

Name _____

Volume of Rectangular Prisms

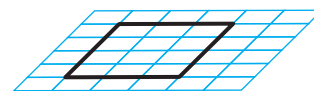
I Can find the volume of a rectangular prism.

MTR The base of a rectangular prism is a rectangle. You know that area is measured in square units, and that the area of a rectangle can be found by multiplying the length and the width.

Volume is measured in cubic units. When you build a prism and add each layer of cubes, you are adding a third dimension, height.

Florida's B.E.S.T.

- **Geometric Reasoning** 5.GR.3.1, 5.GR.3.2, 5.GR.3.3
- **Mathematical Thinking & Reasoning** MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1



The area of the base is _____ sq units.

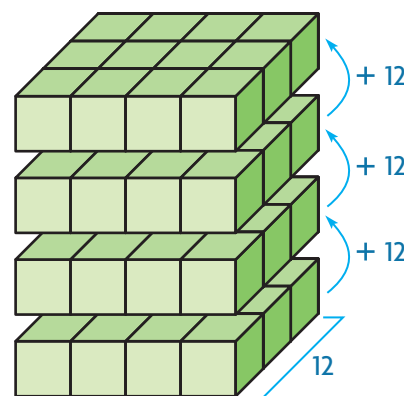


UNLOCK the Problem **Real World**

Yuan built the rectangular prism shown at the right, using 1-inch cubes. The prism has a base that is a rectangle and has a height of 4 cubes. What is the volume of the rectangular prism that Yuan built?

You can find the volume of a prism in cubic units by multiplying the number of square units in the base shape by the number of layers, or its height.

Each layer of Yuan's rectangular prism is composed of _____ inch cubes.



Height (in layers)	1	2	3	4
Volume (in cubic inches)	12	24		

Multiply the height by _____.

- How does the volume change as each layer is added?

- What does the number you multiply the height by represent?

So, the volume of Yuan's rectangular prism is _____ cu in.

Relate Height to Volume

Toni stacks cube-shaped beads that measure 1 centimeter on each edge in a storage box. The box can hold 6 layers of 24 beads with no gaps or overlaps. What is the volume of Toni's storage box?

- What are the dimensions of the base of the box?

- What operation can you use to find the area of the base shape?

One Way Use base and height.

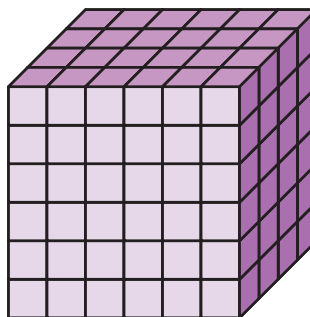
The volume of each bead is _____ cu cm.

The storage box has a base with an area of _____ sq cm.

The height of the storage box is _____ centimeters.

The volume of the storage box is

(_____ \times _____), or _____ cu cm.
Base
area



Another Way Use length, width, and height.

You know that the area of the base of the storage box is 24 sq cm.

The base has a length of _____ centimeters

and a width of _____ centimeters. The height

is _____ centimeters. The volume of the storage box is

(_____ \times _____) \times _____ , or _____ \times _____ , or _____ cu cm.
Base area

So, the volume of the storage box is _____ cu cm.

3. What if each cube-shaped bead measured 2 centimeters on each edge? How would the dimensions of the storage box change? How would the volume change?