How do we solve problems recursively?

Recursive advice:

DO NOT OVERTHINK THE SOLUTION.

This is probably the most common pitfall of devising recursive solutions. It frequently comes from trying to work your way up from the base case to the recursive case. Take the towers of Hanoi problem.

It's not hard to solve the base case. 2 disks is also easy. Then you start projecting forward to figure out 3, 4, etc.

After getting the base case down, it's a good idea to *think big*.

Think about the problem that's so big you would never try to write it out step by step.

What about 64 disks in towers of Hanoi?

Easy, move 63 disks to the middle, move 1 to the end, then 63 disks from the middle to the end. OK, but how do we solve 63 disks? DON'T WORRY ABOUT IT. Trust in the force, and by the force, I mean recursion.