

Solution to Arithmetic Sequence Puzzle

The unique solutions to the puzzle are shown in the diagram below. When working with these puzzles or with arithmetic sequences in general, it is important to keep in mind that all "jumps" from number to number must be equal in size. (The more sophisticated way to say it is that the rate of change is a constant number, but speaking in terms of "equal jumps" helps children build an intuition for the sequences and to distinguish them from other types of sequences, such as geometric sequences: 2, 4, 8, 16, 32 . . .) When a child is reasoning about what numbers would fill in the following blanks to make an arithmetic sequence:

5, ____, ____, 26

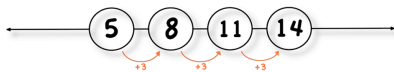
she may see that it takes three "jumps" to get from 5 to 26. If the total distance of all three jumps is 21, then each jump must be 7. So then we can start at 5 and add 7 on each time:

5, 12, 19, 26

By the way, it is not so easy for most children to see that it takes three jumps (rather than two) to get from 5 to 26. Children often see that there are two numbers between 5 and 26 and confuse that with the idea of the *distance* between them. The same confusion often arises when young children work with rulers or number lines, and it goes away with experience.

Arithmetic Sequence Puzzles

The diagram below shows a sequence of numbers formed by adding the same number over and over again each time. (This sort of sequence is called an "arithmetic sequence" and the number added on each time is called the "common difference.")



Fill in the bubbles below so that each line of the puzzle contains an arithmetic sequence.

