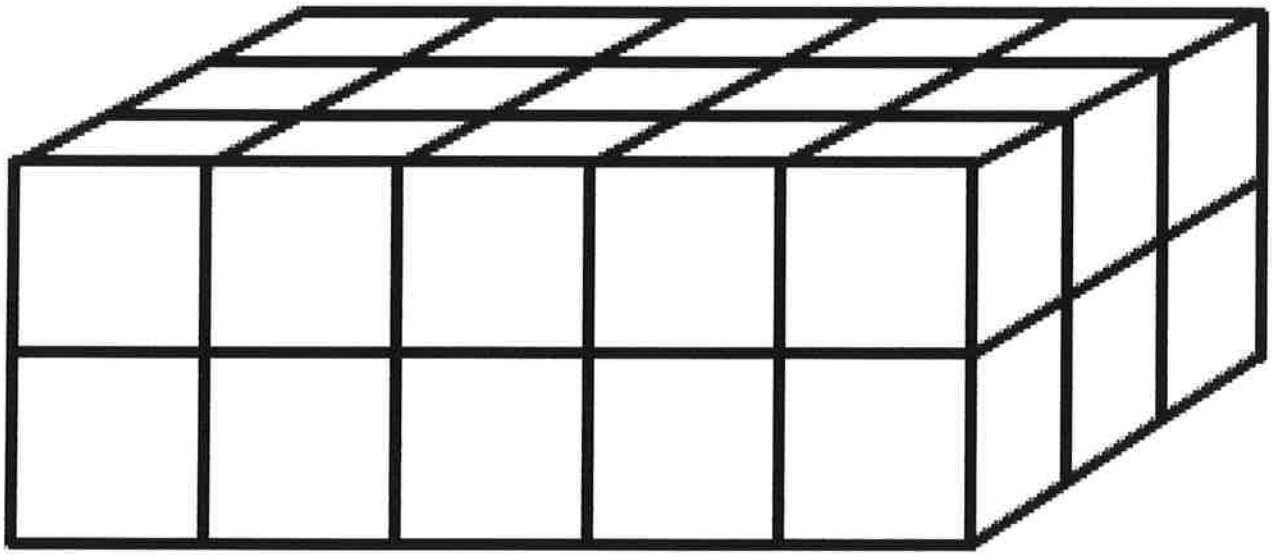

Figure 1. 3-D Shape.

Claim: When finding volume there is more than one way to figure the volume out. Michael and Sam are both correct. Michael counted the cubes on a rectangular prism and Sam used the formula V = l x w x h to find the volume of the rectangular prism.

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Data:

See Figure 2 for Michael's Data: Michael counted the cubes on the rectangular prism.

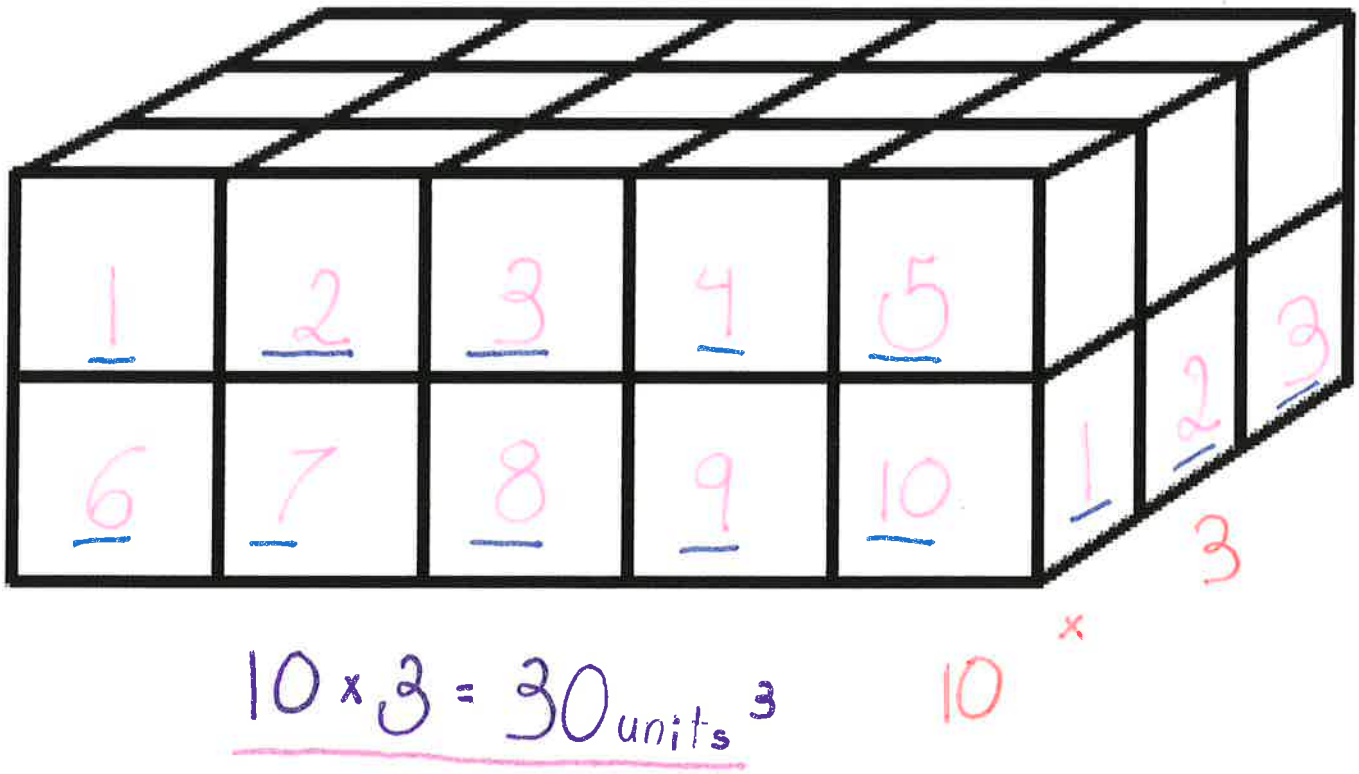

Figure 2. Michael's 3-D Shape Calculations.

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Data:

See Figure 3 for Sam's Data: Sam used the formula V = l x w x h to calculate the volume for the rectangular prism.

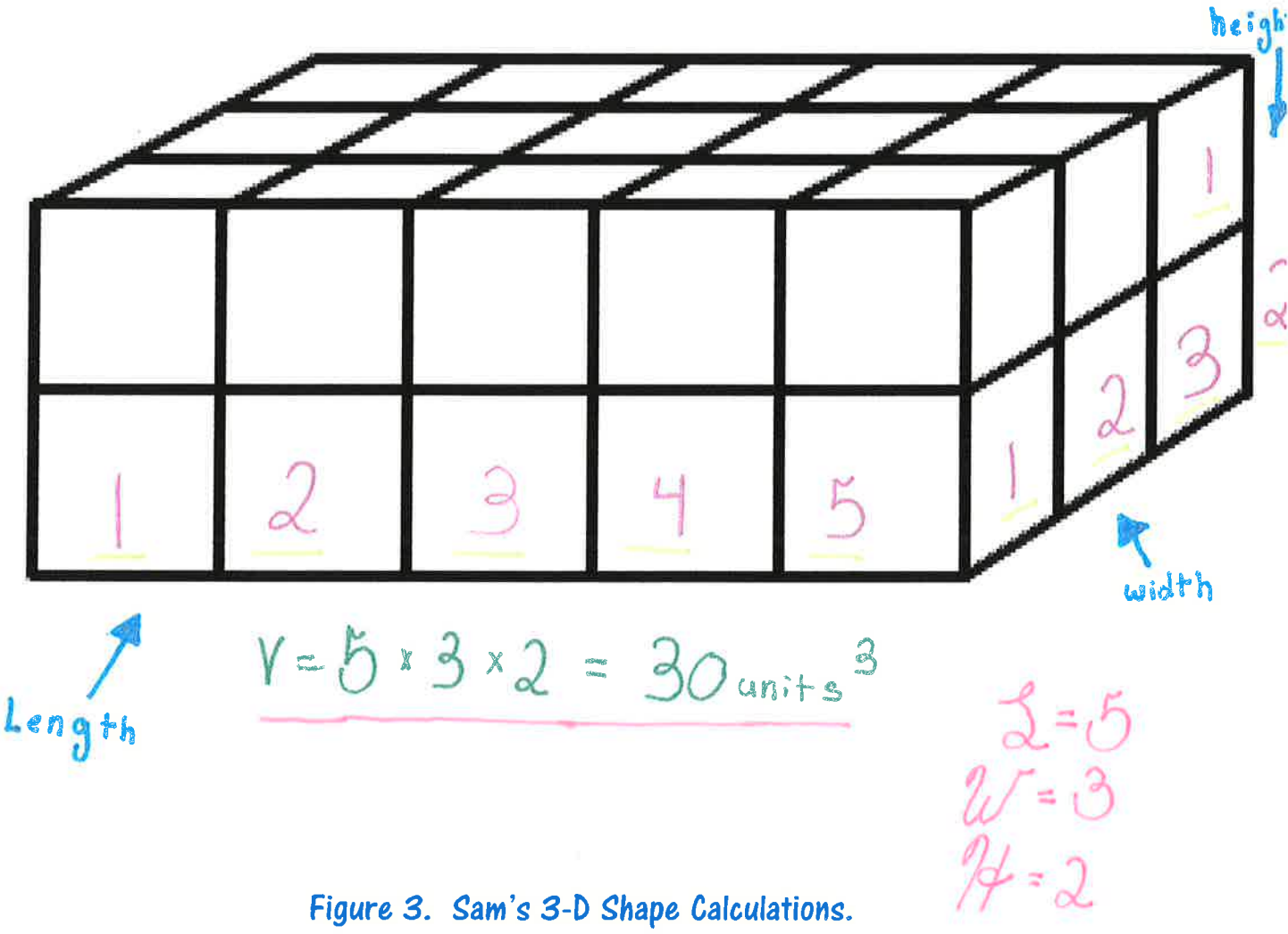

Figure 3. Sam's 3-D Shape Calculations.

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Commentary: Both calculations are correct as shown in figure 2 and figure 3.

Here is Michael's method to find the volume of a rectangular prism:

Michael counted all the cubes in front of the rectangular prism as shown in figure 2. 1,2,3,4,5,6,7,8,9,10 units^3 which is in the front of the figure. Then he counted the 1+1+1=3 units^3 wide. So, by multiplying 10 x 3 = 30 units ^{3} . So, this is one way to find the volume of a rectangular prism cube.

Here is the formula used by Sam:

V = l x w x h (V means Volume, l means length, w means width, h means height). Here is how Sam found the volume of the rectangular prism. By counting the cubes in the front, he got the length of 1,2,3,4,5 then he counted the width or depth, he got 1,2,3, last he counted the height, he counted 1,2. By using the formula, V = l x w x h, V = 5 x 3 x 2 = 30 units^3 .

It is a preference of which method you would like to use, but consider how big the cube is if you want to count it instead of using the formula V = l x w x h. Smaller rectangular prism cubes are easier to count and larger rectangular prism cubes are easier to use the formula.

In conclusion, both Michael and Sam are correct in their calculations.