

# BAR MODELS

1. Read the Story
2. At the bottom of your work space, rewrite the question in the problem as a complete sentence leaving space for the answer.
3. Identify the “who” and “what” (units).
4. Draw a bar to model each variable.
5. Chunk the problem and adjust your unit bars to match your information. Fill in your question mark.
6. Work your computation; check.
7. Write the answer in your sentence; check.

## BAR MODELS: Explanations

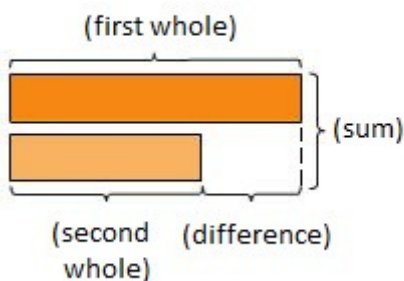
1. Read the Story
  - Do not do any math. Just read through and imagine the scene unfolding. Change names and take out numbers, if helpful.
2. At the bottom of your work space, rewrite the question in the problem as a complete sentence leaving space for the answer.
3. Identify the “who” and “what” (units).
  - The units should be taken from your answer sentence.
4. Draw a bar to model each variable.
  - Are you comparing two or more numbers?
    - Begin with a start line
    - Use one shorter bar for each number
    - Make all bars equal—(you will adjust them to fit the story in step 5)
  - Do you have a part-part-whole?
    - Use one long bar
  - If the answer to both these questions is no, try to draw a diagram of the situation.
5. Chunk the problem and adjust your unit bars to match your information. Fill in your question mark.
  - Read the story one piece at a time, stopping when any new information is given that will help you fill in your bar model. For each number, ask: Is this all of the \_\_\_\_\_ or part of the \_\_\_\_\_?
  - Once you have added information to your model, check your number (actually put a check mark over the number) and slash through the end of your phrase or sentence.
6. Work your computation; check.
  - Show all work to the side of your model
  - Check each step for accuracy
7. Write the answer in your sentence; check.
  - Is your answer reasonable?

Anatomy of a Bar Model:

ONE BAR:



TWO BARS:

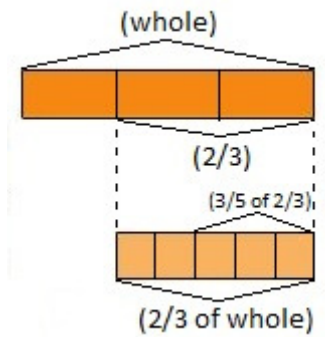


NOTES:

- ✓ These are the two types you will see most often, although there will be other set-ups depending on the problem
- ✓ Use straight lines (like a wide “v”) if brackets are confusing
- ✓ While textbooks and tests will use this format, feel free to have students put *part* numbers in the bars (I found this to be visually more helpful), then they can label the piece by its name or characteristic
- ✓ Sometimes it is helpful to put the total at the end of the bar instead—if you choose to do this, be sure your students know how to label the ones in their books as well
- ✓ Stress that when using fractions or multiples, units must be equal

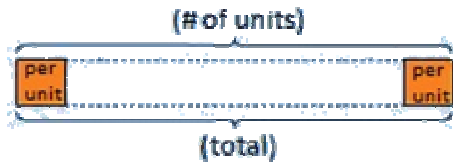
SPECIAL CIRCUMSTANCE MODELS:

Fraction of a Fraction:



Example: Susan has a garden of roses.  $\frac{1}{3}$  of her rose bushes are pink.  $\frac{3}{5}$  of the remaining rose bushes are yellow. If she has 30 rose bushes in all, how many rose bushes are yellow?

Too many bars:



Example: Joshua bought 72 sheets of stickers. Each sheet has 8 stickers on it. How many stickers did Joshua buy?