

Problem Solving Guide for 2nd Grade Math Expressions

Second grade students will be taught how to read, visualize, and solve all different problem types using addition and subtraction. The unknown quantity (number we are looking for) can be in **any** position! Students have to read carefully to understand what the problem situation is and what the question is asking them to find. **Drawings help students visualize the problem** so that they can solve it accurately. **Labels are a critical part of using these drawings as a tool to understand the problem.** Without the labels, the connection between the drawing and the problem is unclear to students, and they can be easily confused.

Math Mountain tips:

- The total (largest number in the equation) always goes at the top.
- The box is for the missing number - look in the question (last sentence of the problem).
- Label words can come directly from the problem.

Math Mountains can be used to solve the following types of problems:

Add To/Take From

There is one quantity to begin with. More are added or taken away from that quantity.

Add To example

Take From example

<p>Meena has 6 cherries. Anika gives her some more cherries. Meena has 13 cherries now. How many cherries does Anika give Meena?</p> <p><input type="text" value="7"/> _____ cherries label</p> <p>Math Mountain: 13 now 6 cherries + <input type="text" value="7"/> more = 13</p>	<p>Moses collects 17 rocks. He gives some of them away. Now he has 9 rocks left. How many does he give away?</p> <p><input type="text" value="8"/> _____ rocks label</p> <p>Math Mountain: 17 9 left - <input type="text" value="8"/> gives away = 9</p>
--	--

Put Together/Take Apart

Two or more groups are being put together (added) or taken apart (subtracted).

Put Together example

Take Apart example

<p>There are some pigs on Mr. Smith's farm. 8 of them are eating corn. The other 7 are drinking water. How many pigs are on Mr. Smith's farm?</p> <p><input type="text" value="15"/> _____ pigs label</p> <p>Math Mountain: <input type="text" value="15"/> pigs corn 8 + 7 water = 15</p>	<p>There are 13 animals at the animal shelter. 7 of them are dogs. The rest are cats. How many cats are at the shelter?</p> <p><input type="text" value="6"/> _____ cats label</p> <p>Math Mountain: 13 animals dogs 7 - <input type="text" value="6"/> cats = 13</p>
--	---

Comparison Bar tips:

- First, decide if the problem is comparing two quantities.
- If it is, decide who/what has more. Label the top box with that name/word.
- Label the bottom box with the name/word that has less.
- Label the oval either "more" or "fewer" (depending on the problem).
- Look at the question (last sentence of the problem). What are we looking for? Put a ? in the box (or oval) with that label.
- Fill in any numbers that you can find in the problem.
- Use addition or subtraction to solve for the unknown quantity.

Comparison Bars can be used to solve the following types of problems:

Comparison with larger quantity unknown

John has 8 notebooks. He has to get 6 more notebooks to have as many as Ben.
How many notebooks does Ben have?

notebooks
label

B ?
J

$8 + 6 = 14$

Comparison with smaller quantity unknown

Shane has 16 stamps. Dan has 7 fewer stamps than Shane. How many stamps does Dan have?

S
D

$16 - 7 = 9$

stamps
label

Comparison unknown

Hannah has 11 stickers. Nat has 3 stickers.
How many fewer stickers does Nat have than Hannah?

H
N

$11 - 3 = 8$

fewer stickers
label

Tips for Other Drawings:

Students may use other drawings to represent problems, especially in the case of problems with three addends (three numbers being added together). However, they **must** have the following included.

- Drawings should be simple - dots instead of trees, insects, etc.
- Drawings have to show all parts of the problem, **including the total**.
- Drawings have to be labeled with numbers **and** words from the problem.
- A box should be in the drawing to represent the unknown quantity.

There are 16 children at the playground.
Some children go home. Now there are 7 children at the playground.
How many children went home?

16 children
now leave

children
label

$16 - 9 = 7$