

Model It Out

Turn real situations into useful math.

GRADES K-12 • Practice.MP4

CCSS.Math.Practice.MP4 “Model with mathematics. Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades...”

NAME _____

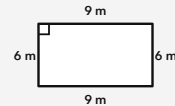
DATE _____

BUILD A MODEL

First choose the quantities that matter. Show how they are related with an equation or formula. Solve, then check whether the result fits the situation.

WORKED EXAMPLE

A school garden is the rectangle shown. How many square meters of mulch are needed to cover it?



1. Use $\text{area} = \text{length} \times \text{width}$.
2. $\text{area} = 9 \times 6$.
3. $\text{area} = 54$ square meters.

Answer: 54 square meters of mulch

PRACTICE 4 problems

- 1** A club pays \$12 for 4 snack boxes. At the same price, write a cost model for x boxes. Then find the cost for 7 boxes.

ANSWER _____

- 2** A student saves \$5 each week for a class trip. Write a total model for x weeks. Then find the total after 8 weeks.

ANSWER _____

- 3** Thirty volunteers need van seats. Each van seats 15 people. Write a seat model for x vans. How many vans are needed?

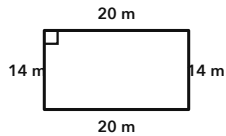
ANSWER _____

- 4** A cleanup uses 20 bags for 4 blocks. At the same rate, write a bag model for x blocks. Then find the bags needed for 3 blocks.

ANSWER _____

APPLY IT Show your work

- 1** The stage is shown. A cover costs \$3 per square meter. Model the area and cost. What is the total cost?



ANSWER _____

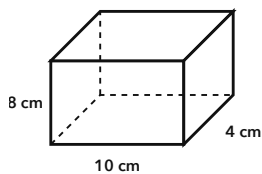
- 2** A food drive needs at least 125 cans. Boxes hold 18 cans each. What is the least number of boxes to buy?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A robotics team will pack 2 cm cube foam blocks into the battery case shown. How many blocks fit? Explain using a volume model.



WORK SPACE AND ANSWER

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A club pays \$12 for 4 snack boxes. At the same price, write a cost model for x boxes. Then find the cost for 7 boxes.	cost = $3x$; \$21
2	A student saves \$5 each week for a class trip. Write a total model for x weeks. Then find the total after 8 weeks.	total = $5x$; \$40
3	Thirty volunteers need van seats. Each van seats 15 people. Write a seat model for x vans. How many vans are needed?	seats = $15x$; 2 vans
4	A cleanup uses 20 bags for 4 blocks. At the same rate, write a bag model for x blocks. Then find the bags needed for 3 blocks.	bags = $5x$; 15 bags

PART 2 • APPLY IT

- area = $14 \times 20 = 280$ square meters; cost = $3 \times 280 = \$840$** Find the rectangular area first. Multiply 280 square meters by \$3 per square meter.
- 7 boxes, for 126 cans** Test whole boxes with $18 \times x$. Six boxes give 108 cans, while seven boxes give 126 cans.

CHALLENGE

40 blocks, because the case volume is $10 \times 4 \times 8 = 320 \text{ cm}^3$ and each block has volume $2 \times 2 \times 2 = 8 \text{ cm}^3$. Then $320 \div 8 = 40$.

Accept equivalent equations that use x for the stated quantity. Require units for all real-world answers.