Bar Models

Grades 2-3 · Word Problems unit, lesson 2 of 8 · Free lesson

In this pack: page 1 teacher guide · page 2 task cards (cut apart) · page 3 practice · page 4 answer key.

Common Core Standard: 3.OA.A.3 and 4.OA.A.3

3.OA.A.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. 4.OA.A.3: Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted.

OVERVIEW

Three bars run this lesson: part-whole for joining and splitting, comparison bars for gaps, and the equal groups bar for repeated amounts. Pupils pick the bar by the relationship in the story and read the equation off the drawing.

WHERE THIS GOES NEXT

- Lesson 4, Multi-Step Add and Subtract: pupils find a hidden first step first.
- Lesson 5, Multi-Step Multiply and Divide: pupils multiply or divide as step two.
- Lesson 6, Extra and Missing Information: pupils spot numbers to ignore or find.
- Lesson 7, Working Backwards and Checking: pupils undo a story from its answer.
- Lesson 8, Mixed Multi-Step Practice: pupils pick the strategy in test style stories.

MATERIALS

- The lesson slides and a document camera or board for drawing bars live
- Printed bar-builder cards (page 2 of this worksheet), scissors and pencils
- The practice page (page 3) and plain paper for pupils who draw big

DIRECTIONS

1. Teach the slides first. In the warm-up, keep the garden question hidden until the class agrees what the finished bar is saying.
2. Hand out the bar-builder cards: name the bar type, write its equation, solve it.
3. Set the practice page: A gives the bar, B is build your own, C is the frame.
4. Mark from the answer key on page 4, then give the exit ticket. For single-operation practice, pair this with the library's Multiplication Word Problems lesson.

EVIDENCE OF LEARNING

Success looks like this: the pupil names the bar type first, labels every part, places the question mark where the question points, and reads the equation off the bar.

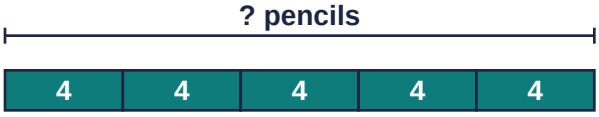
© MathClearGuide.com · Free lesson resource

Task Cards: Cut Apart and Solve

Cut along the dashed lines. For each card, name the bar type out loud, write the equation the bar shows, then solve it and write the answer.

Card 1

Pencils: 5 packs of 4 in each pack.

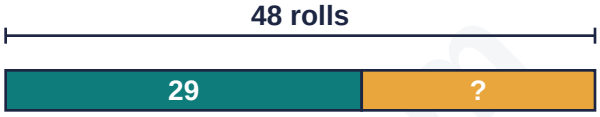


How many pencils are there in all?

_____ **Answer:** _____

Card 2

A baker made 48 rolls. 29 rolls sold.



How many rolls are left?

_____ **Answer:** _____

Card 3

Kim has 36 points. Jo has 21 points.

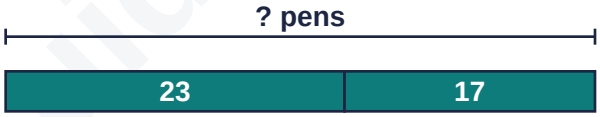


How many more points does Kim have than Jo?

_____ **Answer:** _____

Card 4

Pens: 23 red pens and 17 blue pens.

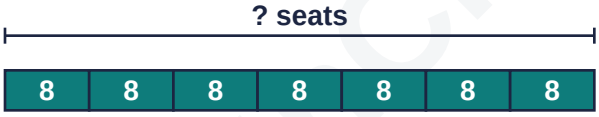


How many pens are there in all?

_____ **Answer:** _____

Card 5

Field trip: 7 vans, 8 seats in each.



How many seats are there in all?

_____ **Answer:** _____

Card 6

Omar has 52 beads. Lily has 19 fewer.



How many beads does Lily have?

_____ **Answer:** _____

Card 7

A shelf had 75 books. Now 44 remain.

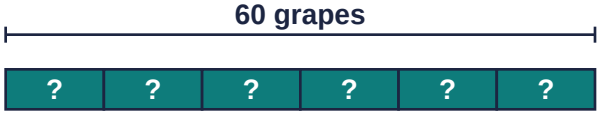


How many books were taken from the shelf?

_____ **Answer:** _____

Card 8

60 grapes shared into 6 bowls equally.



How many grapes go in each bowl?

_____ **Answer:** _____

MathClearGuide.com

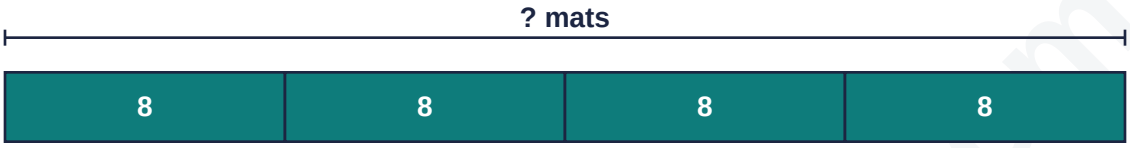
Bar Models

Name: _____ Date: _____ Class: _____

Part A - The Bar Is Drawn

Read the story, study the bar, then solve.

1. A gym stores 8 mats in each of 4 stacks. How many mats does the gym have?



Answer: _____ mats

2. Sara read 88 pages of her novel. Dan read 67 pages of his.
   How many more pages did Sara read than Dan?



Answer: _____ more pages

Part B - Build Your Own Bar

No bar is drawn this time. Build it yourself, label every part, then solve.

A parking lot has 96 spaces. In the morning 67 cars are parked there.
How many spaces are still free? Draw your bar in the empty space first.

Answer: _____ spaces are free

Part C - Say It First

Finish the frame for the parking lot story in Part B.

Say it like a mathematician:
This story needs a _____ bar because the story is about _____.
My equation is _____.

MathClearGuide.com

Answer Key - Bar Models

Bar-Builder Cards (page 2)

1. 20 pencils in all (5 x 4 = 20). Equal groups bar.
2. 19 rolls left (48 - 29 = 19). Part-whole bar.
3. 15 more points (36 - 21 = 15). Comparison bars.
4. 40 pens in all (23 + 17 = 40). Part-whole bar.
5. 56 seats in all (7 x 8 = 56). Equal groups bar.
6. 33 beads for Lily (52 - 19 = 33). Comparison bars.
7. 31 books were taken (75 - 44 = 31). Part-whole bar.
8. 10 grapes in each bowl (60 shared by 6 = 10). Equal groups bar.

Part A - The Bar Is Drawn

1. 32 mats (4 stacks of 8: 4 x 8 = 32).
2. 21 more pages (88 - 67 = 21).

Part B - Build Your Own Bar

1. 29 spaces are free (96 - 67 = 29). One whole of 96 splits into 67 parked and a missing part.
2. Part C frame: part-whole bar, because the story splits one whole. Equation 96 - 67 = 29.

Exit Ticket (from the slides)

1. Equal groups bar: 42 apples (6 x 7 = 42).
2. 35 cm (84 - 49 = 35).
3. 22 more points (77 - 55 = 22).

MathClearGuide.com