

Strip Diagram Steps

Show each step, then solve the unknown.

GRADE 4 • TEKS 4.5.A

4.5.A “represent multi-step problems involving the four operations with whole numbers using strip diagrams and equations with a letter standing for the unknown quantity;”

NAME _____

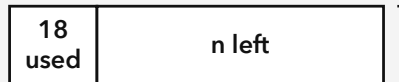
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BUILD THE STORY

Use a strip diagram to show equal groups, a whole, and parts. Use a letter, such as n , for the unknown amount in your equation. Then solve.

WORKED EXAMPLE

Seven trays hold 11 beads each. Then 18 beads are used. How many beads are left?

77 beads**77 beads in all**

1. Find the starting total: $7 \times 11 = 77$.
2. The strip shows 77 split into 18 and n .
3. Write $77 - 18 = n$.
4. $n = 59$

Answer: 59 beads

PRACTICE 4 problems

- 1** Nine packs hold 14 cards each. Five cards are lost. Draw a strip diagram. Write an equation with a letter for the unknown and find how many cards are left.



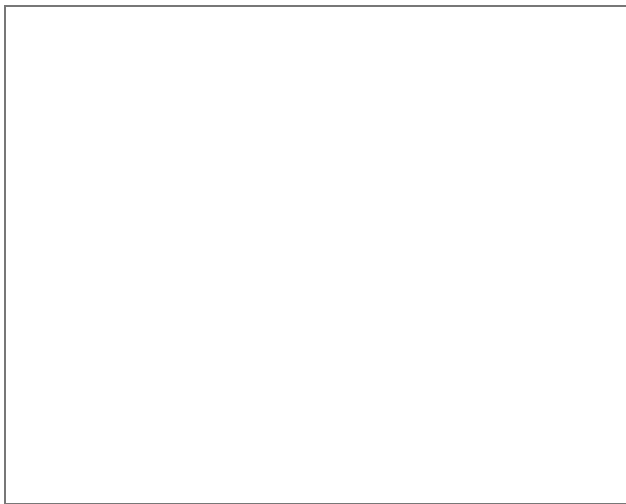
ANSWER _____

- 2** A museum has 16 display cases with 12 shells each. It adds 13 more shells. Draw a strip diagram. Write an equation with a letter for the unknown and find the total.



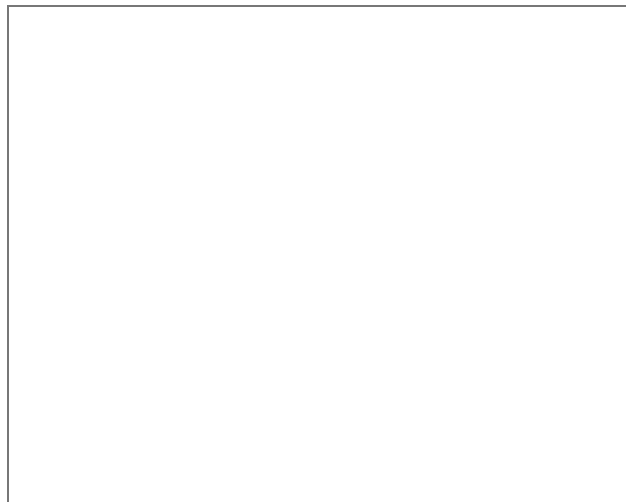
ANSWER _____

- 3** Twenty-three game boxes hold 6 tokens each. Four tokens go missing. Draw a strip diagram. Write an equation with a letter for the unknown and find how many tokens remain.



ANSWER _____

- 4** Twenty-one trays hold 10 juice boxes each. All the juice boxes are shared equally among 14 classes. Draw a strip diagram. Write an equation with a letter for the unknown and find how many each class gets.



ANSWER _____

APPLY IT Show your work

- 1** The robotics club has 25 kits with 8 gears each and uses 40 gears. Use the strip diagram to write an equation with a letter for the unknown. Find the gears left.

Gears

40 used	n left
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25 groups of 8

ANSWER _____

2

At art club, 32 packs hold 5 beads each. All beads are shared equally among 8 tables. Write a two-step equation with a letter for the unknown. Find the beads per table.

WORK SPACE

ANSWER _____**CHALLENGE** One step up

A sports store gets 25 boxes of 16 markers. It sells 31 markers, then shares the rest equally among 9 teams. Draw a strip diagram. Write an equation with a letter for the unknown and explain how many markers each team gets.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Nine packs hold 14 cards each. Five cards are lost. Draw a strip diagram. Write an equation with a letter for the unknown and find how many cards are left.	$9 \times 14 - 5 = n$; $n = 121$ cards
2	A museum has 16 display cases with 12 shells each. It adds 13 more shells. Draw a strip diagram. Write an equation with a letter for the unknown and find the total.	$16 \times 12 + 13 = n$; $n = 205$ shells
3	Twenty-three game boxes hold 6 tokens each. Four tokens go missing. Draw a strip diagram. Write an equation with a letter for the unknown and find how many tokens remain.	$23 \times 6 - 4 = n$; $n = 134$ tokens
4	Twenty-one trays hold 10 juice boxes each. All the juice boxes are shared equally among 14 classes. Draw a strip diagram. Write an equation with a letter for the unknown and find how many each class gets.	$21 \times 10 \div 14 = n$; $n = 15$ juice boxes

PART 2 • APPLY IT

- $25 \times 8 - 40 = n$; $n = 160$ gears** Find $25 \times 8 = 200$ gears at the start. Subtract 40 to get 160 gears.
- $32 \times 5 \div 8 = n$; $n = 20$ beads** Find $32 \times 5 = 160$ beads. Divide 160 equally among 8 tables to get 20 beads per table.

CHALLENGE

Strip diagram: 400 is split into 31 sold and 369 remaining, then 369 is split into 9 equal parts. $(25 \times 16 - 31) \div 9 = n$; $n = 41$ markers per team.

Accept equivalent equations that follow the story order and use n for the unknown. Strip diagrams may show equal groups first, then a whole split into parts, or an equivalent clear representation.