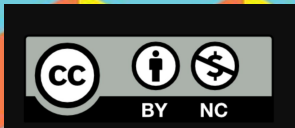




Use Layers to Determine Volume

Grade 5: Unit 1: Lesson 4



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Let's relate
multiplication to
how we use layers
to find volume.

Estimation Exploration: How Many Cubes?

Warm-Up



About how many cubes were used to build this prism?



Record an estimate that is:

too low

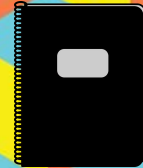
about right

too high

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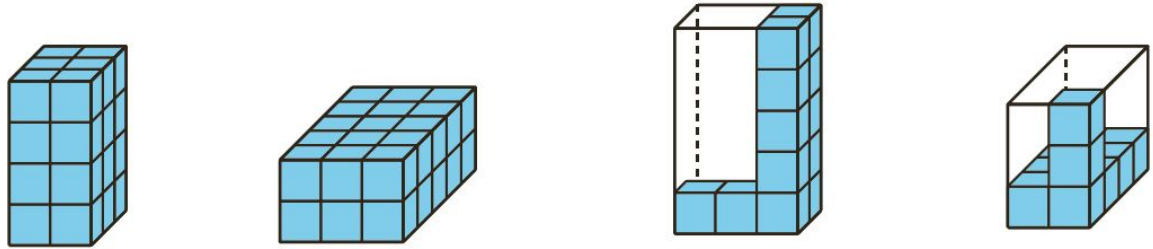
Layers in Rectangular Prisms

Activity 1



Complete the table. Be prepared to explain your reasoning

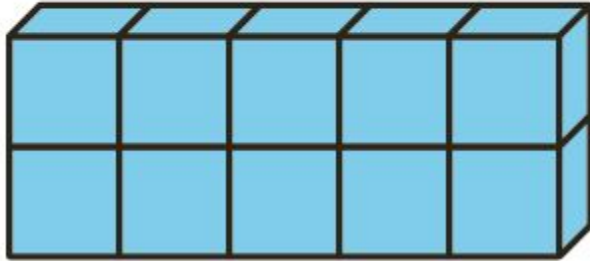
Prism A Prism B Prism C Prism D



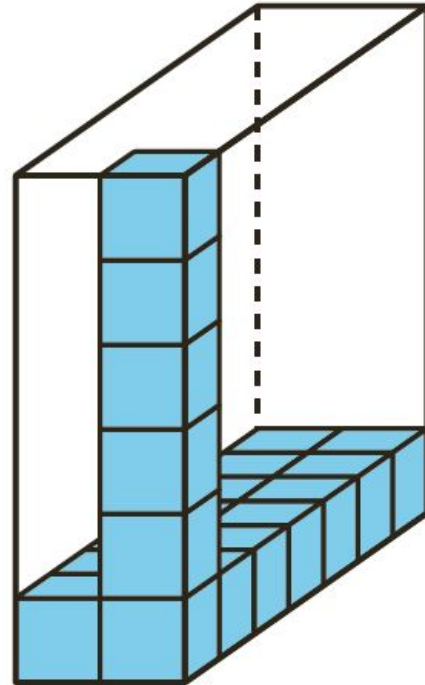
prism	number of cubes in one layer	number of layers	volume
A			
B			
C			
D			

Find the volume of each prism.
Explain or show your reasoning.

a. Prism E



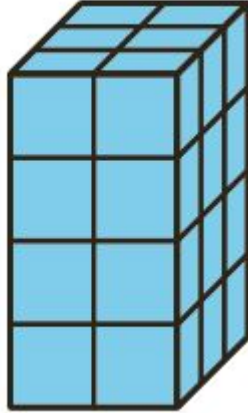
b. Prism F



**How can you find the
volume of any
rectangular prism?**

How do these expressions represent the volume of prism A?

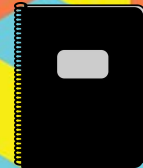
- 2×12
- 3×8



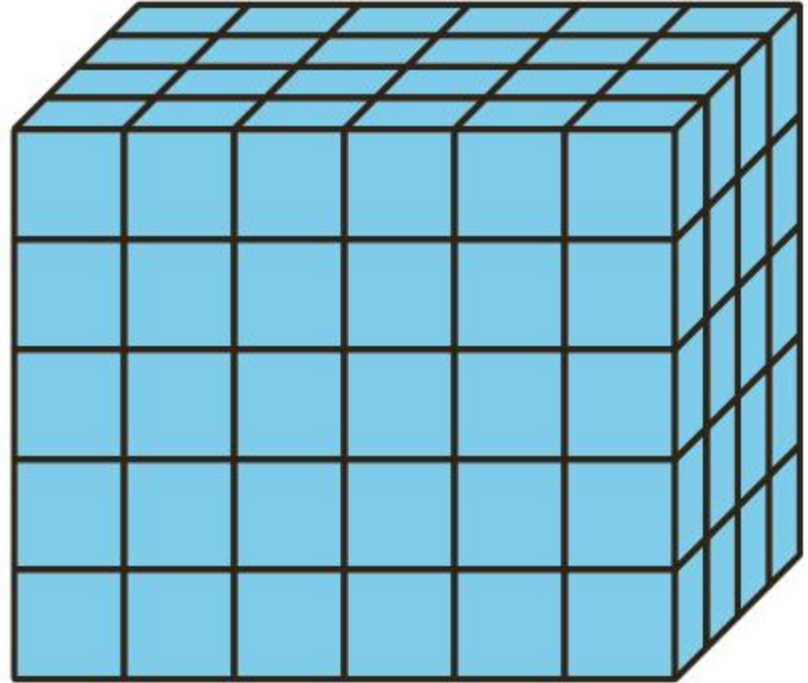
Finding Volume in Different Ways

Activity 2

- MLR7: Compare and Contrast

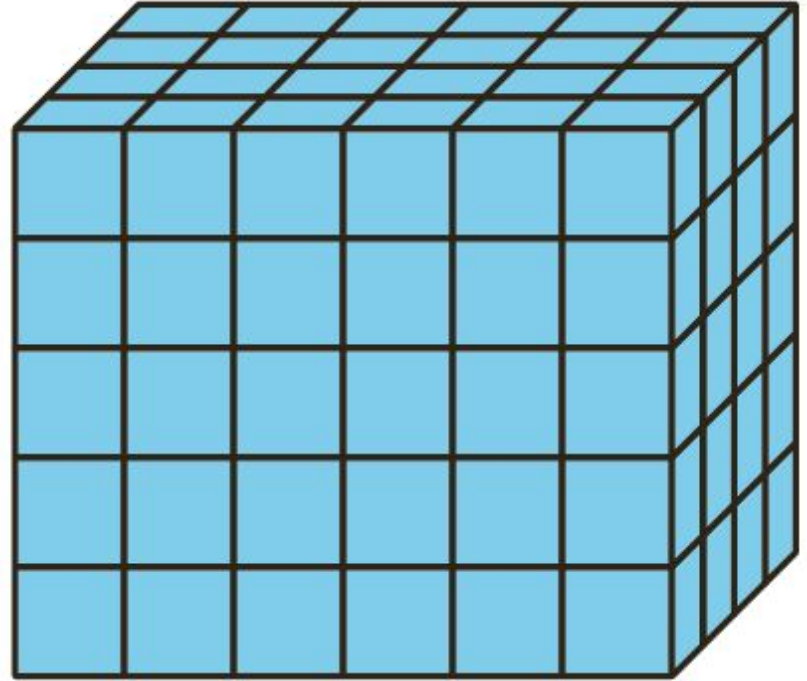


- A. Explain or show how expression 5×24 represents the volume of this rectangular prism.
- B. Explain or show how the expression 6×20 represents the volume of this rectangular prism.



C. Find a different way to calculate the volume of this rectangular prism. Explain or show your thinking.

D. Write an expression to represent the way you calculated volume.



How does 5×24
represent the
volume of the
prism?

$$5 \times (4 \times 6)$$

How does this expression represent the volume of the prism?



How does 6×20
represent the
volume of the
prism?

$$6 \times (4 \times 5)$$

How does this expression represent the volume of the prism?



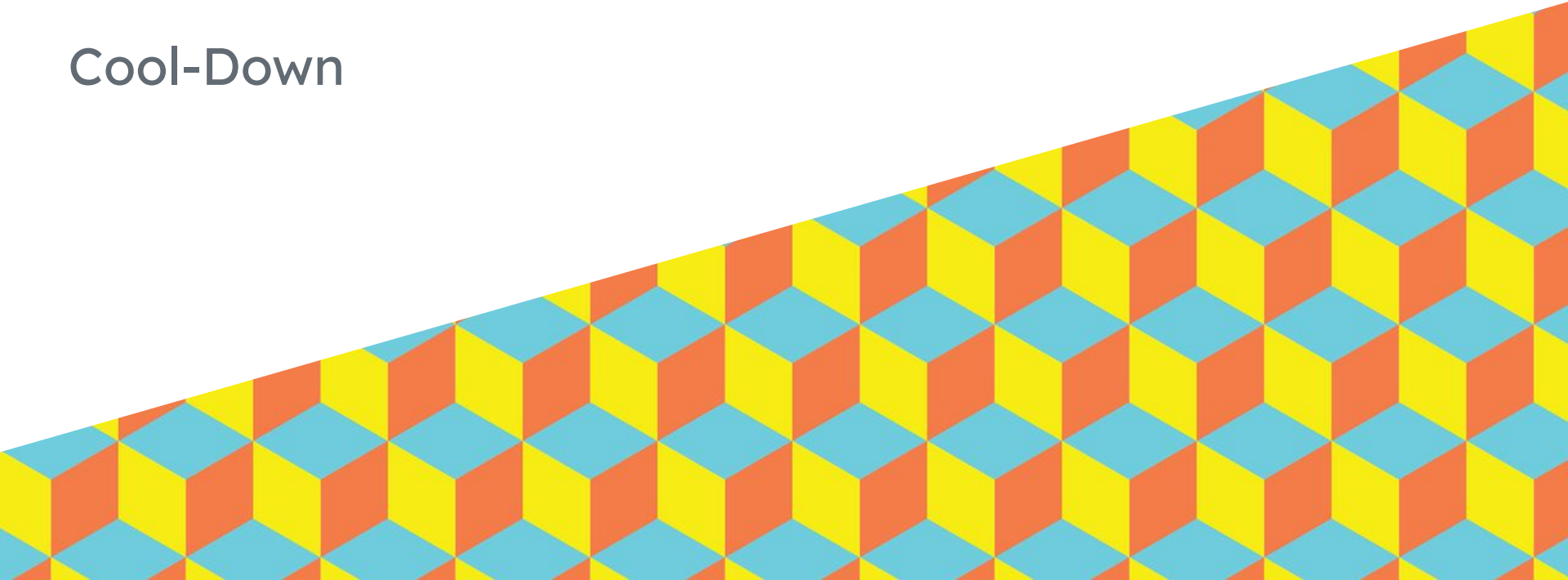
Lesson Synthesis

Describe the layers in the prism to a partner. What is a multiplication expression that would represent the volume of the prism? How does the expression represent the volume of the prism?

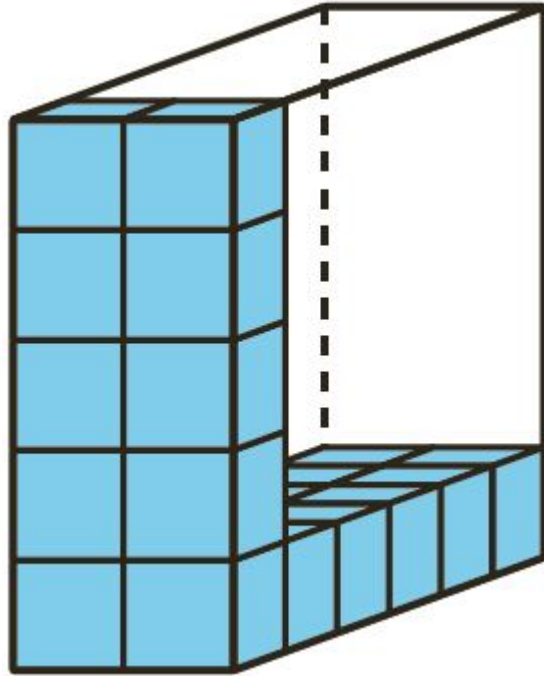


Use Expressions

Cool-Down



Cool-Down: If the rectangular prism was filled completely, how many cubes could it hold?



Cool-Down: Explain or show how the expression 3×8 represents the volume of the prism.

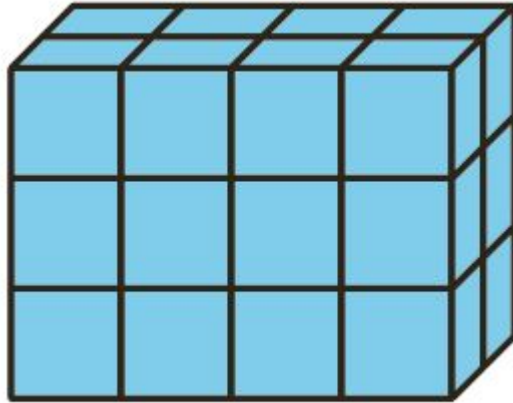


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