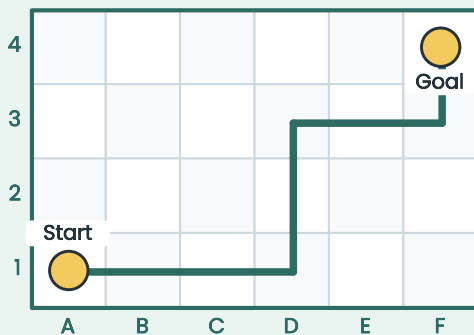


Plan Before You Solve: Multi-Step Word Problem Planner

6 complete activities from Multi-Step Math Planner, each with a worked answer.



1 Face east. Forward 3

2 Turn left, forward 2

3 Turn right, forward 2

4 Turn left, forward 1

HOW TO USE

1. Read the situation and the evidence first.
2. Show your thinking in the work boxes, not only an answer.
3. Explain how you know your answer makes sense.
4. Try the new problem at the bottom of the page.

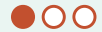
6 activities • 3 answer pages • From the 20-activity collection

10 US Letter pages • Print at 100% / Actual Size

Original Bobotemp educational printable • Fictional names, places and prices

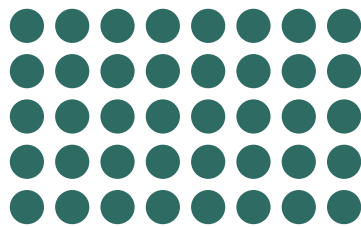
Name _____ Date _____

LEVEL 1



Read the story. Underline the final question. Write the hidden question before you compute.

The garden club plants 5 rows of tulip bulbs with 8 bulbs in each row. Overnight, squirrels dig up 6 bulbs. How many bulbs are still planted?



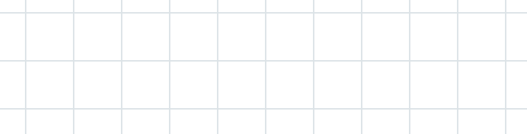
5 rows of 8 bulbs

EVIDENCE TO USE

- 5 rows
- 8 bulbs in each row
- 6 bulbs dug up

1. Write the final question in your own words.

2. Write the hidden question you must answer first.

A large, empty grid of 10 columns and 10 rows, intended for drawing a picture related to the text.

3. Solve with labeled steps and check with an inverse operation.

TRY IT • Mr. Diaz has 4 boxes of 9 crayons. 7 crayons are broken. How many crayons are not broken? Name the hidden question first.

Name _____ Date _____

LEVEL 1



Cross out any fact you do not need. Then solve with labeled steps.

Ravi packs 4 boxes of 6 markers and 3 boxes of 5 markers for art class on Tuesday. Each box is 7 inches long. He hands out 12 markers to students. How many markers are still in the boxes?

EVIDENCE TO USE

- 4 boxes of 6 markers
- 3 boxes of 5 markers
- Tuesday
- Each box is 7 inches long
- 12 markers handed out

1. Cross out each fact you do not need and tell why.

[illegible]

2. Find the number of markers in all with labeled steps.

3. Find how many markers are still in the boxes.

A blank sheet of graph paper with a grid pattern. The grid consists of 10 columns and 10 rows of squares. The paper has rounded corners and a light gray border.

TRY IT • Zoe has 5 strings of 9 beads and 2 strings of 6 beads. Each string is 20 centimeters long. She uses 15 beads. How many beads are left? Which fact is extra?

Name _____ Date _____

Tape Diagram Builder: Stamp Collections

LEVEL 2



Grade 4 bridge page. Draw a tape diagram before you compute. Use the diagram to check your answer.

Jada has 4 times as many stamps as Omar. Omar has 12 stamps. How many stamps do Jada and Omar have in all?

EVIDENCE TO USE

- Omar: 12 stamps
- Jada: 4 times as many stamps as Omar

1. Draw one bar for Omar and a bar with 4 equal parts for Jada.

2. Find Jada's stamps and label the result.

3. Find the total number of stamps and check with your diagram.

TRY IT • Pia reads 2 times as many pages as Sam. Sam reads 15 pages. How many pages do they read in all?

Name _____ Date _____

LEVEL 2



Write one equation with a letter for the unknown before you compute.

The art room has 60 paintbrushes. The teacher gives each of 4 tables 8 paintbrushes. Let b stand for the number of paintbrushes left in the supply bin. Write one equation for b , then solve it.

60 paintbrushes

8

8

8

8

4 tables $\times$ 8

- 60 paintbrushes to start
- 4 tables
- 8 paintbrushes for each table
- b = paintbrushes left in the bin

1. Write an equation that uses b .

2. Show which part you compute first and label it.

A blank sheet of graph paper with a grid pattern. The grid consists of 10 columns and 8 rows of squares. The paper has rounded corners and a light gray background.

3. Solve for b and check your answer.

[illegible]

TRY IT • The office has 75 tickets for the spring play. Each of 5 classes gets 12 tickets. Write an equation with t for the tickets left and solve it.

Name _____ Date _____

LEVEL 3



Read the student's worked plan. Find the error, name the error type, and fix it.

The gym has 150 jump ropes. 5 classes each borrow 12 jump ropes. How many jump ropes stay in the gym? Ezra's plan: $150 - 5 \times 12$. First $150 - 5 = 145$. Then $145 \times 12 = 1,740$. So 1,740 jump ropes stay in the gym.

EVIDENCE TO USE

- 150 jump ropes to start
- 5 classes
- 12 jump ropes for each class
- Ezra's answer: 1,740 jump ropes

1. Explain why 1,740 cannot be a reasonable answer.

2. Name the error type and show the correct order of steps.

A blank sheet of graph paper with a light gray background and a dark gray border. The grid consists of 10 columns and 10 rows of squares.

3. Solve correctly with labels and check.

TRY IT • Find and fix the error: A teacher has 100 stickers and gives 6 students 8 stickers each. A student wrote $100 - 6 = 94$, then $94 \times 8 = 752$.

Name _____ Date _____

LEVEL 3



This story has two hidden questions. Find them in order before you answer the final question.

The robotics club has 4 teams with 6 students on each team. Each student needs 3 sensors for a project. The club already has 50 sensors. How many more sensors does the club need to get?

EVIDENCE TO USE

- 4 teams
- 6 students on each team
- 3 sensors for each student
- 50 sensors already in the club

1. Write two hidden questions for your plan, in an order that will help you solve the problem.

[illegible]

2. Solve each step and label every result.

[illegible]

3. Answer the final question and check with a second path.

TRY IT • A choir has 3 sections with 8 singers in each section. Each singer needs 2 folders. There are 30 folders. How many more folders are needed?

1. Question Finder: Tulip Rows

LEVEL 1

34 bulbs are still planted.

WORKED REASONING • Final question: How many bulbs are still planted? Hidden question: How many bulbs were planted in all? Step 1: $5 \times 8 = 40$ bulbs planted in all. Step 2: $40 - 6 = 34$ bulbs still planted. Check: $34 + 6 = 40$ bulbs, and $40 \div 5 = 8$ bulbs in each row.

WATCH FOR • Students may compute $8 - 6 = 2$, or find $5 \times 8 = 40$ and stop. The 40 answers only the hidden question. It is the total planted, not the number still planted.

TRANSFER • Hidden question: How many crayons are there in all? $4 \times 9 = 36$ crayons in all; $36 - 7 = 29$ crayons are not broken.

2. Needed or Extra: Art Markers

LEVEL 1

27 markers are still in the boxes.

WORKED REASONING • Needed: 4 boxes of 6, 3 boxes of 5, and 12 handed out. Extra: Tuesday is a day, not an amount of markers. 7 inches is a length, not a count. Step 1: $4 \times 6 = 24$ markers in the 6-marker boxes. Step 2: $3 \times 5 = 15$ markers in the 5-marker boxes. Step 3: $24 + 15 = 39$ markers in all. Step 4: $39 - 12 = 27$ markers still in boxes. Check: $27 + 12 = 39$ markers.

WATCH FOR • Students may try to use every number, such as multiplying 7×4 or adding 7 inches. A number is needed only if it helps count markers.

TRANSFER • $5 \times 9 = 45$ beads and $2 \times 6 = 12$ beads; $45 + 12 = 57$ beads in all; $57 - 15 = 42$ beads left. The 20 centimeters is extra.

7. Tape Diagram Builder: Stamp Collections

LEVEL 2

Jada and Omar have 60 stamps in all.

WORKED REASONING • Hidden question: How many stamps does Jada have? Omar's bar is 1 unit of 12 stamps. Jada's bar is 4 units. Step 1: $4 \times 12 = 48$ stamps for Jada. Step 2: $48 + 12 = 60$ stamps in all. Diagram check: the two bars together show 5 units, and $5 \times 12 = 60$ stamps.

WATCH FOR • Students may add $4 + 12 = 16$ because they see the words in all. The word times tells you that Jada's bar is 4 copies of Omar's bar.

TRANSFER • $2 \times 15 = 30$ pages for Pia; $30 + 15 = 45$ pages in all.

8. Letter for the Unknown: Paintbrushes

LEVEL 2

$b = 28$, so 28 paintbrushes are left in the bin.

WORKED REASONING • Equation: $b = 60 - 4 \times 8$, which can also be written as $b = 60 - (4 \times 8)$. Multiply first because 4 tables $\times$ 8 brushes is the amount given out. Step 1: $4 \times 8 = 32$ paintbrushes given out. Step 2: $60 - 32 = 28$ paintbrushes left. $b = 28$. Check: $28 + 32 = 60$ paintbrushes.

WATCH FOR • Students may work left to right: $60 - 4 = 56$, then $56 \times 8 = 448$. That result is more than the 60 brushes the room started with, so it cannot match the story.

TRANSFER • $t = 75 - 5 \times 12$; $5 \times 12 = 60$ tickets given out; $t = 75 - 60 = 15$ tickets left.

13. Fix the Plan: Jump Rope Order

LEVEL 3

90 jump ropes stay in the gym.

WORKED REASONING • Reasonableness: the gym started with 150 jump ropes and lent some out, so the answer must be less than 150. That makes 1,740 impossible. Error type: order of operations, because Ezra subtracted before multiplying. Correct: $5 \times 12 = 60$ jump ropes borrowed; $150 - 60 = 90$ jump ropes stay. Expression: $150 - (5 \times 12) = 90$. Check: $90 + 60 = 150$ jump ropes.

WATCH FOR • Working strictly left to right treats $150 - 5$ as one group. In the story, 5×12 is the group that gets taken away, so the multiplication comes first.

TRANSFER • This is an order-of-operations error. Correct: $6 \times 8 = 48$ stickers given; $100 - 48 = 52$ stickers left.

14. Three-Step Story: Robotics Sensors

LEVEL 3

The club needs 22 more sensors.

WORKED REASONING • Hidden question 1: How many students are in the club? $4 \times 6 = 24$ students. Hidden question 2: How many sensors are needed? $24 \times 3 = 72$ sensors needed. Final step: $72 - 50 = 22$ more sensors. Second path: $6 \times 3 = 18$ sensors per team; $4 \times 18 = 72$ sensors needed; $72 - 50 = 22$ more sensors. Check: $50 + 22 = 72$ sensors.

WATCH FOR • Students may compute 72 sensors and stop, or subtract 50 from 24 students. The words how many more ask you to compare the sensors needed with the sensors already on hand.

TRANSFER • $3 \times 8 = 24$ singers; $24 \times 2 = 48$ folders needed; $48 - 30 = 18$ more folders.