



Part-Part-Whole Relationships

By: Lori McDonald
Elementary school teacher; Ed.D. in School Leadership/Administration

Math
Grades K-2



Introduction

This is a lesson designed to introduce the concept of part-part-whole relationships to first graders. Through several engaging activities, students will experiment with putting two groups, or “parts”, together to make a “whole”. This lesson includes a whole-group activity and a partner activity, as well as independent work and evaluation.

Learning Objectives

[CCSS.MATH.CONTENT.1.OA.C.6](#)

- Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. Use strategies such as counting on.
- Making ten (e.g., $8 + 6 = 8 + 2 + 4 = 10 + 4 = 14$)
- Decomposing a number leading to a ten (e.g., $13 - 4 = 13 - 3 - 1 = 10 - 1 = 9$);
- Using the relationship between addition and subtraction (e.g., knowing that $8 + 4 = 12$, one knows $12 - 8 = 4$)
- Creating equivalent but easier or known sums (e.g., adding $6 + 7$ by creating the known equivalent $6 + 6 + 1 = 12 + 1 = 13$).

Materials Needed

- Connecting cubes
- Red/yellow counters, [part-part-whole mat](#), and dry-erase markers
- [Printed exit ticket](#)

Procedure

Warm up – While gathered together at the carpet, call certain students up to the front to stand. Call some boys and some girls. Ask the class how many girls and how many boys there are (keeping boys and girls separated into groups). Then, ask students to identify how many students there are in the whole group. Emphasize to students that “part” of the group is boys and “part” of the group is girls, and that those two parts go together to make the “whole”. Repeat this a few times with other groups of students. Finish this activity by including all the boys and all the girls in the class to determine how many students there are in the class.

Continued on page 2



Part-Part-Whole Relationships

By: Lori McDonald
Elementary school teacher; Ed.D. in School Leadership/Administration

Math
Grades K-2



Continued from page 1

1. After completing the warm-up activity, put students in pairs. Give each pair some connecting cubes in two different colors (ex.: 3 green and 4 blue for one group, 5 red and 5 orange for another group, etc.). Ask each group to identify what their two groups are, identifying the two groups by color to begin. Then, ask each pair of students how many they have in each part. Next, have each group determine how many they have in their whole group of connecting cubes. Allow each pair of students to share with the whole class how many they have in part, part, and whole.
2. As students share this information with the class, the teacher will begin writing the addition problems on the board. For example, for the group that has 3 green and 4 blue with 7 altogether, write $3 + 4 = 7$ on the board.
3. Next, ask students to change the order of their connecting cubes. For example, if they had green first and then blue, have them switch it so that the blue is first. Ask students to count the cubes to see if that changed the whole number of cubes that they have. Of course, students will discover that the whole number remains the same. Then, write the other problem on the board ($4 + 3 = 7$), demonstrating that the parts in an addition problem can be added in any order and the whole remains the same.
4. Now students will return to their desks/tables to work independently. Give each student a set of red/yellow round counters and a part-part-whole mat.
5. It is helpful if your part-part-whole mats are laminated so students can use dry erase markers on them.
6. Tell students to put some of their counters on yellow and some on red. Place one group in the first “part” box and the other group in the second “part” box. Then, have students push all their counters into the “whole” box. Have students record their addition problems at the bottom of the mat. Monitor and provide guidance as students work. They should continue to create more problems with their counters.
7. While students work, this is an excellent time for the teacher to pull any struggling students over to a separate area for some re-teaching.

Evaluation

As a formative assessment, have each student complete the exit ticket.