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Summer Edition

Fifth Grade
Math

Activity 4

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This packet includes four sections that cover some of the major content of 5th grade math. Each section includes notes and practice for each topic. For additional support, visit KCS TV on YouTube for instructional videos that accompany each section.

The following content is included in this packet:

	Topic			
	I. Classify Two-dimensional Figures	**II. Operations with Whole Numbers and Decimals**	**III. Operations with Fractions**	**IV. Relate Volume to Multiplication**
Activity 1	Identify Attributes of Two-dimensional Figures	Dividing Whole Numbers	Add & Subtract Fractions	Using Unit Cubes to Find Volume
Activity 2	Classifying Two-dimensional Figures	Multiplying Decimals	Multiplying Fractions	Using the Formula for Volume
Activity 3		Dividing Decimals		

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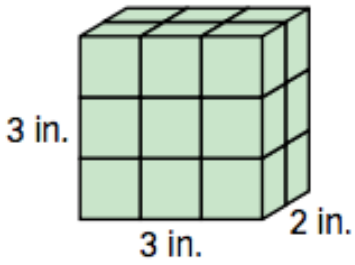
Objective: Relate volume to multiplication/addition.

Example

A gift box is 3 inches long, 2 inches wide, and 3 inches tall. What is the volume of the box?

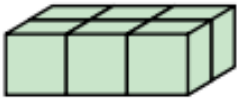


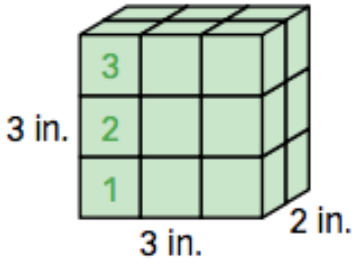
You can fill the box with 1-inch cubes.
Count the cubes.
There are 18 cubes.

You can also count the cubes in 1 layer.
There are 6 cubes in 1 layer.
The box has 3 layers.

$6 + 6 + 6 = 18$ or $6 \times 3 = 18$

The volume of the box is 18 cubic inches.

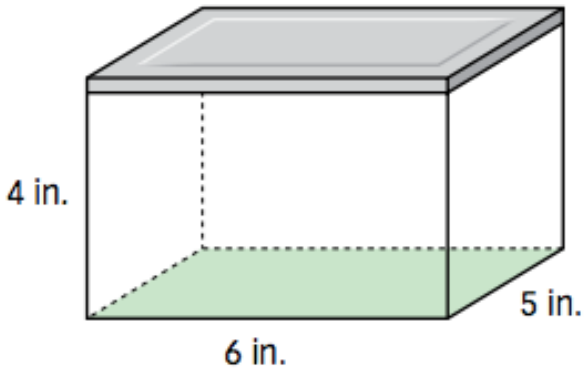

1 layer



3 layers

Example

Gwen puts her leftover food in a rectangular container. The container is 6 inches long, 5 inches wide, and 4 inches tall. What is the volume of the container?



Use the formula *volume* = *length* × *width* × *height*.

volume = $6 \times 5 \times 4$, or 120 cubic inches

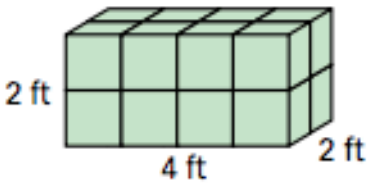
Or use the formula *volume* = *area of the base* × *height*.
The area of the base is the same as the length × width.

$6 \times 5 = 30$ and $30 \times 4 = 120$ cubic inches

Using Unit Cubes to Find Volume

What is the volume of this rectangular prism?

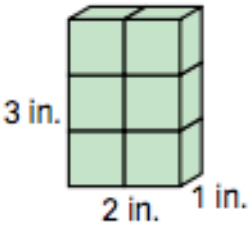
Show your work.



Solution: _____

Mia has a box that she filled with the cubes at the right. What is the volume of Mia's box?

Show your work.



Solution: _____

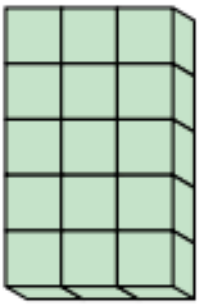
A box is 2 inches long, 1 inch wide, and 6 inches tall. What is the relationship between the volume of this box and the one in problem 4? Tell how you know.

_____

_____

_____

Which has a greater volume, box D or box E? Explain.



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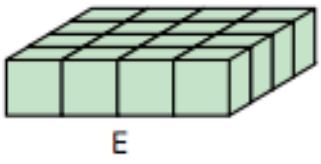
Add a layer to box D and compare the volumes of the new box D and box E.



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Using the Formula for Volume

Greg's shed is 10 feet long, 6 feet wide, and 8 feet tall. What is the volume of the shed?

Show your work.

Solution: _____

The base of a rectangular prism has sides that are 2 centimeters and 4 centimeters long. The height of the prism is 3 centimeters. What is the volume of the prism?

Show your work.

Solution: _____

What is the volume of a box that is 8 inches long, 2 inches wide, and 6 inches tall?

Show your work.

Solution: _____

The base of a rectangular prism is a rectangle with sides that are 7 inches and 5 inches long. Its height is 10 inches. Write two different equations that you can use to find the volume.

_____

Jin has two boxes. Box A has dimensions of 6 centimeters, 5 centimeters, and 9 centimeters. Box B has dimensions of 4 centimeters, 10 centimeters, and 7 centimeters. Which box holds more? Explain.

_____

_____

_____

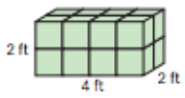
Answer Key

IV. Relate Volume to Multiplication

Activity 1: Using Unit Cubes to Find Volume

Solve.

3 What is the volume of this rectangular prism?

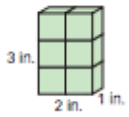


Show your work.

Possible work: 2 layers × 8 cubes = 16 cubes

Solution: 16 cubic feet

4 Mia has a box that she filled with the cubes at the right. What is the volume of Mia's box?



Show your work.

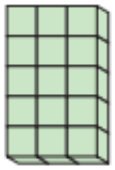
Possible work: 3 layers × 2 cubes = 6 cubes

Solution: 6 cubic inches

5 A box is 2 inches long, 1 inch wide, and 6 inches tall. What is the relationship between the volume of this box and the one in problem 4? Tell how you know.

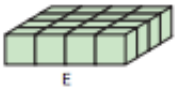
Answers will vary. Possible answer: This box has the same length and width as the box in problem 4, but the height is doubled. This box is made of 2 of the boxes in problem 4, so its volume is twice the volume of that box.

6 Which has a greater volume, box D or box E? Explain.



Box E has a greater volume. Possible explanation: Box D has 5 layers of 3 cubes each for a volume of 15 cubic units. Box E has 1 layer of 16 cubes for a volume of 16 cubic units.

7 Add a layer to box D and compare the volumes of the new box D and box E.



Answers will vary. Possible answer: With 1 more layer, box D would have a volume of 18 cubic units, which is 2 cubic units greater than the volume of box E.

Activity 2: Using the Formula for Volume

3 Greg's shed is 10 feet long, 6 feet wide, and 8 feet tall. What is the volume of the shed?

Show your work.

Possible work: 10 × 6 × 8 = 480

Solution: 480 cubic feet

4 The base of a rectangular prism has sides that are 2 centimeters and 4 centimeters long. The height of the prism is 3 centimeters. What is the volume of the prism?

Show your work.

Possible work: 8 × 3 = 24

Solution: 24 cubic centimeters

5 What is the volume of a box that is 8 inches long, 2 inches wide, and 6 inches tall?

Show your work.

Possible work: 8 × 2 × 6 = 96

Solution: 96 cubic inches

6 The base of a rectangular prism is a rectangle with sides that are 7 inches and 5 inches long. Its height is 10 inches. Write two different equations that you can use to find the volume.

7 × 5 × 10 = 350 and 35 × 10 = 350

7 Jin has two boxes. Box A has dimensions of 6 centimeters, 5 centimeters, and 9 centimeters. Box B has dimensions of 4 centimeters, 10 centimeters, and 7 centimeters. Which box holds more? Explain.

Box B holds more. Possible explanation: The volume of box A is 6 × 5 × 9, or 270 cubic centimeters. The volume of box B is 4 × 10 × 7, or 280 cubic centimeters. Box B has a greater volume, so it holds more.