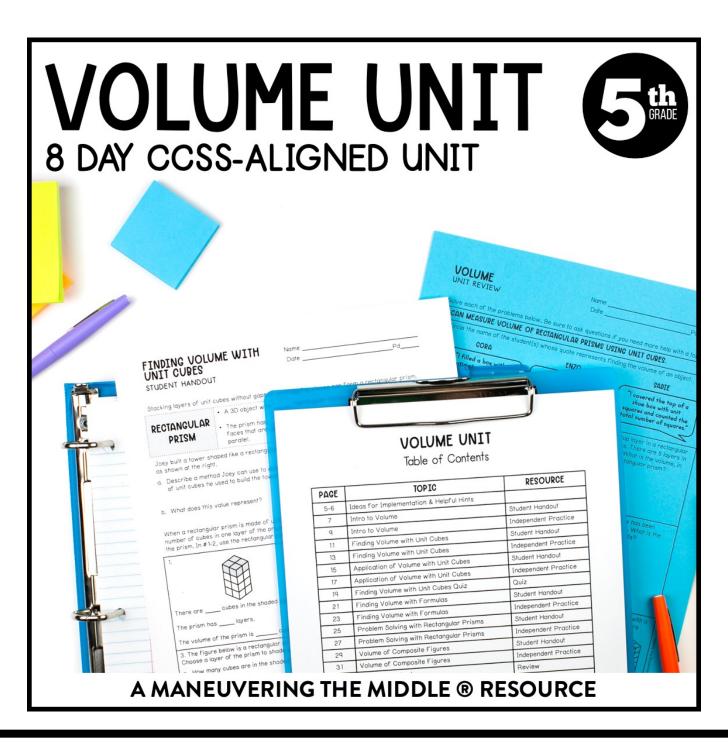
learning focus:

- solve problems involving volume with unit cubes
- find the volume of rectangular prisms with unit cubes and formulas
- determine the volume of composite figures made up of rectangular prisms



VOLUME

5 th GRADE

an 8 day CCSS-aligned unit CCSS: 5.MD.3a, 5.MD.3b, 5.MD.4, 5.MD.5a, 5.MD.5b, 5.MD.5c

ready-to-go, scaffolded student materials

VOLUME UNIT

Table of Contents

PAGE	TOPIC	RESOURCE		
5-6	Ideas for Implementation & Helpful Hints			
7	Intro to Volume	Student Handout		
q	Intro to Volume	Independent Practice		
11	Finding Volume with Unit Cubes	Student Handout		
13	Finding Volume with Unit Cubes	Independent Practice		
15	Application of Volume with Unit Cubes	Student Handout		
17	Application of Volume with Unit Cubes	Independent Practice		
19	Finding Volume with Unit Cubes Quiz	Quiz		
21	Finding Volume with Formulas	Student Handout		
23	Finding Volume with Formulas	Independent Practice		
25	Problem Solving with Rectangular Prisms	Student Handout		
27	Problem Solving with Rectangular Prisms	Independent Practice		
29	Volume of Composite Figures	Student Handout		
31	Volume of Composite Figures	Independent Practice		
33	Volume Unit Review	Review		
37	Volume Unit Test	Test		
41	Volume Unit Answer Key	Answer Key		

ccss

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VOLUME

an 8 day CCSS-aligned unit

CCSS: 5.MD.3a, 5.MD.3b, 5.MD.4, 5.MD.5a, 5.MD.5b, 5.MD.5c

student friendly + real-world application

scaffolded INTRO TO VOLUME STUDENT HANDOUT concepts TAMAR'S PAINTING Tamar hangs a painting on a wall in her apartment and wants to determine the amount of area it covers using a UNIT SQUARE unit square. Each side of a unit square measures 1 unit and has an area of 1 unit². Find the area of Tamar's 1 unit painting as shown at the right. Area is a helpful measurement for 2D figures. Similarly, volume can be a helpful measurement for 3D figures as described below: VOLUME The amount of space a 2D object • The amount of space a 3D object _ or the amount of space $_$ a 3D object. Volume is described using. Area is described using _ . Each side of a unit square . A unit cube has side measures 1 unit and has an area of _ APPLICATION OF VOLUME WITH UNIT CUBES UNIT CUBE UNIT SQUARE 1 UNIT² 1 UNIT³ INDEPENDENT PRACTICE Each of the cards on the left has the same volume as one of the cards on the right. Find the cards with matching volumes to complete the sentences below Sort cards A-D based on whether they describe finding the area or the volume of an The amount of floor The amount of space inside a fish tank. space a rug covers. . The amount of butcher The amount of space a paper used for a banner. box takes up inside a truck. The number of unit cubes that form a figure without gaps or overlaps is equal to the of the figure. The figures in #1-3 are made of unit cubes. Find the volume of each fig A rectangular prism was built by stacking 3 total layers identical to the base layer shown. The base layer in a rectangular prism has a length of 9 cm and width of 4 cm. There are 6 layers in this rectangular prism.

self-checking practice

Card B and Card _____ have the same volume of _
 A Card C and Card _____ have the same volume of _

have the same volume of

VOLUME

5th GRADE

an 8 day CCSS-aligned unit CCSS: 5.MD.3a, 5.MD.3b, 5.MD.4, 5.MD.5a, 5.MD.5b, 5.MD.5c

unit study guide + assessments

Answer the questions bolow. Se sure to above your work. 1. Which of these could be the measured with rath clase? 2. The financial of grace incides a refrigerator. 3. The financial of grace conditions one of the state of the country of grace and continuous or the grace and grace an	FINDING VOLUME WITH UNIT CUBES	Name Date	_Pd	√ qu	iizzes	
Description of the problem of the figure of the control of the control of above a coloridar ball of above of the figure and the coloridar ball of the colo		w your work. Answ	/ers			
Description of the problem of the figure of the control of the control of above a coloridar ball of above of the figure and the coloridar ball of the colo	1. Which of these could best be measured v			\	litable	unit tos
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S. The figure shown is a rectangular prism What is the volume of the figure? I. Circle the rome of the student(a) whose quote represents finding the volume of on object. OORA Figure 8A cre rectangular prism that have been particulty pooked with linear cubes. What is quoted in figure? 4. Which figure has a volume of the figure? 4. Which figure has a volume of 8 cubic inches? Figure 8 c. a. Figure 8 c. p. Figure 9 c.	cubes need to be added to the figure so t		Name Date		Pd	
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The rectongular prisma shown below contains several unit cubes that each measure 1 cubic inch. Use the cubes to label the dimensions of the prism and then complete a-b. Use the cubes to label the dimensions of the prism and then complete a-b. 4. Which figure has a volume of 8 cubic inches? 4. Which figure has a volume of 8 cubic inches? 4. Which figure has a volume of 8 cubic inches? 4. Which figure has a volume of 8 cubic inches? 5. How of 84 cubic inches? 6. Cus and Russell built a rectangular base layer shown below to fine the model? 6. Cus and Russell built a rectangular base layer of 10 cubic units. Russell tides of a rectangular prism with unit cubes helps to visualize and make sense of the formulas that can be used for the base layer have been according to prism. 6. Cus and Russell built a rectangular base layer of 10 cubic units. Russell tides Gus and Russell built a rectangular base layer of 10 cubic units. Russell tides Gus and Russell built a rectangular base layer of 10 cubic units. Russell tides Gus and Russell built a rectangular base layer of 10 cubic units. Russell tides Gus and Russell built a rectangular base layer of 10 cubic units. Russell tides Gus and Russell built a rectangular base layer of 10 cubic units. Russell tides Gus and Russell built a rectangular base layer of 10 cubic units. Russell tides Gus and Russell built a rectangular base layer of 10 cubic units. Russell tides Gus and Russell built a rectangular prism with unit cubes helps to visualize and make sense of the formulas that can be used from the base layer and the width (1 x w) to the height of the prism. The first the volume of the prism. Figure A b. Figure B c. Figure B c. Figure B d. Figure C d. Figure C d. Figure B c. Figure		centimeter cubes and counted the total number of cubes."	FORMU	ILAS	Name Answer K	Pd
4. Which figure has a volume of 84 cubic inches? 4. A model of a high-rise building we blocks that each have a volume of 1. The prism was made by stacking 50 identical to the base layer shown bell is the volume of the model? 5. Figure A 6. Figure B 7. Figure C 8. Figure B 8. Gus and Russell built a rectangular base keyer of 10 cubic units. Russell to does Ous need for his figure to have a volume of the prism. 8. Figure B 8. Gus and Russell built a rectangular base keyer of 10 cubic units. Russell to does Ous need for his figure to have a volume of the prism. 8. Gin 9. Figure B 9. Figure B 1. Use both formulas to the volume of the prism. 9. Figure B 1. Use both formulas to the two bases 1. Use both formulas to the two bases 1. Use both formulas to the two bases 1. Use both formulas to a volume of the prism. 1. Use both formulas to the two bases 1. Use both formulas to the two bases 1. Use both formulas to the find the volume of the prism. 1. Use both formulas to the two bases 1. Use both formulas to the two b	rectangular prisms that have been partially packed with 1-inch cubes.	made of 1-centimeter cubes. What is	Use the cubes to label the dimensions of the prism and then complete a-b. a. Multiply the length and the width (I × w) to determine the number of cubes in the base layer. Use your knowledge of area formulas to describe what this value represents.			e a-b.
a. Figure A b. Figure B c. Figure B c. Figure C d. Figures A and C VOLUME OF RECTANCULAR PRISMS VOLUME OF RECTANCULAR PRISMS VOLUME OF RECTANCULAR PRISMS No of one base No of one bas		blocks that each have a volume of 1 The prism was made by stacking 50	b. Describe I need to Using <u>for</u> Packing a p	e the next step needed to find o multiply the area of the base mulas can be an efficient r rism with unit cubes helps to	the volume of the prism. by the height of the prism. method to find certain measurisualize and make sense of prism.	urements such as volume. 7 the formulas that can be
1. Use both formulas to find the volume of the prism. Compare your answers and explain how the formulas relate to each other. In a rectangular prism the base is a rectangle, so B = I x w. In both formulas the area of the base is being multiplied by the height. In #2-4, shade the base of the prism and label the height of the prism. Then find the volume. FORMULA V = Bh V = 10 x 8 V = 80 in 3 V = 10 x 8 V = 80 in 3 V = 10 x 8 V = 80 in 3 V = 10 x 8 V = 80 in 3 V = 10 x 8 V = 80 in 3 V = 10 x 8 V = 80 in 3	b. Figure B c. Figure C		RECTANO	E OF BULAR I: length w: width height	<pre> w x h _ of one base _ of one base h: (distance between </pre>	V = Bh
In a rectangular prism the base is a rectangle, so B = I x w. In both formulas the area of the base is being multiplied by the height. In #2-4, shade the base of the prism and label the height of the prism. Then find the volume. FORMULA V = Bh V = Bh PLUG-IN VALUES V = 50 x 4 V = 36 x 4 V = 45 x 2		base layer of 10 cubic units. Russell b	find the vol prism. Com answers an the formula	formulas to ume of the pare your d explain how s relate to	$V = I \times w \times h$ $V = 5 \times 2 \times 8$	V = Ph V = 10 × 8
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included PIUG-IN V = 50 × 4 V = 36 × 4 V = 45 × 2	answer ke				4 ft	q in 5 in 2 in 8882
	aliawei ke	y 3	FORMULA	V = Bh	V = Bh	V = Bh
VOLUME V = 200 cm ³ V = 144 ft ³ V = 90 in ³ $\frac{8}{2}$	ncluded			V = 50 × 4	V = 36 × 4	
			VOLUME	V = 200 cm ³	V = 144 ft ³	V = 90 in ³