

Balancing Number Puzzles

A Lesson for Grade 4

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The lesson was adapted from Math Solutions publications *About Teaching Mathematics: A K–8 Resource* and *Classroom Discussions: Using Math Talk to Help Students Learn*.

Overview

In this lesson, students use their knowledge of ones, tens, and hundreds to solve balancing number puzzles. They strengthen their number sense as they apply their computation skills in addition and subtraction to find missing addends. The idea of balance is represented using drawings that show both sides in balance, similar to a pan balance, thus indicating the sides are equivalent. Students solving balancing number puzzles as a whole group and in pairs and later go on to create their own balancing number puzzles for others to solve along with possible solutions.

Materials

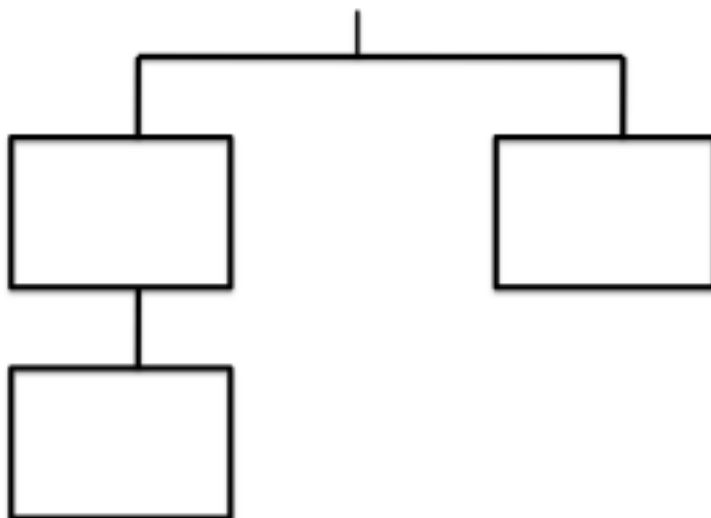
- Paper
- Optional: Base Ten Blocks

Lesson Implementation

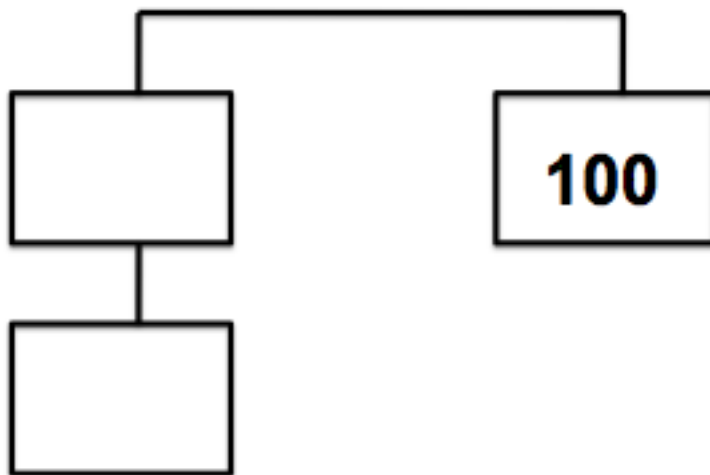
Introduction

1. Draw a number puzzle on the board. Ask students what it reminds them of. As you gather ideas, be prepared to demonstrate.

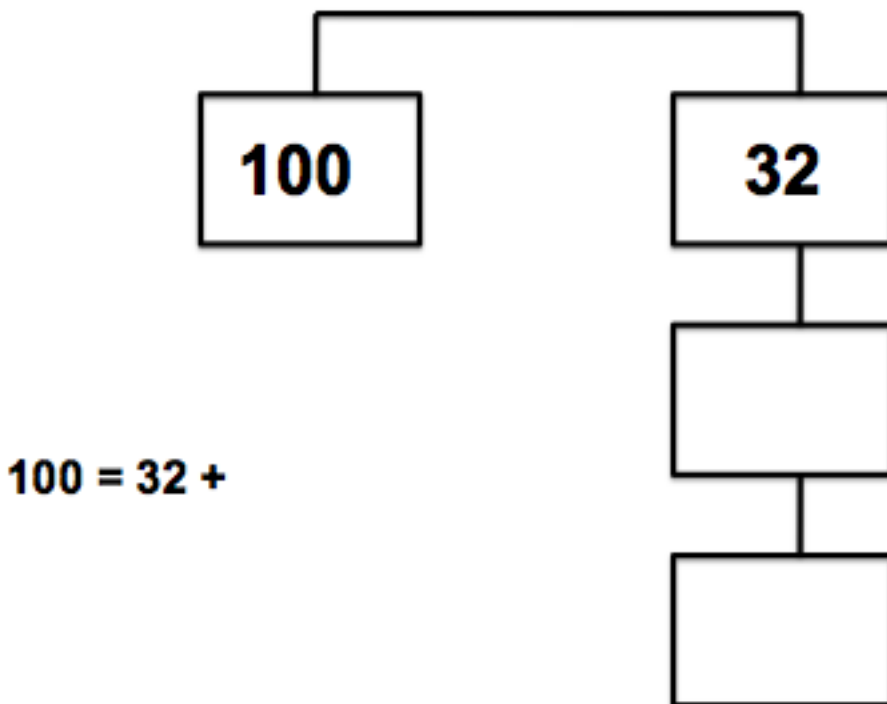
What does this remind you of?



- Record 10 in right side box. Ask students what would need to be placed on the left side to “balance” the 10. Then add a number to the left side and then ask what would go in the remaining box and how they know. Change to an “open” problem to hear how students would approach the problem.
- Change problem to have 100 on right side. Repeat earlier process for solving. Encourage mental computation. Students can check answers with base ten blocks.



- Scaffold additional problem, using a 3rd box on right side.

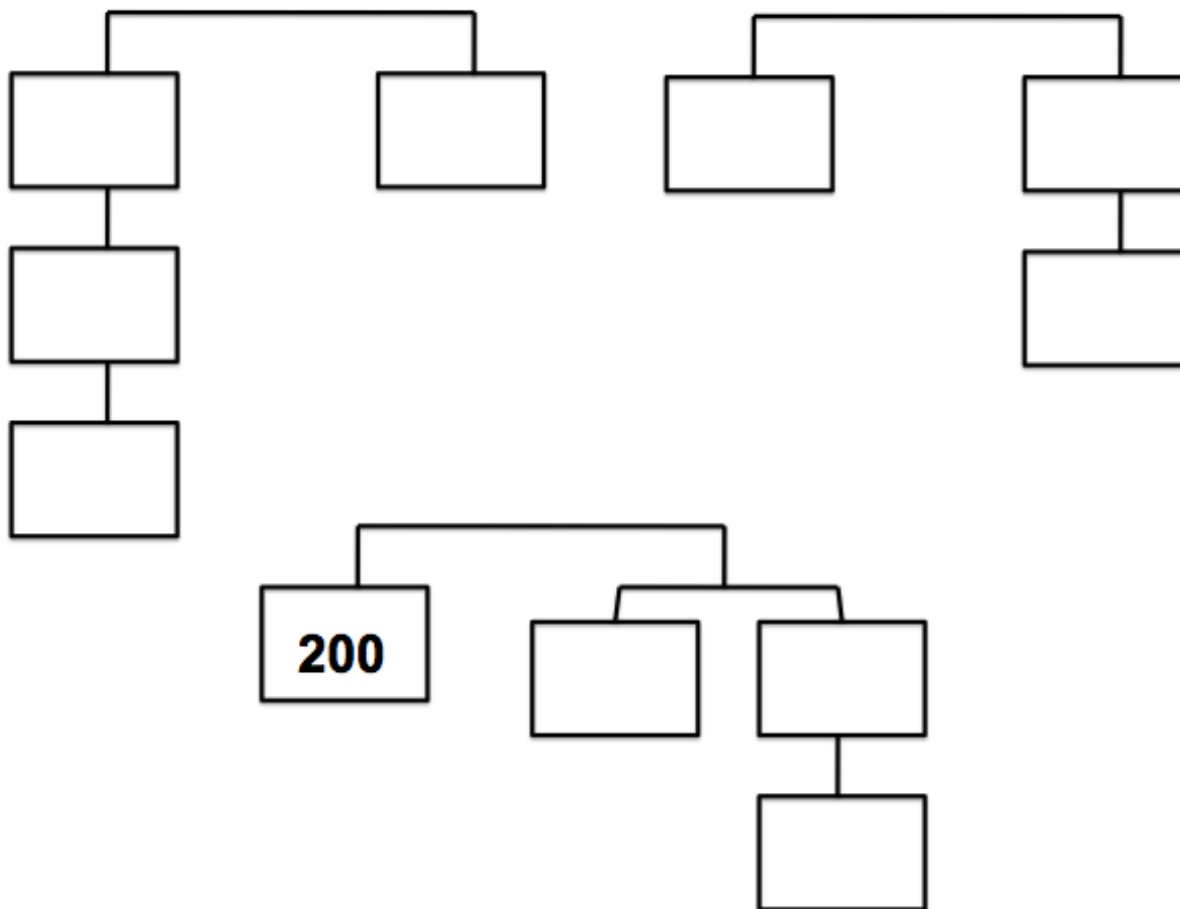


Exploration

Students work in pairs to solve problem, however, each student will have their own paper to record puzzles and answers. Depending on student success, additional problems will be offered. Students will then have a chance to create their own “open” problem for others to solve. See additional examples in “Summary” section.

Summary

Decisions will be made as students work to either use student examples to further probe group understanding, or introduce a “teacher” puzzle for further contemplation. They will be asked what information they know to solve the problem and what next steps will be. Additional puzzle examples:



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