

Model It Out

Use math models to make sense of real situations.

GRADE 5 • 5.MP.4

5.MP.4 "Model with mathematics."

NAME _____

DATE _____

BUILD A MODEL

A mathematical model uses numbers, operations, and labels to show what is happening in a situation. First decide what each number means, then write an equation, table, or diagram. Solve your model and check whether your answer makes sense.

WORKED EXAMPLE

Volunteers place 9 dinner rolls on each of 7 trays. How many dinner rolls do they place?

1. Choose multiplication because there are equal groups.
2. Write the model: $7 \times 9 = 63$.
3. Check: $63 \div 7 = 9$ rolls on each tray.

Answer: 63 dinner rolls

PRACTICE 6 problems

- 1** A teacher puts 12 vocabulary cards in each of 4 folders. Choose an equation or table to model the situation. How many cards are in all? Check your answer.

ANSWER _____

- 2** A reader finishes 21 pages each day. The book has 84 pages. Choose a model to find how many days it takes to finish the book. Check your answer.

ANSWER _____

- 3** Jada has \$35 for a craft project and spends \$18. Write an equation to model how much money she has left. Check your answer.

ANSWER _____

- 4** Each water bottle holds $\frac{5}{8}$ liter. Four bottles are filled completely. Model the total amount of water, then check your answer.

ANSWER _____

- 5** A runner completes 6 laps that are 1.4 miles each. Write a model for the total distance. Check your answer.

ANSWER _____

- 6** A game club puts 14 game cards in each of 5 prize bags. Choose a model to find the total number of cards. Check your answer.

ANSWER _____

APPLY IT Show your work

- 1** At a school snack stand, 8 boxes hold 15 juice drinks each. The stand sells $\frac{3}{4}$ of all the drinks. Make a model to find how many drinks are left. Explain how your model matches the situation.

WORK SPACE

ANSWER _____

- 2** Mina has \$24 to spend at a craft store. She buys 4 packs of beads for \$3.25 each and one charm for \$2.50. Make a model to find how much money Mina has left. Explain how you checked your answer.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

The school garden needs 60 seedlings. A pack of 5 seedlings costs \$3.40, and a pack of 10 seedlings costs \$6.20. The garden will buy only one kind of pack. Make a model for both choices, decide which choice costs less, and explain your reasoning.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A teacher puts 12 vocabulary cards in each of 4 folders. Choose an equation or table to model the situation. How many cards are in all? Check your answer.	$4 \times 12 = 48$ cards; check: $48 \div 4 = 12$.
2	A reader finishes 21 pages each day. The book has 84 pages. Choose a model to find how many days it takes to finish the book. Check your answer.	$84 \div 21 = 4$ days; check: $4 \times 21 = 84$.
3	Jada has \$35 for a craft project and spends \$18. Write an equation to model how much money she has left. Check your answer.	$35 - 18 = 17$; Jada has \$17 left. Check: $17 + 18 = 35$.
4	Each water bottle holds $\frac{5}{8}$ liter. Four bottles are filled completely. Model the total amount of water, then check your answer.	$4 \times \frac{5}{8} = \frac{20}{8} = 2 \frac{1}{2}$ liters; check: $2 \frac{1}{2} \div 4 = \frac{5}{8}$.
5	A runner completes 6 laps that are 1.4 miles each. Write a model for the total distance. Check your answer.	$6 \times 1.4 = 8.4$ miles; check: $8.4 \div 6 = 1.4$.
6	A game club puts 14 game cards in each of 5 prize bags. Choose a model to find the total number of cards. Check your answer.	$5 \times 14 = 70$ cards; check: $70 \div 5 = 14$.

PART 2 • APPLY IT

- 30 drinks are left.** First model the total as $8 \times 15 = 120$ drinks. Since $\frac{3}{4}$ of 120 is 90, subtract $120 - 90 = 30$.
- Mina has \$8.50 left.** Model the cost as $4 \times \$3.25 + \$2.50 = \$15.50$. Then subtract $\$24.00 - \$15.50 = \$8.50$, and check by adding $\$15.50 + \$8.50 = \$24.00$.

CHALLENGE

Buy 6 packs of 10 seedlings. The model is $6 \times \$6.20 = \37.20 . The other choice is $12 \times \$3.40 = \40.80 , so the packs of 10 cost \$3.60 less.

Accept any accurate equation, table, or labeled diagram that represents each situation. Accept equivalent fraction forms, such as $\frac{20}{8}$ for $2 \frac{1}{2}$, and correct money notation with or without a leading zero.