

THINKING WITH NUMBERS

Lesson Descriptions

Joining With The Start Unknown

Some everyday situations involve joining, but you do not know both parts. For example, suppose you had some money in a piggy bank and your grandmother told you she added \$8. If you have \$10 now, you can figure out that you started with \$2. This problem can be represented by $__ + 8 = 10$. These problems are difficult for children because it is a joining problem, which makes them think addition, but they do not know what to start with. The solution process, although there is joining, is a subtraction process because you know the whole and one part and are trying to find the other part. This problem can also be represented by $10 - 8 = __$. Children will recognize that counting up, using ten, or using known facts are often more efficient than counting to find the answer. These problems are also a perfect opportunity for children to recognize relationships among parts and the whole and between addition and subtraction.

$$\text{part 1} + \text{part 2} = \text{whole}$$

$$\text{part 2} + \text{part 1} = \text{whole}$$

$$\text{whole} - \text{part 1} = \text{part 2}$$

$$\text{whole} - \text{part 2} = \text{part 1}$$

Expected content outcomes include helping children learn:

- to recognize joining can be represented by addition, but also by subtraction,
- to use numbers, the plus or minus sign, and equals signs to represent a joining situation with both addition and subtraction number sentences, and
- to recognize these missing part situations in everyday life.

